Sustainable Fisheries Management Plan for the Sarangani Bay and Sulawesi Sea

REGION 12, PHILIPPINES

SUBMITTED BY THE USAID OCEANS AND FISHERIES PARTNERSHIP

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About this Document

The *Sustainable Fisheries Management Plan for the Sarangani Bay and Sulawesi Sea* is an Ecosystem Approach to Fisheries Management (EAFM) Plan for the the Sarangani Bay and parts of the Sulawesi Sea that comprise the provinces of South Cotabato, Sarangani, and Sultan Kudarat, including Cotabato City and General Santos City (SOCCSKARGEN)—also known as Region 12 in the Philippines' 16 administrative regions. This document is intended to provide a framework for fisheries management within the Sarangani Bay-Sulawesi corridor for adoption and implementation by relevant governmental agencies, local government units, non-governmental partners, academic and research institutions, and the fishing industry sector that altogether will benefit from effective fisheries management and biodiversity conservation in SOCCSKSARGEN and other regions of the Philippines.

This document has been developed through a collaborative and participatory multi-stakeholder process, including USAID Oceans, the Bureau of Fisheries and Aquatic Resources Regional Office 12 Technical Working Group for Ecosystem Approach to Fisheries Management (BFAR-EAFM TWG), the technical staff of local government units (LGUs) within the SOCCSKSARGEN, and other stakeholders who attended a series of workshops held to craft and refine the plan into its current form.

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Submitted by: John Parks, Chief of Party, USAID Oceans
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COR Name: Cristina Vélez Srinivasan

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ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AFF	Agriculture, Forestry and Fisheries
AFMA	Agriculture and Fisheries Modernization Act
AHFF	Agriculture, Hunting, Forestry and Fishing
ALS	Alternative Learning Schools
ARD	Assistant Regional Director
ASEAN	Association of Southeast Asian Nations
BAC	Bureau Administrative Circular
BET	Bigeye Tuna
BFAR	Bureau of Fisheries and Aquatic Resources
BIR	Bureau of Internal Revenue
BMB	Biodiversity Management Bureau
BoatR	Municipal Fishing Vessels and Gears Registration
CDT	Catch Documentation and Traceability
CDTS	Catch Documentation and Traceability System
CENRO	City Environment and Natural Resources Office
CFLC	Community Fish Landing Center
CHED	Commission on Higher Education
CNFIDP	Comprehensive National Fisheries Industry Development Plan
COP	Chief of Party
CPUE	Catch Per Unit Effort
CRM	Coastal Resource Management
CSO	Civil Society Organization
DA	Department of Agriculture
DAO	Department Administrative Order
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
DepEd	Department of Education
DO	Dissolved Oxygen
DOST	Department of Science and Technology
DSWD	Department of Social Welfare and Development
DTI	Department of Trade and Industry
EAFM	Ecosystem Approach to Fisheries Management
EEZ	Exclusive Economic Zone
EO	Executive Order
ESWM	Ecological Solid Waste Management
EU	European Union
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organization (also Fisheries Administrative Order)
FARMC	Fisheries and Aquatic Resources Management Council
FCEG	Fisherfolk Children Educational Grant
FishR	Municipal Fisherfolk Registration
FGD	Focus Group Discussion
FMRED	Fisheries Management, Regulatory and Enforcement Division
FMU	Fisheries Management Unit
FPSSD	Fisheries Production and Support Service Division
FSP	Fisheries Scholarship Program
GAD	Gender and Development
GFI	Government Financial Institution
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GRDP	Gross Regional Domestic Product
GSC	General Santos City
GSFPC	General Santos Fishing Port Complex
HUC	Highly Urbanized City
IEC	Information, Education and Communications
IPOA	International Plan of Action

IRA	Internal Revenue Allocation
IUU	Illegal, Unreported and Unregulated (fishing)
JAO	Joint Administrative Order
KII	Key Informant Interview
Km	Kilometer
LCE	Local Chief Executive
LGC	Local Government Code
LGU	Local Government Unit
MA	Municipal Agriculturist
MARINA	Maritime Industry Authority
M&E	Monitoring & Evaluation
MCS	Monitoring, Control and Surveillance
MENRO	Municipal Environment and Natural Resources Office
MOA	Memorandum of Agreement
MOOE	Maintenance and Other Operating Expenses
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MPDC	Municipal Planning and Development Coordinator
MPDO	Municipal Planning and Development Office
MSU	Mindanao State University
MT	Metric Tons
NAMRIA	National Mapping and Resource Information Authority
NEDA	National Economic and Development Authority
NFRDI	National Fisheries Research and Development Institute
NGA	National Government Agency
NGO	Non-Governmental Organization
NHA	National Housing Authority
NIPAS	National Integrated Protected Area System
NPOA	National Plan of Action
NPPSC	NIPAS Policy and Program Steering Committee
NSAP	National Stock Assessment Project
NSCB	National Statistical Coordination Board
OCAG	Office of the City Agriculturist
OG	Oil and Grease
OMAG	Office of the Municipal Agriculturist
O&M	Organization and Management
OPAG	Office of the Provincial Agriculturist
PACBARMA	Protected Areas Community-Based Resource Management Agreement
PAGASA	Philippine Atmospheric Geophysical and Astronomical Services Administration
PAMB	Protected Area Management Board
PASu	Protected Area Superintendent
PCRA	Participatory Coastal Resource Appraisal
PDP	Philippine Development Plan
PFDA	Philippine Fisheries Development Authority
PIA	Philippine Information Agency
PNP	Philippine National Police
PO	People's Organization
PP	Presidential Proclamation
PPDO	Provincial Planning and Development Office
PSA	Philippine Statistics Authority
RA	Republic Act
RAFMS	Rapid Appraisal of Fisheries Management System
RDP	Regional Development Plan
RFMO	Regional Fisheries Management Organization
RPOA-IUU	Regional Plan of Action to Promote Responsible Fishing Practices Including Combating IUU Fishing in the Region
SB	Sangguniang Bayan
SBPS	Sarangani Bay Protected Seascape
SCW	Stakeholder Consultation Workshop

SDGs	Sustainable Development Goals
SEAFDEC	Southeast Asian Fisheries Development Center
SFFAII	SOCSKSARGEN Federation of Fishing and Allied Industries, Inc.
SFMP	Sustainable Fisheries Management Plan
SOCSKSARGEN	South Cotabato, Sultan Kudarat, Sarangani and General Santos City
SOCCSKSARGEN	South Cotabato, Cotabato, Sultan Kudarat, Sarangani and General Santos City
SP	Sangguniang Panlalawigan
SPZ	Strict Protection Zone
SSS	Sulu Sulawesi Seas
STP	Sewage Treatment Plant
SWM	Solid Waste Management
TESDA	Technical Education and Skills Development Authority
TWG	Technical Working Group
UNCLOS	United Nations Convention on the Law of the Sea
US	United States
USAID	United States Agency for International Development
USAID Oceans	USAID Oceans and Fisheries Partnership
VMS	Vessel Monitoring System
YFT	Yellow Fin Tuna

GLOSSARY OF TERMS

Adaptive management – A systematic process for continually improving management policies and practices toward achieving articulated goals and objectives by learning from the outcomes of those previously employed. The basic steps of adaptive management are to conceptualize; plan actions and monitor; implement actions and monitor; analyze, use, and adapt; and capture and share learning. Active adaptive management is where management options are used as a deliberate experiment for the purpose of learning (Millennium Ecosystem Assessment 2006).

Bycatch – The species caught, whether retained or not, that is not the main target of the fishery.

Ecological well-being – It shows the state or condition of an ecological system as measured by indicators related but not limited to fishery resources production, pollution reduction and, habitat protection and restoration.

Ecosystem approach (EA) – A strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way. Often used interchangeably with Ecosystem-based management (EBM) (CBD 2000).

Ecosystem approach to fisheries management (EAFM) – An approach to fisheries management and development that strives to balance diverse societal objectives by considering the knowledge and uncertainties about biotic, abiotic, and human components of ecosystems and their interactions, applying an integrated approach to fisheries within ecologically meaningful boundaries. An EAFM is a practical way to implement sustainable development for the management of fisheries by finding a balance between ecological and human well-being through good governance. The purpose of EAFM is to plan, develop, and manage fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems (Garcia et al. 2003; Food and Agriculture Organization 2003, 2011).

Ecosystem approach to fisheries management plan (EAFM plan) – The output of a planning framework that outlines the integrated set of management arrangements for a fishery to generate more acceptable, sustainable, and beneficial community outcomes.

Ecosystem-based management (EBM) – A management framework that integrates biological, social, and economic factors into a comprehensive strategy aimed at protecting and enhancing the sustainability, diversity, and productivity of natural resources. EBM "emphasizes the protection of ecosystem structure, functioning, and key processes; is place-based in focusing on a specific ecosystem and the range of activities affecting it; explicitly accounts for the interconnectedness among systems, such as between air, land, and sea; and integrates ecological, social, economic, and institutional perspectives, recognizing their strong interdependencies." Sometimes used interchangeably with EA (McLeod et al. 2005).

Fisheries management – An integrated process to improve the benefits that society receives from harvesting fish consisting of (i) information gathering, (ii) analysis, (iii) planning, (iv) consultation, (v) decision making, (vi) allocation of resources, and (vi) formulation and implementation—with enforcement as necessary—of regulations or rules which govern fisheries activities in order to ensure the continued productivity of the resources and accomplishment of other fisheries objectives.

Food security – The availability of consistent and sufficient quantities of food, access to appropriate and sufficient foods, and consumption or appropriate use of basic nutrition and food preparation.

Governance or governance system – The way formal and informal rules are set and implemented. It includes the planning and implementation mechanisms and the processes and institutions through which citizens and governing groups (institutions and arrangements) voice their interests, mediate differences, exercise their legal rights, and meet their obligations.

Human well-being – It shows the state or condition of individuals directly or indirectly affected by the operation of an ecosystem as measured by indicators related but not limited to economic aspects, local capacities, safety at sea, resiliency and food security.

Indicator – A variable, pointer, or index that measures the current condition of a selected component of the ecosystem. The position and trend of the indicator in relation to a benchmark indicates the present status of the component. Indicators provide a bridge between objectives and action.

Livelihood – "How we make our living, the things we use, and the choices we make to ensure that our lives run as we like." A sustainable livelihood, then, is a livelihood that "can continue into the future despite any changes and disasters and without losing that which makes the livelihood possible. This may include food production or being prepared for natural disasters. It is important to remember that income generation may be just one part of a livelihood" (Govan 2011).

Management area – The spatial extent of the land and/or water that is identified for management integration. Management areas, which should be as large as possible, may fall under the jurisdiction of one or more local communities, local governments, provincial or national governments, or a combination of all of these. Management areas are ideally defined by ecological boundaries, resource use patterns, and governance jurisdictions. Examples of management areas include seascapes, marine protected area (MPA) networks, and fisheries management areas (FMAs). Examples of zones within managed areas include various types of MPAs, various types of FMAs, various types of land-based protected or management areas, and others.

Management goal – A broad statement of a desired outcomes; are usually not quantifiable and may not have established timeframes for achievement.

Management measures – Specific controls applied to achieve the management objective, including gear regulations, areas and time closures (see MPA), and input and output controls on fishing effort.

Management objective – A description of a set of activities that, once completed, will achieve the desired outcome. Objectives can be quantified and measured and, where possible, have established timeframes for achievement.

Management plan – An explicit set of rules governing how to apply the principles and framework of natural resource management in a given area. This plan may be adapted to changes in the natural and social environment or upon the basis of new information about how a system functions. It may or may not have a legal basis for implementation.

Marine Protected Area (MPA) – A clearly defined geographical space—recognized, dedicated, and managed through legal or other effective means—to achieve the long-term conservation of nature with associated ecosystem services and cultural values. MPAs include a wide variety of governance types (including community-based areas) and include but are not limited to marine reserves where no extraction is permitted (Dudley 2008; IUCN-WCPA 2008).

Milestone – A step or event that, if achieved, indicates progress toward the completion of an activity and/or objective. "Milestone" is sometimes interchanged with "benchmark."

Monitoring, control and surveillance (MCS) – The overall process and set of activities used to ensure laws, rules, and regulations are complied with.

Objective – What is intended to be achieved. An objective should be linked to indicator(s) against which progress can be measured. Positive or negative change resulting from the achievement of an objective is an outcome.

Operational objective – A short-term objective achievable through management intervention.

Outcome – The change in status, attitude, or behavior that results from a set of management activities. An outcome should be able to be tracked through measurement and/or observation over time.

Stakeholder – Any individual, group, or organization with an interest (or a "stake") in, or who/that can affect or is affected (positively or negatively) by a process or management decision.

Sustainable development – Development (improvement in human well-being) that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable use – The harvesting of natural resources that does not lead to long-term decline of the resource and biodiversity, thereby maintaining its potential to meets the needs of the present without compromising the ability of future generations to meet their own needs.

EXECUTIVE SUMMARY

The Sustainable Fisheries Management Plan (SFMP) of Sarangani Bay and Sulawesi Sea (SB-SS) is a framework for an ecosystem approach to managing the highly productive yet vulnerable fisheries of this large marine ecosystem, known to be one of the richest fishing grounds for tuna and the large and small pelagic fish in the Philippines. The SFMP is an updated version of an earlier working draft crafted out of the workshop, "Towards Improved Fisheries Management and Biodiversity Conservation in Southern Mindanao: Stakeholder Validation and Initial Crafting of a Sustainable Fisheries Management Plan," that was held in General Santos City in February 2017. The present, final draft of the SFMP has been updated out of two EAFM workshops, held in October 2017, October 2018, and October 2019.

This SFMP was developed using an EAFM framework and around the vision that the: "Sarangani Bay and adjoining marine waters in Sulawesi Sea have healthy and ecologically balanced fisheries that are properly governed and provide socio-economic benefits that are equitably shared among all stakeholders." The SFMP goals include:

- Restored fisheries, fish habitats and clean and healthy environment;
- Improved quality of life in coastal communities with the FMA; and
- A governance that is responsive and accountable, transparent and engaged with stakeholders in its plans and implementation.

Structurally, this plan is divided into ten chapters. Chapters One and Two provide the vision for fisheries management of Sarangani Bay and Sulawesi Sea and the planning background and context, including the rationale and planning process involved in crafting the SFMP. It also provides the site background with a synopsis of the current physical, ecological, socio-economic, and fishery resource situation, including the institutional and policy/legal framework of fisheries governance and coastal resources management within the SOCCSKSARGEN fisheries management area (FMA).

Chapter Three highlights the major fisheries issues and problems, divided into ecological, human well-being and governance clusters. Chapter Four presents the EAFM goals according to the three clusters, each goal was developed to address priority issues and problems, while Chapter Five presents the objectives, indicators and benchmarks in relation to the goals in the previous chapter. The proposed management actions that will be undertaken to address the critical fisheries problems and issues in the FMA are presented in Chapter Six, and Chapter Seven describes the institutional arrangements needed in the implementation of the SFMP, particularly the establishment of an appropriate Organization and Management (O&M).

Chapter Eight outlines the mechanisms toward sustainable implementation of the SFMP, including community empowerment, capacity building and sustainable financing. Chapter Nine outlines the implementation and communication strategy to bring the SMF plan to all stakeholders once formally adopted. The final chapter, Chapter Ten, provides a mechanisms for the monitoring and evaluation (M&E) and review of the SFMP implementation, meant to evaluate how the management actions perform in terms of achieving its goals and objectives. The plan's M&E system provides the documentation and reporting system, evaluation/performance indicators, and tracking progress in achieving the goal, objectives and targets of the SFMP through time, and also to provide accurate and timely feedback to the implementing units/organizations.

CHAPTER 1. INTRODUCTION

1.1 Objectives and Vision for the Sustainable Fisheries Management Plan

The Sustainable Fisheries Management Plan was crafted according to the following vision for the Sarangani Bay and the adjoining waters of Sulawesi Sea (Celebes Sea):

"The Sarangani Bay and adjoining marine waters in Sulawesi Sea have a healthy and ecologically balanced fisheries that are properly governed and provide socio-economic benefits that are equitably shared among all stakeholders."

The plan's vision was originally developed through a stakeholder validation workshop held by the USAID Oceans and Fishers Partnership (USAID Oceans) in General Santos City, Philippines, February 2017, titled "Towards Improved Fisheries Management and Biodiversity Conservation in Southern Mindanao: Stakeholder Validation and Initial Crafting of a Sustainable Fisheries Management Plan." By framing this vision, workshop participants recognized that in achieving "healthy and ecologically balanced fisheries," adopting an Ecosystem Approach to Fisheries Management (EAFM) mechanism is vital to ensuring sustainable fisheries resources and achieving long-term food security within the Sarangani Bay and the adjacent waters of Sulawesi (or Celebes) Sea.

1.2 Rationale for Crafting the Sustainable Fisheries Management Plan

The crafting of the Sustainable Fisheries Management Plan (SFMP) for Sarangani Bay and the adjoining waters of Sulawesi Sea was led by USAID Oceans and the Bureau of Fisheries and Aquatic Resources (BFAR) Regional Office 12 as part of its mandate to mainstream an EAFM, stated in RA 10654 and highlighted in Fisheries Office Order (FOO) No. 164, series of 2016). An earlier office order (FOO 2016-116) created a Technical Working Group (TWG) in each fisheries management area (FMA) to carry out mainstreaming of EAFM to complement the integrated coastal management (ICM) programs implemented by local government units (LGUs). Sarangani Bay and the adjoining waters of Sulawesi Sea serve as the major fishing ground of Region 12 or SOCCSKSARGEN, where the ever increasing demand for tuna and other pelagic fish poses grave threats to the sustainability of the seascape's fisheries and associated livelihoods for thousands of fishers in the region.

An EAFM provides a broader framework for management of marine resources to achieve sustainable development goals through improved ecological and human well-being and good governance. The EAFM approach ensures protection and restoration of aquatic habitats, improved water quality and waste management, sustainable harvesting of fishery resources which lead to food security, sustainable livelihoods, and improved quality of life among fisherfolk. Applying an EAFM is considered a 'best practice' in most countries and regional organizations in Southeast Asia for long-term sustainability of fisheries and the ecosystem services they provide to society. It is considered to be the best option left to manage vulnerable fisheries in the Sarangani Bay and Sulawesi Sea (SB-SS) seascape where overfishing, habitat degradation, overcapitalization, and inadequate environmental governance threaten the livelihoods of artisanal fishers, food security, and ecological integrity of the fishing grounds.

This SFMP is aligned with the "Sub-Regional Ecosystem Approach to Fisheries Management Plan for the Sulu-Sulawesi Seascape," that was endorsed by the Coral Triangle Initiative for Coral Reefs, Fisheries, and Food Security (CTI-CFF) in December 2018, and covers Indonesia, Malaysia, and the Philippines. The SFMP shall also be linked with key national plans such as the Comprehensive National Fisheries Industry Development Plan (CNFIDP) (DA-BFAR 2016), the National Plan of Action (NPOA) to prevent, deter, and eliminate IUU fishing (EO 154 of December 2013), and the National Tuna Management Plan of the Philippines (DA-BFAR 2012). The SFMP is also in line with the provisions of the 2016 Revised Fisheries Code (RA 10654) and FOO 2016-164. This SFMP forms part of the priority of President Duterte's administration as contained in the Philippine Development Plan (2017-2022) which is to pursue an EAFM. At the regional level, this SFMP shall be aligned with the SOCCSKSARGEN Regional Development Plan (RDP) 2017-2022, and is linked with the Fisheries Annex of the Protected Area Management Plan (PAMP) of the Sarangani Bay Protected Seascape (SBPS), as well as the development or resource management plans of the municipal/provincial LGUs.

1.3 Development of the Sustainable Fisheries Management Plan

The development of the SFMP was facilitated by the BFAR-EAFM Technical Working Group with assistance from USAID Oceans. The SFMP planning process was initiated in September 2016, during USAID Oceans' Technical Session and Launching of Site Activities in General Santos City (Table 1). The development process—from beginning to end—has been a participatory and collaborative process among many organizations and partner agencies. Particularly relevant are BFAR 12, Department of Environmental and Natural Resources (DENR) 12, the provincial government, and municipal LGUs. The planning process followed the EAFM framework (Figure 1) and combined the outputs of the rapid appraisal of fisheries management system (RAFMS). Overall, the planning process was participatory, transparent, and based on the best available information to create a plan that aligns with other plans at the sub-regional, national, and local levels.

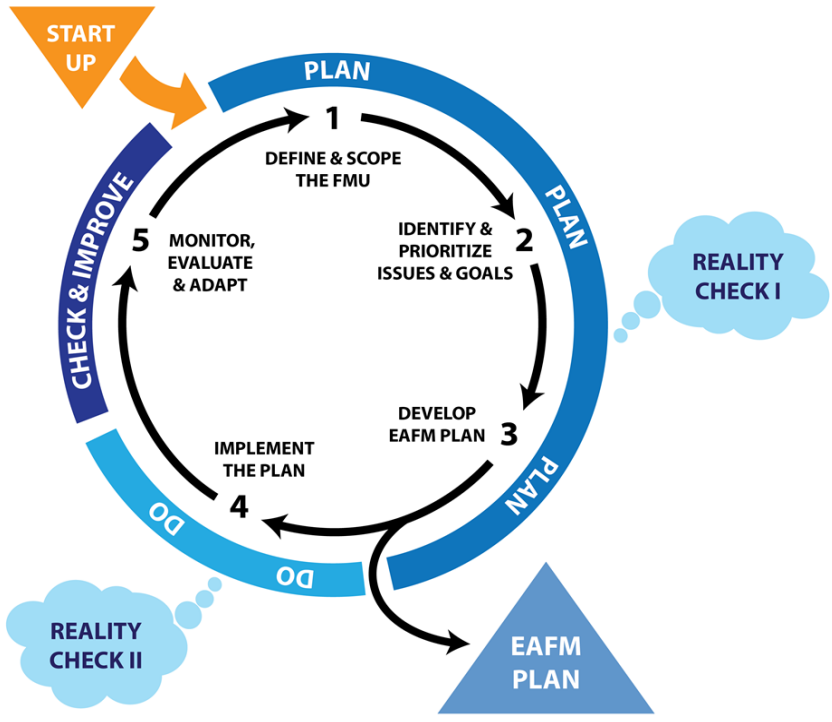


Figure 1. Five Steps of the EAFM process

Source: Pomeroy et al., 2013; Staples et al., 2014

The formal process started with the Stakeholder Workshop "Towards Improved Fisheries Management and Biodiversity Conservation in Southern Mindanao: Stakeholder Validation and Initial Crafting of a Sustainable Fisheries Management Plan" that was held in General Santos City, February 2017,[1] This workshop served to identify management issues and opportunities to inform the SFMP. Consequently, a working draft of the SFMP was developed between February and June 2017. This working draft was used as input to the EAFM Planning Process Workshop held in General Santos City in October 2017.

Table 1. Key dates in crafting the SFMP for Sarangani Bay and Sulawesi Sea

Date	Planning Activity Process
March 2016	USAID Oceans courtesy meetings and initial engagement with local partners including BFAR 12 and DENR 12
30 August 2016	Visit of USAID Oceans Team to DENR 12/BFAR 12 during the 18th National Tuna Congress
2 September 2016	Launching of USAID Oceans with BFAR 12 Presentation and DENR 12 SBPS presentations
21–23 February 2017	Towards Improved Fisheries Management and Biodiversity Conservation in Southern Mindanao: Stakeholder Validation Workshop and Initial Crafting of a Sustainable Fisheries Management Plan
January – June 2017	Crafting of 'Working Draft' of SFMP
23-27 October 2017	EAFM Planning Workshop Mainstreaming Ecosystem Approach to Fisheries Management Planning Workshop for Sarangani Bay-Celebes Sea
25-26 October 2018	Workshop on Review and Finalization of the Sustainable Fisheries Management Plan for Sarangani Bay and Sulawesi Sea
17 December 2018	Coordination meeting and data consolidation with BFAR 12 and Oceans
11 February 2019	Workshop on Presentation of the Sustainable Fisheries Management Plan for Sarangani Bay and Sulawesi Sea
February-May 2019	Refinement and finalization of the Draft SFMP, printing/publication, and planning for plan implementation

The October 2017, "EAFM Planning Workshop for Crafting the Sarangani Bay and Sulawesi Sea Fisheries Management Plan," was held with the BFAR-12 EAFM TWG and stakeholders in General Santos City, furthering the working draft of the SFMP. The EAFM approach recognizes that effective fisheries management includes proper integration of various elements such as marine biodiversity conservation, enhancement of coastal ecosystem services, and improvement of livelihood of fishing households. A composite team of EAFM experts from the BFAR Central Office and Region 12 spearheaded the training, as well as the workshop for crafting this SFMP while USAID Oceans provided additional technical and logistical support. Some 72 participants (37 males and 35 females) coming from the LGUs, NGAs, civil society organizations (CSOs), fishing industry players, NGOs, and the academe attended the event (Annex 1).

A "Workshop to Review and Finalize the SFMP for Sarangani Bay and Sulawesi Sea" was held in October 2018, attended by some of the crafters of the original EAFM Plan led by BFAR-12 and participants from LGUs of Sarangani and Sultan Kudarat provinces, and the cities of General Santos and Cotabato City (Annex 2). The workshop was attended by 37 participants (27 males and 10 females) consisting of the EAFM TWG members, LGU representatives of SOCCSKSARGEN, CSOs,

[1] *Philippines Stakeholder Validation Workshop Proceedings,* USAID Oceans, 2017. www.seafdec-oceanspartnership.org/resource/philippines-stakeholder-validation-workshop-proceedings

NGOs, fishing industry players, and USAID Oceans. Through a facilitated discussion the group went through a thorough review of the content and format of the draft EAFM Plan and agreed to call it the "Sustainable Fisheries Management Plan for Sarangani Bay and Sulawesi Sea." The group also realized the need to update some of the data and statistics included in Chapter 2 (Site Background). This task fell on the BFAR 12-EAFM TWG and a schedule was set for a technical team to put together an updated profile on the socio-economic, ecological, and fisheries resource status of Sarangani Bay and contiguous waters of Sulawesi Sea, covering the fishing grounds of Moro Gulf for coastal municipalities of Sultan Kudarat and Cotabato City. A coordination meeting was also organized by USAID Oceans on December 17, 2018 attended by technical staff of BFAR 12, the National Stock Assessment Program (NSAP), and the Provincial Fisheries Officer to accomplish this task and plan for the final review workshop.

On February 11, 2019 the revised SFMP was presented to the stakeholders in a "Back-to-Back Workshop on Presentation of the Sustainable Fisheries Management Plan for Sarangani Bay and Sulawesi Seas and Progress Monitoring on the Approved Fisheries Annex of the SBPS Protected Area Management Plan," by Mr. Glenn Padro, member of the EAFM TWG. The workshop was attended by 58 participants (40 males and 18 females), consisting of the EAFM TWG members, LGU representatives of SOCCSKSARGEN, CSOs, NGOs, fishing industry players and USAID Oceans (Annex 3). In a plenary, workshop the questions, comments, and suggestions for refinement of the plan were consolidated into this final plan document.

Workshop for the Presentation of the Sarangani Bay and Sulawesi Seas Sustainable Fisheries Management Plan, General Santos City, February 11, 2019

CHAPTER 2: SITE BACKGROUND AND FISHERIES PROFILE OF REGION 12

This chapter describes the relevant site background and brief profile of SOCCSKSARGEN's (Region 12) area, including its physical features, socio-economic setting, fishery resources, and the region's institutional context and policy or legal framework. SOCCSKSARGEN stands for the region's four provinces and one of its cities: South Cotabato, Cotabato, Sultan Kudarat, Sarangani and General Santos (the other four cities are Cotabato City, Kidapawan, Koronadal, and Tacurong), which are grouped into seven congressional districts. Region 12 consists of 45 municipalities and 1,192 barangays. All the provincial and municipal LGUs within Region 12 are economically dependent on agriculture, forestry, and fisheries (AFF).

Data and information included in this chapter were liberally taken from existing literature that generally cover the entire SOCCSKSARGEN or Administrative Region 12. These include the regional fisheries profile for Region 12 (BFAR 12 2015b), fisheries statistics from the BFAR 12-NSAP data (BFAR 12 2015a), the regional profile as contained in the Regional Development Plan (NEDA 12 2017). Additional information was obtained from the results of the RAFMS, conducted by the WorldFish (WorldFish 2017a, WorldFish 2017b, WorldFish 2017c, WorldFish 2017d, WorldFish 2017e and WorldFish 2017f) under contract by USAID Oceans. Other information was obtained from the municipal profiles as well as fisheries/coastal resource management (CRM) plans. Those that are taken from other references are duly cited.

2.1 The Sarangani Bay - Sulawesi Sea Fisheries Management Area

Sarangani Bay is one of the Philippines' richest bays in terms of marine biodiversity and fishery resources. It covers the six coastal municipalities (Alabel, Malapatan, Glan Maasim, Kiamba, and Maitum) of Sarangani Province and GSC, which is a highly urbanized city of South Cotabato. It forms part of the Sarangani Bay Protected Seascape (SBPS), which is the second largest MPA in the country. The SBPS was declared as a protected area under Presidential Proclamation No. 756 (05 March 1996) with an original area was 215, 950 ha that was later expanded to 218,639.54 ha (LEP-DENR 12 2015). On June 22, 2018, Republic Act 11038 known as the Expanded National Integrated Protected Area System (ENIPAS) finally established SBPS as a national protected area with an area of 210,887.69 ha.

Sarangani Bay is adjoined by Celebes Sea (also known as Sulawesi Sea) of the western Pacific Ocean, located southwest of the island of Mindanao. The FMA straddles Region 12's coastal provinces of South Cotabato, Sultan Kudarat, and Sarangani. North Cotabato, the region's fourth province, is landlocked. Celebes Sea is bordered on the north by the Sulu Archipelago and Sulu Sea and Mindanao Island that form part of the exclusive economic zone (EEZ) of the Philippines. The FMA then extends until the agreed demarcation line between the Philippines and Indonesia. The combined marine area of Sarangani Bay and adjoining waters of Moro Gulf and Sulawesi Sea (also known as Celebes Sea) serve as the FMA for the SOCCSKSARGEN and this SFMP (Figure 2).

BFAR's Fisheries Administrative Order (FAO) 263 series of 2019 is a policy that guides the establishment of FMAs across the archipelago toward the goal of sustainable fisheries management. The geographic coverage of this SFMP is part of the broader FMA No. 3. The exact geographical extent of the FMA and coordinates are defined in FAO 263, and extend from Illana Bay southwards towards Celebes Sea and the Indonesian border within the EEZ or national jurisdiction of the Philippines.

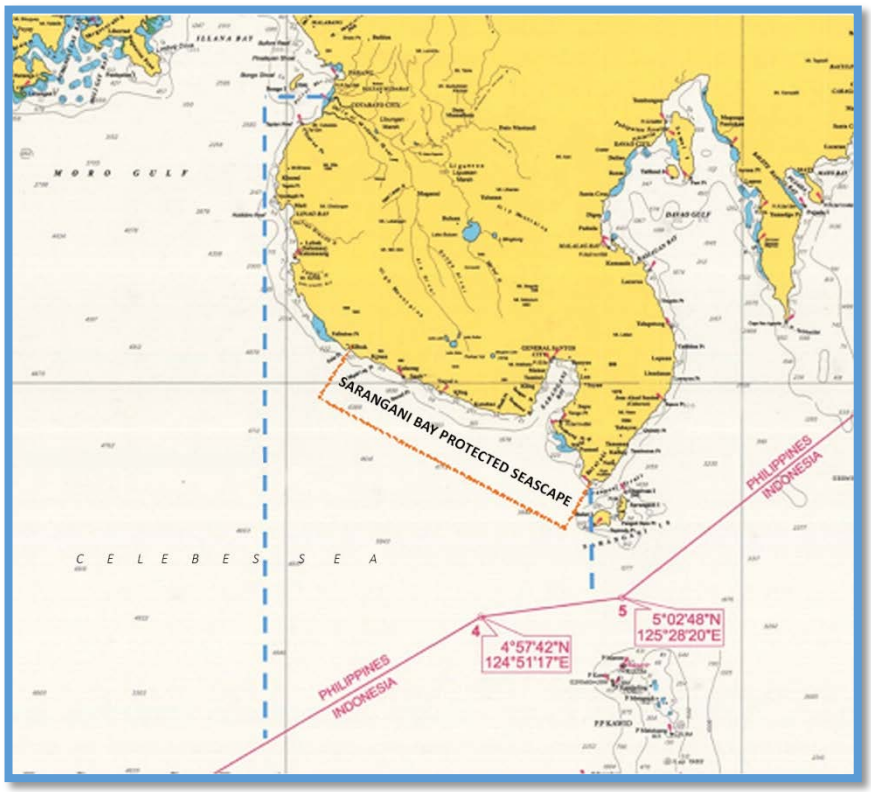


Figure 2. FMA Map showing the Sarangani Bay Protected Seascape (SBPS), part of Moro Gulf and Celebes Sea, Sarangani Bay, and the Philippines-Indonesia maritime boundary

Source: Philippines-Indonesia Exclusive Economic Zone Boundary Map from the Department of Foreign Affairs, with SBPS drawn in.

2.2 Area and Coastal Ecosystems of SOCCSKSARGEN Region

Strategically situated at the heart of Mindanao, SOCCSKSARGEN covers a land area of some 19,166 km^2 (Figure 3), roughly 17% of Mindanao's total land area. Cotabato has the largest land area at 6,020 km^2 while Sultan Kudarat has the smallest at 4,401 km^2. Among the five cities, General Santos has the biggest land area (669 km^2) and Tacurong has the smallest (162 km^2). Region 12's extensive coastline stretches to 320 km.

The geographical extent of marine habitats are largely associated with the length of the coast line. The rich and diverse fisheries are associated with the health of these three major marine habitats that include coral reef, seagrass bed, and mangrove forest. The SBPS has a total coral reef area of 2,449.297 ha with the largest area found in Glan (862.80 ha) and Maasim (619.57 ha), while Malapatan has the smallest coral reef area of 140.73 ha (Figure 4). Dominant genera of coral reefs include: *Acropora*, *Goniopora*, *Dimicploastera*, *Favites, Monitpora* and *Porites*. On the average these coral reefs range from fair to good condition (PAMB 2017 cited by PAMP-Fisheries Annex Final Draft, June 2017), possibly a result of marine protection and improved management (Figure 5). A total of 23 marine protected areas (MPAs) had been established across the seven LGUs (Figure 6), protecting about 770.75 ha (34.1%) of reefs. At least 98 species of reef fish were recorded inside the Kamanga Marine Sanctuary (DENR-BMB/GIZ 2016) in Maasim with average biomass of 61.2 mt/km^2.

Both species richness and biomass are considered high values based on reef fish indicators (Hilomen et al. 2000).

Figure 3. Administrative map of Region 12

Source: NAMRIA; NEDA 12)

Mangroves inside the SBPS have a total cover of 331.74 ha mostly found in Glan (103.15 ha), while seagrass beds cover an area of 1,411.30 ha (DENR 12-CRFMS, 2016) most of which is found in Kiamba (564.98 ha). Meanwhile, the dominant genera of mangrove include *Avicennia* (*piapi*), *Rhizophora* (*bakawan*) and *Sonneratia* (*pagatpat*). Eleven out of 16 naturally occurring species of seagrass in the Philippines are found in the Bay. The most common genera of seagrasses include *Cymodocea*, *Enhalus*, *Halodule*, *Halophila* and *Thalassia*. The highest seagrass diversity was found in Glan with 8 species including the rare species of *Thalassodendron ciliatum* (DENR 12, 2016).

Very limited data are available on the state of coastal ecosystems in other parts of Region 12. Results of the recent DENR assessments of marine habitats of Kalamansig (Figure 7) and Palimbang (Figure 8) in Sultan Kudarat province on the Moro Gulf side of SOCCSKSARGEN show very healthy coral reefs with an average hard coral cover generally good (32-42%) to excellent (55%) based on the latest benchmarks proposed by Licuanan et al. (2017). Reef fish communities comprise of 20 families with high average density of 2,246 fish/1000m^2 dominated by small damselfish (*palata*), although food fishes such as surgeonfish (*indangan*, *labahita*) and fusiliers (*dalagang bukid*) are also abundant. Fish population in Kalamansig reefs had steadily declined between 2003 and 2015 but increased in 2017 in most sites possibly due to improved protection and law enforcement. Five MPAs with an aggregate area of 111.26 ha had been locally declared in Kalamansig. In addition to fish, megafauna such as marine turtles, whale sharks, and marine mammals such as whales, dolphins, and dugong are widely distributed in the bay. Three marine turtle hatcheries have been in established in Maasim and Maitum, and another identified in Glan.

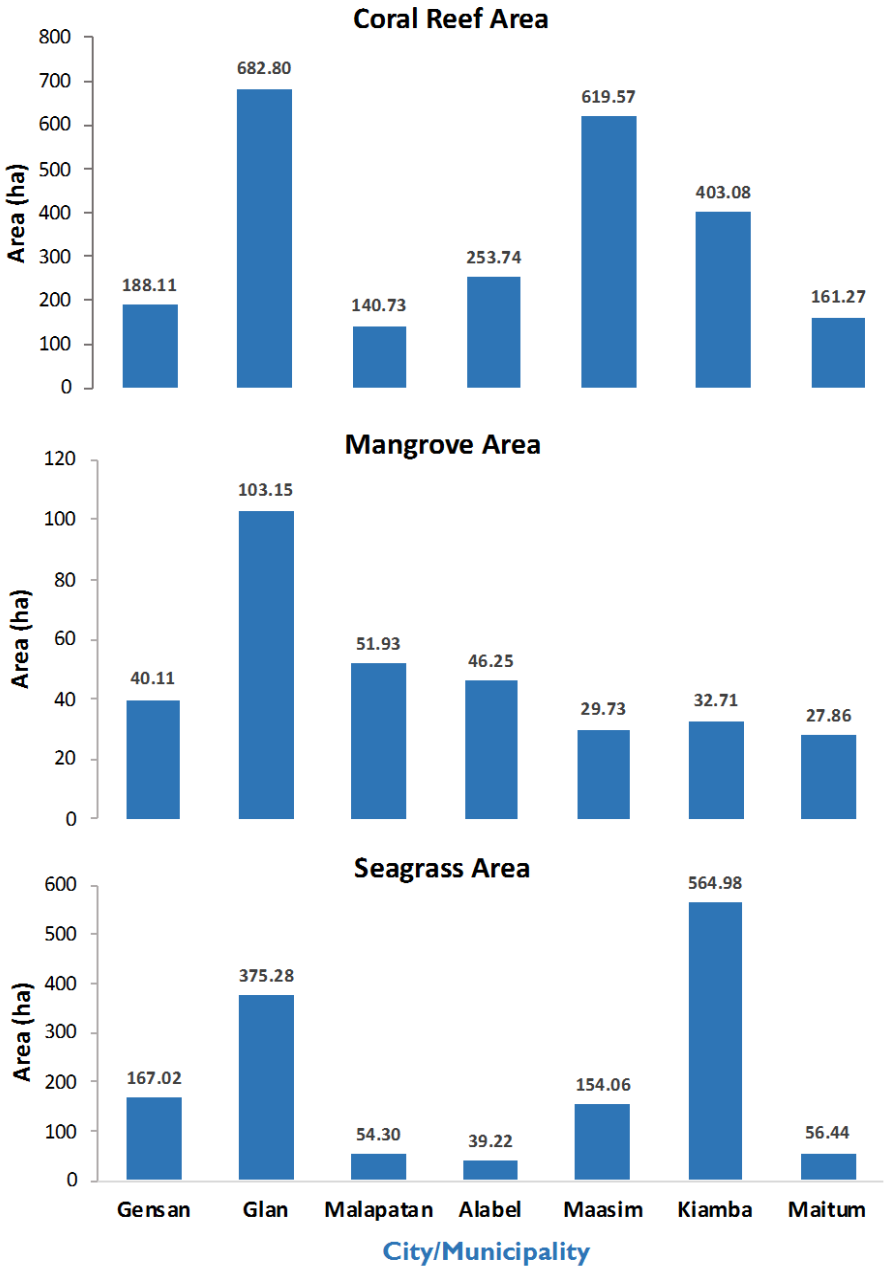


Figure 4. Comparative area of municipalities' major coastal ecosystems in the Sarangani Bay Protected Seascape

Source: 2015-2016 data from DENR 12-Coastal Resources and Foreshore Management Section-CRFMS. Accessed February 13, 2019.

Figure 5. Photographs from DENR-12 underwater assessment

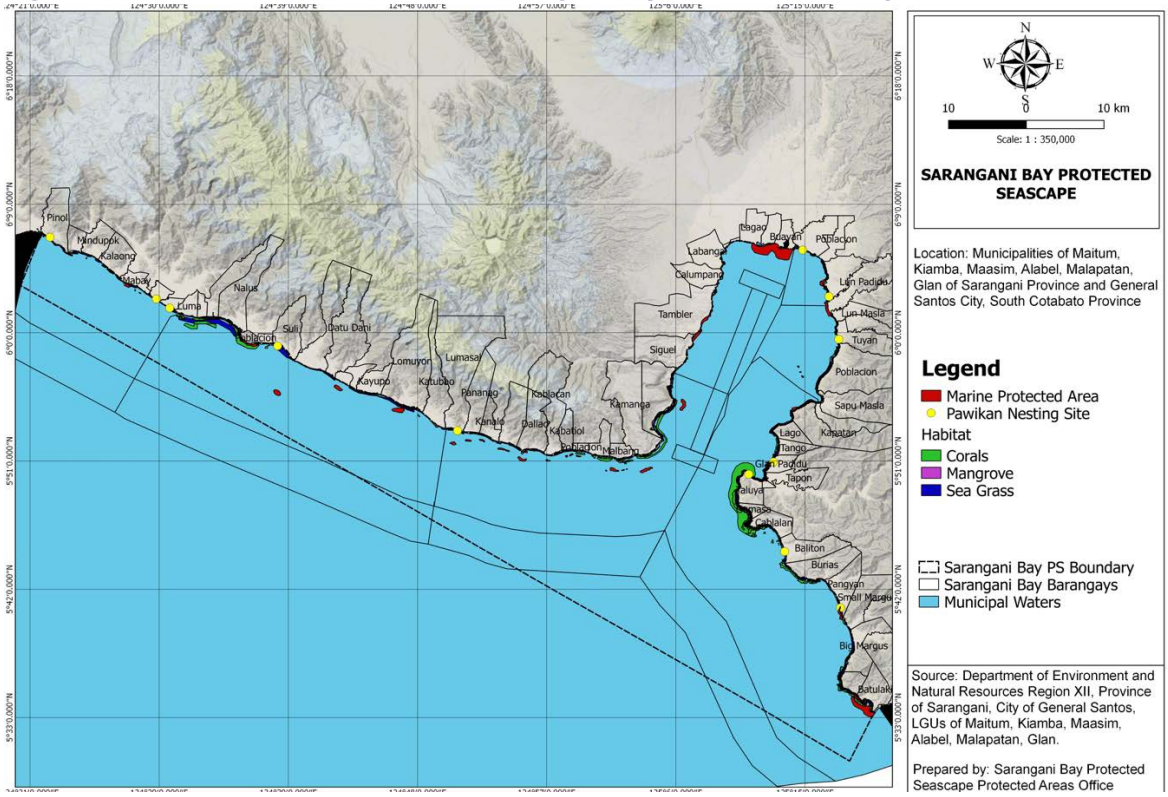
Source: DENR-12, 2016

The latest underwater assessment, conducted in 2015 by DENR-12 staff, shows healthy coral reefs, natural mangroves, and seagrasses still abound, including the rare seagrass, Thallassodendron ciliatum (bottom middle) while marine mammals such as whales are often sighted.

The Environmental Monitoring Bureau of DENR-12 has established 39 water quality monitoring stations across the Sarangani Bay Water Quality Management Area (SB-WQMA) which it monitors on a quarterly basis (Figure 9). The coastal waters within Sarangani Bay are classified as either Class SB (for fishery/maricultural purposes for human consumption) or Class SC (for spawning areas or fish/shellfish and recreational purposes) based on DENR standards or water quality guidelines (WQG) (DAO 2016-08). Results of the 2018 WQ analysis conducted in the BFAR laboratory show that overall, the marine water quality of Sarangani Bay remains generally good (SB and SC), though some parts have localized pollution, particularly in the dense population centers of General Santos City and the GSC port area. These are in terms of some parameters like low DO levels (< 5mg/L), high fecal coliform (>100 MPN), and high oil and grease (OG) levels.

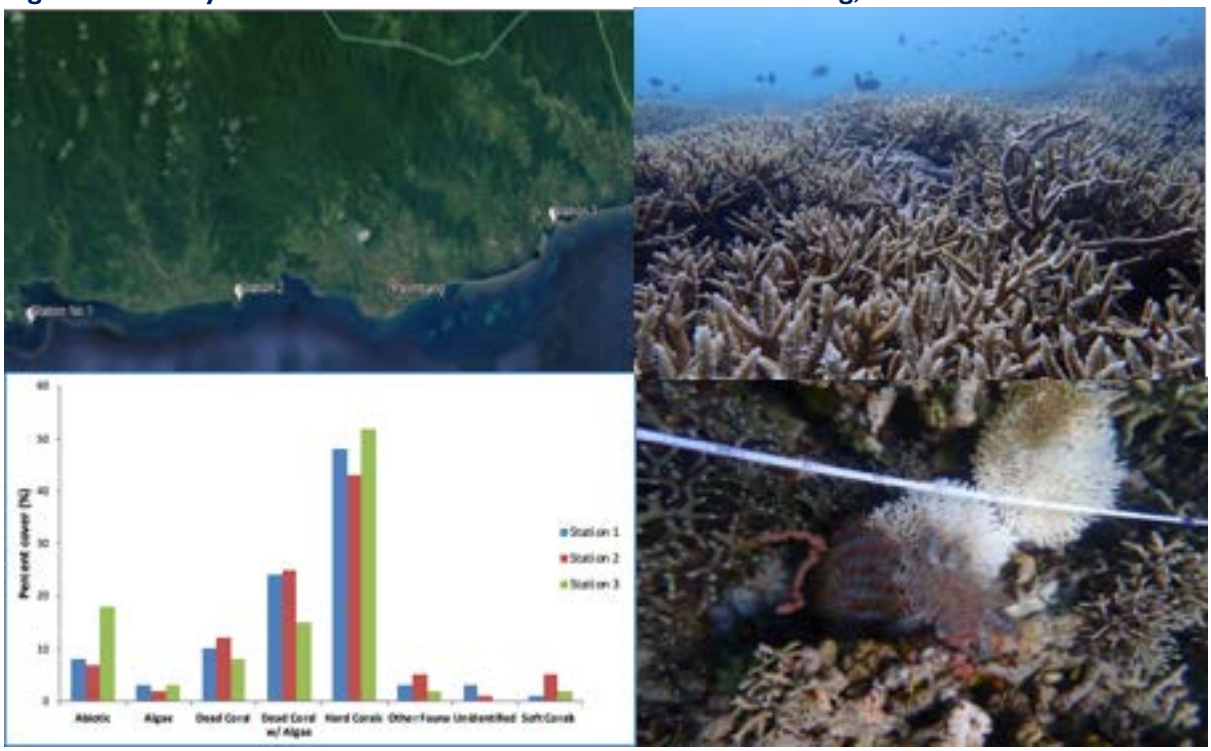
The climate in SOCCSKSARGEN is generally classified by PAGASA as type IV. As such, rainfall is evenly distributed throughout the year and has no distinct dry season. This rainfall pattern contributes to high production level of agriculture in these parts. The weather is monsoonal whereby the northeast monsoon starts from November and ends up in March. Meanwhile, the southwest monsoon covers the period from June to October.

Figure 6. Location of MPAs across the Sarangani Bay Protected Seascape



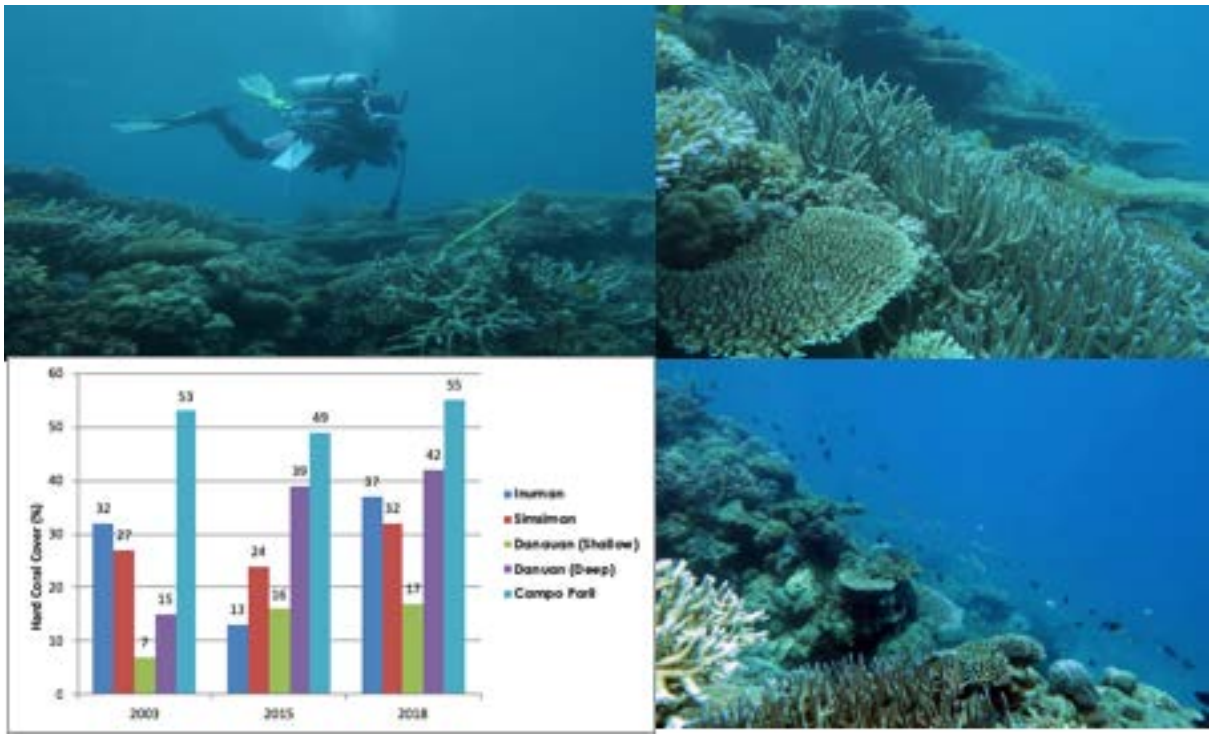
Source: PAMB 2019

Figure 7. Healthy condition of coral reefs inside MPAs in Kalamansig, Sultan Kudarat



Source: DENR-12, 2018

Figure 8. Recent assessment of the coral reefs of Palimbang, Sultan Kudarat



Source: DENR-12, 2018

Figure 9. Stations across the SBPS established for annual water quality monitoring by the DENR-EMB

Source: PAMB, 2019

2.3 Socio-Economics

The region's total population was estimated at 4,545,276, as of August 2015. The population growth rate was computed at 1.94% during the period 2010-2015. The 2015 Gross Regional Domestic Product (GRDP) was recorded at PhP3.3 Billion. The GRDP Growth Rate was 5.0% from 2015-2016 while the Average Growth Rate in Agriculture, Hunting, Forestry and Fishing (AHFF) was at 9.5% in 2015-2016. Given its natural endowment, SOCCSKASARGEN Region has great potentials for high levels of agriculture production, tourism development, energy generation and other resource-based industries (NEDA Region 12 2010). The region has world-class facilities, such as the General Santos International Airport and the General Santos Fishing Port Complex in support of agriculture and fisheries development. The AFF sector decreased from 31.7% in 2010 to 26.5% in 2015 (NEDA-12 2015). This section provides an overview of the area's other socio-economic information, including a profile of fishing households, the fish port, and its markets and value chain.

2.3.1 Profile of Fishing Households

There are 82,546 registered fishers (both male and female) from Region 12 as of February 09, 2017. The majority come from South Cotabato with 26,869 registered fishers (32.6%), presumably most are residents of GSC. Most of the registered fisherfolk (70%) are males (55,383) as compared with 24,798 females largely engaged in fish processing. The number of registered boats during the same period is 8,612 units majority (40%) of which are from Sarangani province. Workers are grouped into three major sectors, namely: AFF, industry, and services sector. Workers in the AFF sector comprised the largest proportion of the population who are employed, however, this sector grew by only 1.4% annually within the 2010-2015 period (NEDA 2016).

In terms of the regional poverty incidence, 31 out of 100 families in Region 12 are poor (NEDA 2017). Although poverty incidence among families dropped from 37.1% in 2012 to 30.5% in 2015 the proportion of families and population living below the poverty threshold is still high in the provinces of Sarangani and Sultan Kudarat (Table 2). Subsistence incidence (that is, those who cannot afford to buy enough food) is also high in the two provinces. In fact, Sarangani province belongs to the bottom poor provinces in the country (PSA 2016). Moreover, the highest poverty incidence in the region was among fishers at 47.3% in 2006 (NEDA 12 2010; NSCB XII). Region 12 had also one of the highest underemployment rate (close to 30%) in the country in 2016, indicating that a good part of the population (e.g. small fishers) do not earn enough from their employment.

Although tuna fisheries are traditionally a male-dominated industry, women are heavily engaged in certain nodes of the tuna value chain. In the canning factories, most women work in assembly lines. Women do most of the processing activities. Trading is done by both: women are primarily involved in small-scale ventures while men are mostly engaged in medium-scale and large-scale trading activities. Overall, women are most commonly involved in the processing, trading, and vending activities while men are largely responsible for the actual catching or fishing (WorldFish 2017b).

Table 2. Poverty statistics of SOCCSKSARGEN (Region 12) in 2015

Region/Province	Annual Per Capita Poverty Threshold (PhPesis)	Poverty Incidence (%)		Annual Per Capita Food Threshold (PhPesos)	Subsistence / Food Incidence (%)	
		By Family	By Population		By Family	By Population
Region 12 average	21,025	30.5	37.3	14,593	15.5	20.4
North Cotabato	20,555	34.5	41.4	14,328	17.7	22.7
Sarangani	20,753	47.3	55.2	14.472	26.8	33.4
South Cotabato	22,147	19.8	24.6	15,436	7.8	10.4
Sultan Kudarat	20,620	39.2	48.0	14,403	24.8	32.6
Cotabato City	21,825	24.7	31.6	15,137	7.1	10.1

Source: PSA, 2016

2.3.2 General Santos City Fish Port Complex

Situated in Barangay Tambler, the General Santos City Fish Port Complex (GSFPC) is a 32-ha modern fisheries port facility located within the GSC Agrotext Economic Zone (Figure 10). This is the largest industrial fisheries center in the southern Philippines that caters to both small-scale and commercial fishers. The daily landings at GSC Fish port are second highest in the nation (after Navotas in Metro Manila). The Philippine Fisheries Development Authority (PFDA) oversees its operations.

In 2018, total of vessel arrivals at the GSFPC was 14,249 (average monthly vessel arrival of 1,187 units). This value is an aggregate of commercial (n=7,443) and municipal (n=6,760) fishing vessels and foreign reefer vessels (n=46). Vessel arrivals in 2018 were lower than in 2016 (16,755) and 2017 (16,463). Despite this decline in vessel arrivals the volume of fish unloading at the fishport in 2018 was higher at 241,056 MT at an average 660.43 MT per day than in 2016 and 2017.[2] Among the top species unloaded in the fish port in 2018 were skipjack tuna, yellowfin tuna, round scad, and bullet tuna. In 2018, the average number of boats coming to port daily was about 40, which fish within the Philippine EEZ and from as far as the high seas pockets of the Western and Central Pacific Ocean.

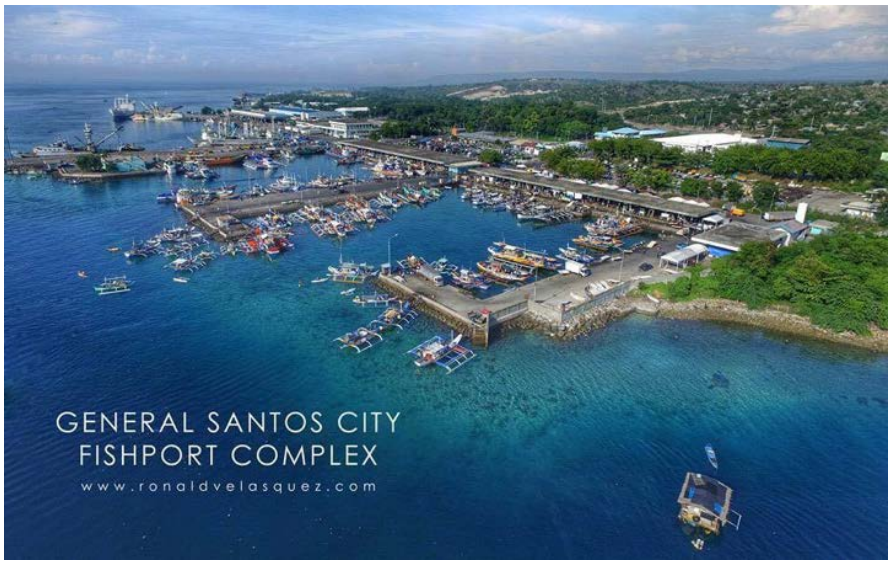


Figure 10. Aerial view of GSCFPC

Photo credit: Ronald Velasquez

[2] www.pfda.gov.ph/index.php/statistics

2.3.3 Markets and Value Chain

Markets for fish catch landed in GSC and other areas are of three types: local, national, and international. Locally, several barangay-level fish markets sell/trade their seafood products in surrounding towns/villages. Fisheries products (largely tuna) are sold or shipped daily from GSCFPC to various locations throughout the Philippines. General Santos' international airport and its seaports are the transshipment routes of fishery products to ASEAN nations, North Asia (China, Japan, and Korea), Australia, the European Union, and the U.S. In terms of volume, the Philippines is top 3 tuna producer, of which 80 % is exported to the US and the EU, equivalent to US $120 million export earnings (Business World 2003).

General Santos City is the largest producer of sashimi-grade and canned tuna in the country being the "Tuna Capital of the Philippines." The harvested species are primarily skipjack (*Katsuwonus pelamis)*; accounting for approximately 45% of tuna landings), yellowfin tuna (*Thunnus albacares)* about 25% and bullet tuna (*Auxis rochei)* about 20% of tuna landings. Within the country, GSC is the second largest fisheries producer as measured by total daily catch at 750 metric tons. More than 80% of total fish landings in GSCFC are tuna and tuna-like species that cater to the seven commercial tuna processing centers in GSC. An estimated 60% of tuna landings are either supplied to local canneries (for both domestic and international consumers) or exported to foreign fish markets. Some 35% of landings are shipped to domestic fish markets while 5% of landings are consumed locally. Tuna longline fishers target adult yellowfin and billfish.

The description of the value chain here is liberally lifted from the RAFMS Report on the rapid appraisal conducted in Sarangani Bay and adjoining waters as the Philippines' learning site of USAID Oceans (WorldFish 2017b). Three municipal players are central in the value chain for tuna and tuna-like species: (1) municipal fishers, (2) financiers cum consolidators cum wholesalers, and (3) retailers (Figure 11). Municipal fishers catch tuna and tuna-like species within the bay's vicinity using various fishing gears. An increasing number of fishers (using motorized boats) are fishing beyond municipal waters to the Celebes Sea, Moro Gulf and Sulu Sea. Some fish all the way in the marine waters off Mati in Davao del Norte.

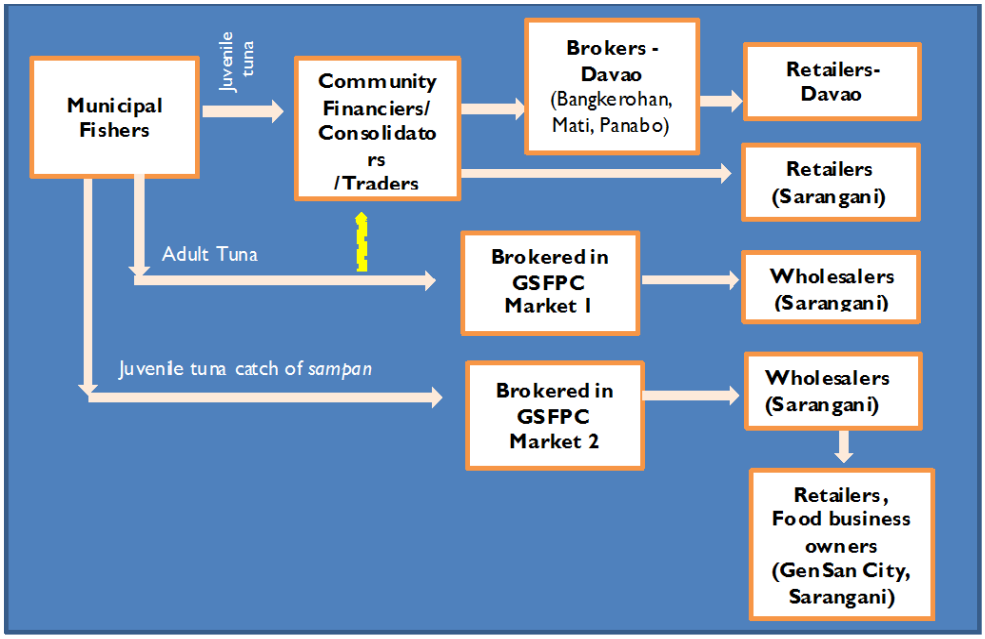


Figure 11. Key players in municipal tuna fishing and product flow

Source: WorldFish 2017b

A comparison of the benefits on a per kilogram basis from engaging in the municipal tuna fisheries that accrue to key players is made and summarized in Table 3. Among the key players for the municipal tuna value chain, the financiers cum consolidators cum wholesalers benefited the most. They are able to earn PhP25.30/kg of tuna, generating 31.74% of value-added to their total cost, and only in a span of two days. The fishers are the next players in the chain who captured the highest value. This amounts to PhP18.60/kg, a total of PhP558 for 30 kg of tuna.

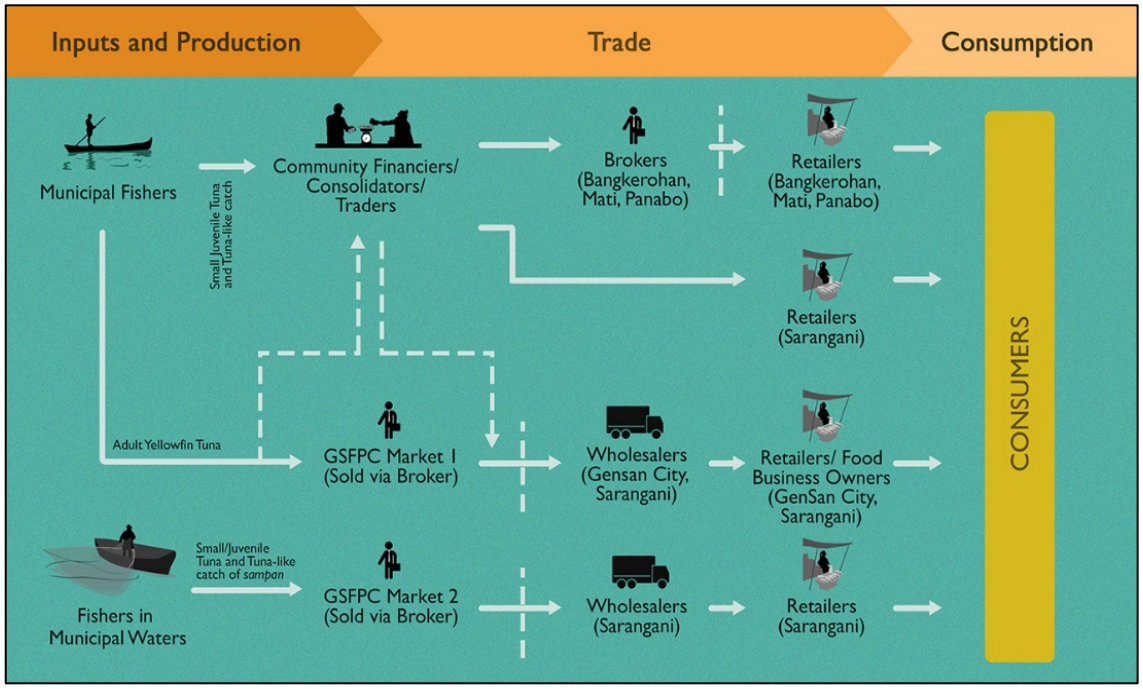
Table 3. Comparative value-added/distribution of benefits among key players from municipal tuna fishing (per kg)

Particulars	Municipal Fishers	Financiers/ Consolidators/ Wholesalers	Retailers
Volume of tuna sold (kg)	30	2,000	80
Gross value received (Selling price/kg)	70	105	130
Cost of Tuna (Buying price/kg)	-	70	105
Cost of other inputs/kg	51.40	9.70	6.98
Total cost of inputs	51.40	79.70	111.98
Value Added (GV-total cost)	18.60	25.30	18.02
% of Value-added to Total Cost	36.19%	31.74%	16.09%
Time involved	3 days	2 days	2 days

Source: WorldFish 2017b

The RAFMS study reported customer requirements for tuna (WorldFish 2017b). Local market requires fresh and pinkish color of the meat. The preferred size is between 4–8 pieces/kg, if juvenile. The export market requires fresh, sashimi-grade. The preferred weight is at least 35 kg/pc. The flow of adult and juvenile tuna species from the municipal fishers to the retailers is shown in Figure 12. Estimated earnings of municipal key players vary depending on the situation (Figure 13). There are three key observations on estimated net earnings (WorldFish 2017b). First, the fishers earn more income per kg but benefit the least monetarily. This may be due to the small volume of catch after several days of fishing. Secondly, the financiers/consolidators cum wholesalers earn the most due to the large volume of fish consolidated in a day. They also have the option to sell fish where prices are higher. Thirdly, the retailers are a far second to the financiers/consolidators in terms of earnings. Due to the presence of many other retailers, each can sell only a small proportion of the fish daily.

Figure 12. Flow of tuna and tuna-like species among municipal key players



Source: WorldFish 2017b

Figure 13. Estimated earnings of municipal key players

Key Players	Municipal Fishers	Financiers/ Consolidators/ Wholesalers	Retailers
Volume of Catch or Sales	*De mano* fishers: ≅ 3 kgs W/ 6.5 hp engines: ≅ 30 kgs W/ 12-16 hp engines: ≅ 50 kgs	Small: 150 – 200 kgs/day Relatively big: 2,000 kgs 2x -3x/wk	21 to 80 kgs/day
Net Earnings /kg	*De mano* fishers: PhP 20 -25/kg W/ 6.5 hp engines: PhP 21.67-26.67 W/12-16hp engines: PhP 25 to PhP 30	Sold in Sarangani PhP 10 – 15/kg Sold in Davao: PhP 15 -20/kg	PhP 15 – 20/ kg
Total Net Earnings per fishing effort or per trading period	*De mano* fishers: PhP 75 - 90 W/ 6.5 & 12-16 hp: PhP 650 – 800 & PhP 1250 – 1500	Sold in Sarangani PhP 750-1,000 to PhP 10000 daily Sold in Davao: PhP30000 – 40,000 per trip	For 21 kgs/day sales PhP315-420: For 80 kgs/day sales: PhP1200-1600

Source: WorldFish 2017b

2.4 Fisheries Profile

This section provides a synopsis of the regional fisheries context in terms of fishing effort and production by both commercial and municipal fishing sectors. The main institutional sources of information are BFAR 12's 2015 NSAP report (BFAR-12 2015a), regional profile (BFAR-12 2015b) and a PowerPoint presentation during the SCW workshop (BFAR-12 2017).

2.4.1 Fishing Grounds

Artisanal (or municipal) fishers of Sarangani Bay also utilize other fishing grounds (Figure 14) depending on season, weather condition, and capital. These include Sulu Sea, Moro Gulf, Celebes Sea, and Mati in Davao Oriental. Many fishers report that their catches are mostly coming from the Celebes Sea (83%) and only a small portion comes from Sarangani Bay (17%) (WorldFish 2017a). Both small-scale and commercial-scale tuna handliners generally fish along the Philippine EEZ since Indonesia cracked down on IUU fishing along its borders beginning 2014 (WorldFish 2017c).

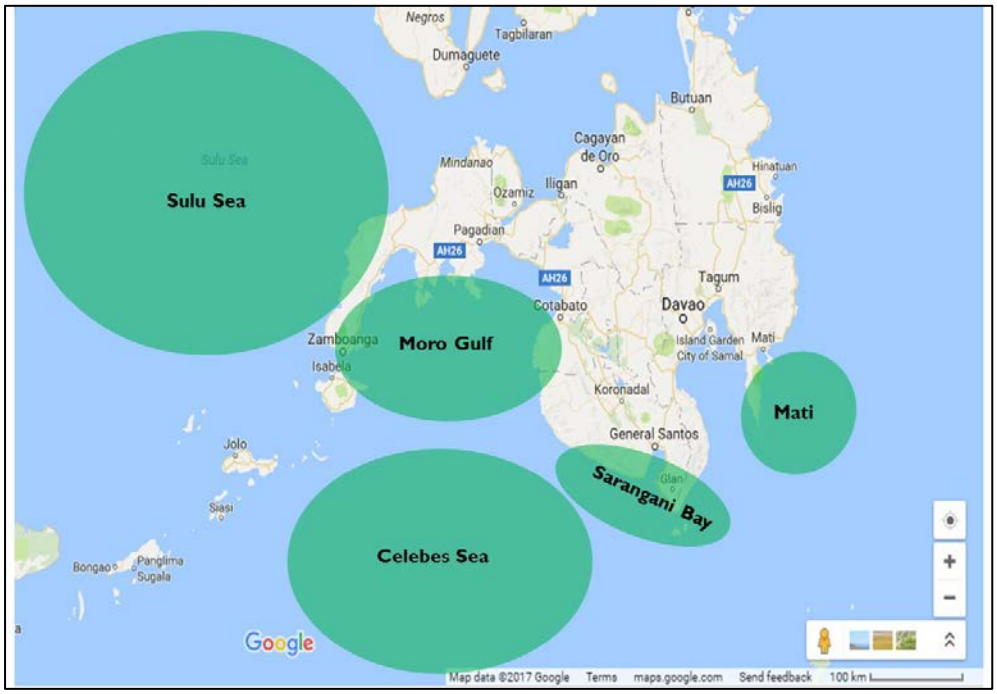


Figure 14. Fishing grounds utilized by municipal fishers

Source: WorldFish 2017b

2.4.2 Fishing Effort Profile and Catch Rates

There are two occupational groups of fishers who are engaged in capture fisheries. The first group comprises of municipal fishers (also called small-scale or artisanal fishers) who are mainly local residents in the coastal communities that are engaged in small-scale or subsistence–level activities. Total registered fishers (as of February 09, 2017) was recorded at 82,646 (BFAR 12 2017). There were 57,466 (69%) males while the females were recorded at 25,180 (31%). South Cotabato had the most number at 26,869 (32%) among the registered fishers by province, presumably most of these come from GSC where fishing is most active.

Municipal fishing boats are less than three gross tons in weight. The number of fishing boats in Region 12 is summarized in Table 4 based on BFAR's vessel registration program called Boat-R as of February 09, 2017 (BFAR 2017) comprising primarily of municipal fishing vessels. Sarangani has the

greatest number of units at 3,479 while Cotabato City has the least number of 748. The Boat-R registration system, is however, an on-going activity and thus, the number of registered fishing boats is likely lower than the total boat effort in the region.

Table 4. Number of registered fishing boats in Region 12

Registered Boats in Region 12 by Province	
South Cotabato	2,261
North Cotabato	933
Cotabato City	748
Sultan Kudarat	1,191
Sarangani	3,479
Total	8,612

Table 5. Number of registered fishing boats in Region 12, by type

Registered Boats in Region 12 by Province	
South Cotabato	2,261
North Cotabato	933
Cotabato City	748
Sultan Kudarat	1,191
Sarangani	3,479
Total	8,612

Table 6. Most common fishing gears used in Region 12

Registered Boats in Region 12 by Province	
South Cotabato	2,261
North Cotabato	933
Cotabato City	748
Sultan Kudarat	1,191
Sarangani	3,479
Total	8,612

Source: Boat-R and BFAR; Note: Number of boats based only on registered boats; possibly an underestimate. All numbers are as of February 7, 2017.

The second group of fishers belongs to the commercial sector involving fishing vessels with gross tonnage over three tons, but these are further classified into small-scale commercial (3.1-20 GT), medium-scale commercial (20.1-150 GT), and large commercial (>150 GT) fishing boats (RA 8550). Registered commercial fishing vessels comprised 1,977 units as of January 2017. Table 5 lists the number of registered commercial fishing vessels classified according to their functional role in the fishing fleet. As of February, 2017 the number of registered commercial fishing vessels is 1,977; 895 of these boats are catchers (vessels that deploy the fishing gear and involved in actual catching of fish) while the rest are accessory fleet such as light boats, fish carriers, and ranger boat.

The capture fisheries of Region 12 are predominantly a multi-gear, and multi-species industry. Major fishing gears employed by commercial fishers include purse seine, ring nets, and tuna handlines while the most common municipal gears are nets and handlines (Table 6). Nets include bottom set gill net, drift gill net, encircling gill net, surface gill net, and scoop net while the most common line gears are multiple hook and line, squid jig, bottom set long line, tuna handline, troll line, and single hook and line (Emperua et al. 2017).

Many of these fishing gears are species-specific. Scoop nets and push nets mainly catch anchovy; surface or drift gill nets primarily catch sardine, herring, and other small pelagic fish. Other fishers use bottom set gill nets and long line, spears, and hook and line to catch demersal species such as emperors and lutjanids, among others. Other artisanal gears such as the squid luring device and

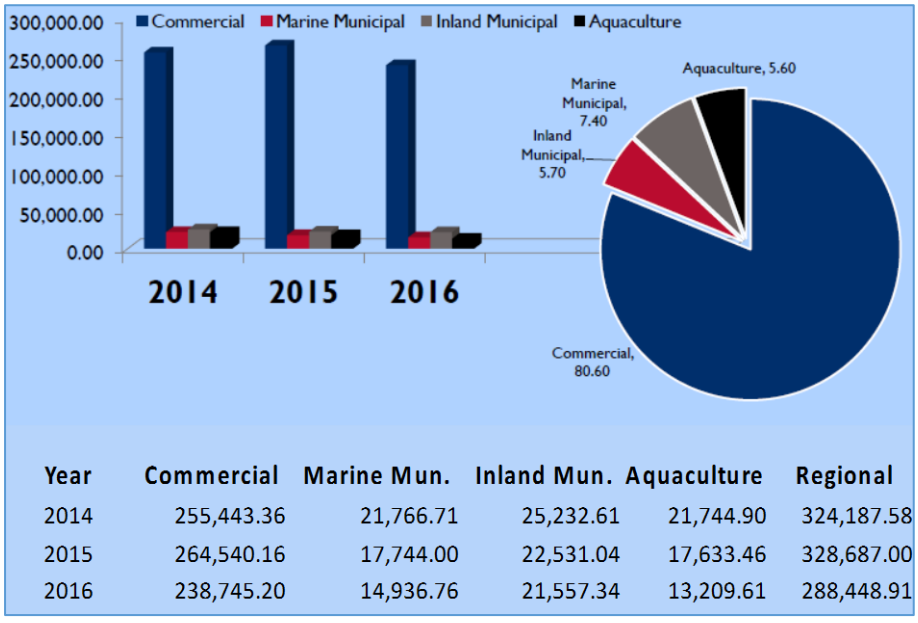
jiggers are specific for squids. Simple and multiple handlines are the most abundant gears and are also less exploitative. Multiple hook and lines, locally *undak*, are used to catch pelagic species, especially the most sought-after bigeye scad (*Selar crumenophthalmus*) for its high market value. Fish corrals are also used but their catches are minimal. Some destructive gears – such as beach seine and ring net – are still in operation in many parts of Sarangani Bay and the adjoining waters of Sulawesi Sea.

The rapid appraisal conducted in 2016-2017, by USAID Oceans, focused on municipal fisheries and showed that the catch rates were generally variable with an average of 6.0 kg/trip per fisher (±24.6 SD) across the six coastal municipalities of Sarangani and GSC. The highest catch rates were recorded in Maitum and Glan with about 23.9±84.9 and 11.0±13.2 kg/trip, respectively. Maitum and Glan are located in the outermost portion of Sarangani Bay and fishing is conducted mostly contiguous to Celebes Sea. The lowest catch rates, on the other hand, were recorded in areas located at the inner portion of the Bay, namely General Santos City and Maasim, with 3.4±3.8 and 2.9±6.6 kg/trip respectively. Alabel, Kiamba and Malapatan had moderate catch rates at 6.5±10.6, 5.7±10.2 and 5.0±11.8 kg/trip catch rates, respectively (WorldFish 2017a).

2.4.3 Regional Fisheries Production and Value

Regional fishery production in terms of volume from 2014-2016 hover around 300,000 MT: 324,187 (2014), 328,687 (2015), and 288,448 (2016). Around 81% are contributed by the commercial sub-sector (Figure 15). The commercial fisheries of Region 12 are quite important in the context of overall Philippines fisheries. As reflected in the 2017 RDP, tuna production in the region remains as one of the top five leading industries. Six of the seven major tuna canneries in the country are located in GSC, making SOCCSKSARGEN region the Philippines' top exporter of canned, frozen, and other tuna products. The region's tuna catch posted an increasing trend from 160,659 metric tons in 2011 to 258,545 metric tons in 2015 (NEDA 12 2017). In 2015, the total export value for the fishery industry amounted to US$93,297,306.7 which include frozen milkfish, canned tuna, frozen whole tuna, pouched tuna, frozen tuna, fish meal, smoked fish, fresh tuna and frozen tuna loins. The daily landings at GSCFPC are the second highest in the nation (after Navotas in Metro Manila).

Figure 15. Regional fishery production by sub-sector in terms of volume, 2014-2016

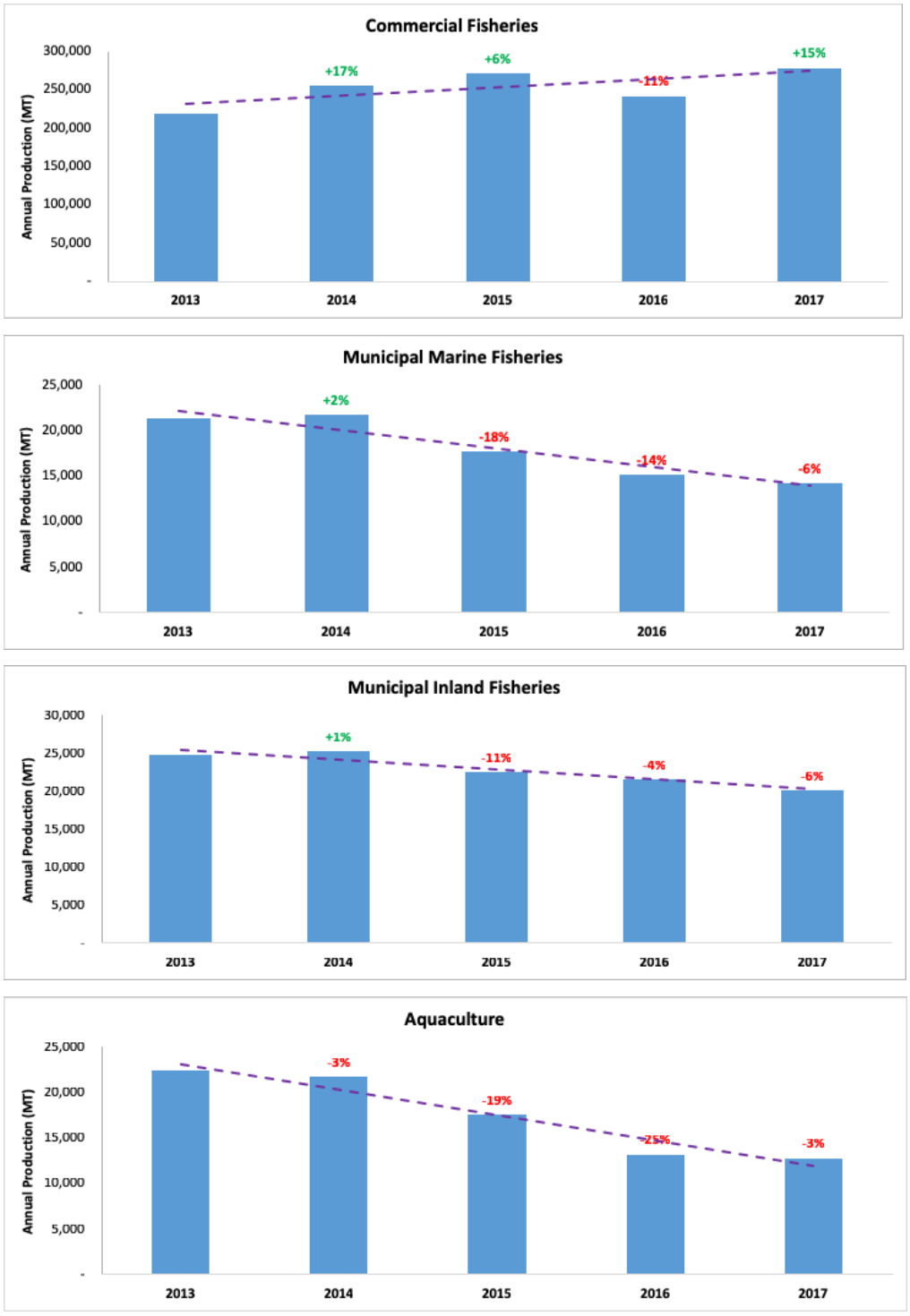


Year	Commercial	Marine Mun.	Inland Mun.	Aquaculture	Regional
2014	255,443.36	21,766.71	25,232.61	21,744.90	324,187.58
2015	264,540.16	17,744.00	22,531.04	17,633.46	328,687.00
2016	238,745.20	14,936.76	21,557.34	13,209.61	288,448.91

Source: PSA Country STAT Philippines, 2014-2016 as cited in BFAR Region-12, 2017

The extensive fishery and aquatic resources of SOCCSKSARGEN could push the region to higher levels in fishery production, both capture and aquaculture. The region has promising economic potentials for the culture and production of high value fish species like crabs (blue swimming and mud), groupers, milkfish, shrimps and tilapia. As stated earlier, the AFF sector is critical in generating employment for more than half of its labor force, which in turn can reduce poverty and inequality for the poor who are in the rural coastal areas. Figure 16 shows the trends in annual production in the various fisheries sub-sectors from 2013-2017 based on PSA's CountryStat database. Except for the commercial sub-sector, there had been an overall decline in fish production.

Figure 16. Percent Change in Annual Production from 2014-2016 in Region 12



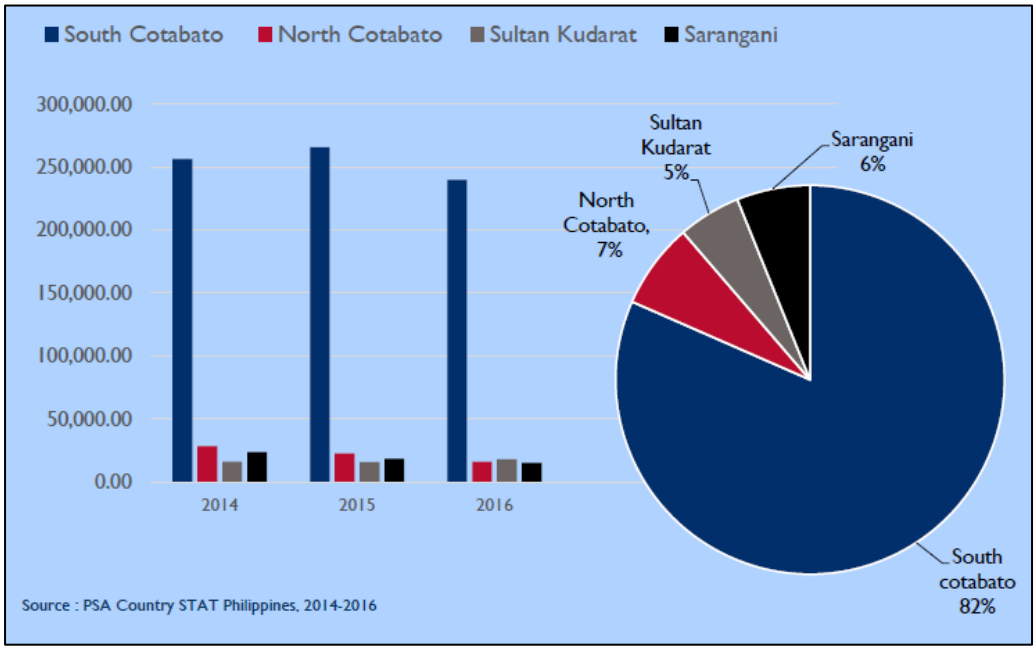
Source: CountryStat Philippines, Philippine Statistics Authority

The relative importance of the four provinces that comprise SOCCSKSARGEN in the regional fishery production in terms of volume from 2014-2016 is provided in Figure 17. South Cotabato tops the production at 82%. There are 23 EU approved establishments in the region. These consist of 11 establishments for fresh/frozen fishery products, seven for canned fishery products and five cold storages. Fifteen establishments are not yet approved.

Fisheries production of Region 12 from 2005-2015 demonstrates a pattern of 'contraction-expansion' (Table 7). Both in volume and value, production decreased in 2011 but surged in 2012. Highest volume of production was recorded in 2008 while the region recorded the highest production value in 2013 at PhP 25 billion. Average annual increment was 1.74% in terms of volume and the highest growth of production was recorded in 2008 at 12.15%. South Cotabato contributed the largest portion of the regional production in terms of both volume and value. Conversely, North Cotabato, had the least contribution in both categories where production is mainly from inland fisheries.

For the year 2015, SOCSARGEN's fisheries production was recorded at 322,448.64 MT valued at PhP24.43 Billion (BFAR 12 2015b), where the largest contribution in terms of volume (264,540.26 MT) and value (PhP 19.97 Billion) was reported from GSCFC. From 2005-2015, the percentage contribution of South Cotabato province to the total regional fishery production in terms of volume was highest at 76%; followed by Sultan Kudarat (11%), Sarangani (9%) while the inland province of North Cotabato had the least share (4%). In terms of value during the same period South Cotabato still had the highest contribution (78%), however, Sarangani had a higher share (10%) than Sultan Kudarat (9%).

Figure 17. Regional fisheries production by province in terms of volume, 2014-2016

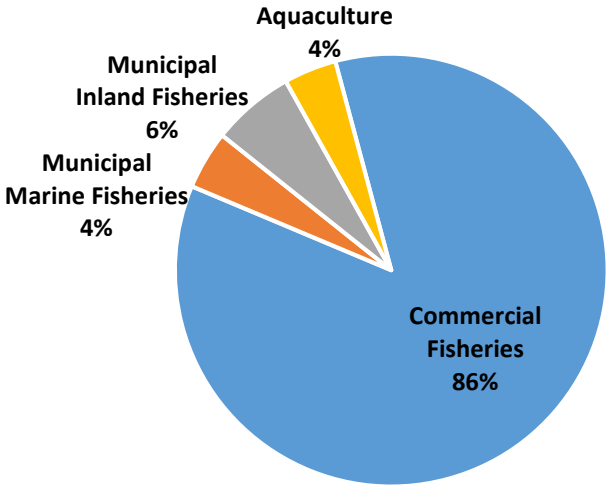


Source: PSA CountryStat Philippines, 2014-2016 as cited from BFAR Region-12, 2017

Table 7. Volume and Value of Regional Fishery Production, 2005-2015 (Source: BFAR 12 2015b).

Year	Value (in thousands PhP)	Volume (in metric tons)
2005	11,880,446.66	238,477.32
2006	13,096,752.37	258,031.95
2007	15,995,191.46	287.178.61
2008	20,117,315.15	326,912.09
2009	15,648,718.56	304,821.10
2010	16,569,723.11	281,933.73
2011	16,398,013.83	248,529.38
2012	23,512,720.77	285,943.49
2013	25,605,519.11	287,057.79
2014	25,025,728.96	324,187.58
2015	24,427,861.90	322,448,64
TOTAL	**208,277,991.88**	**3,165,521.69**

Figure 18. Contribution of the different sub-sectors to the total fish production of Region 12 in 2017



Fisheries production in Region 12 in 2017 from the Philippine Statistics Authority (PSA) was contributed by four sub-sectors: commercial, municipal, aquaculture, and inland municipal (Figure 18). Commercial fisheries remain the largest contributor in terms of both volume and value with South Cotabato as the front runner due to large landings at the GSCFC as well as fish processing and canning companies in the city.

Source: PSA CountryStat Philippines

Sarangani Province ranks first in marine municipal fisheries production of the region in terms of value and volume. Sultan Kudarat also has a significant contribution from fishing in the rich Moro Gulf. In 2015, however, marine municipal production declined by 3.98% in volume and by 21.72% in value (BFAR 12 2015b).

The top ten species landed by commercial fisheries from 2005-2015 are listed in Table 8, where the top three species in in terms of volume and value are the skipjack tuna, yellow fin tuna, and frigate tuna. The top 10 species landed by municipal marine fisheries for the same period is provided in Table 9 indicating the top five species in terms of volume are round scad, flying fish, big eye scad, frigate tuna, and yellow-fin tuna. The yellow-fin tuna ranked first in terms of value due to its higher market price.

Aquaculture production declined by 18.91% and 15.97% in terms of volume and value, respectively. Across the region Sultan Kudarat is the top aquaculture producer in terms of volume, but value-wise, Sarangani province tops the region. For inland municipal fishery, North Cotabato is the top-producing province while Cotabato City has the greatest area under the Fishpond Lease Agreement

(FLA) system which is utilized for aquaculture production, particularly of high-value species of shrimps, crabs, and milkfish. In 2015, the top three aquaculture species by volume were tilapia, carp and mudfish, although the carp ranked third to mudfish in terms of value as it fetches a higher market value.

Three major gear types used by commercial fishers in catching tuna, namely, purse seines (unay), ringnets (likom), and handlines, usually on board small boats called pakura carried to far-flung fishing grounds by large fishing vessels. Catches from handlines are largely dominated by yellowfin tuna (YFT), which comprises more than 90% of the catch. The remainder of the catch is composed of bigeye tuna (BET), also a large species of tuna, and other large pelagic fish. Catches from ring nets and purse seines are dominated by skipjack tuna (Katsuwonus pelamis) which is a smaller species of tuna. Skipjack tuna comprises about 70% of the major catches for both gears, followed by YFT and BET. Based on 2015 data from NSAP, 76% of catches from domestic waters (mostly from Moro Gulf and Celebes Sea) was landed in General Santos fish port, where 63% was caught by ring nets, 27% was caught by purse seine, and only 10% was caught by handline (Emperua et al. 2017). Small pelagic fish such as sardine, bigeye scad, and roundscad, dominated the municipal catches from Sarangani Bay.

In summary, the overall trend in fish production in SOCCSKSARGEN over the last decade had been a declining one, except in commercial fishing sector where total landings have continuously increased due to fish catch coming from overseas (i.e., outside Philippine EEZ) particularly from the marine waters of neighboring maritime states and the high seas pockets in the WCPO. Estimates of catch rates of major gears fluctuated through the years and are highly variable with season and gear type (WorldFish 2017a).

Table 8. Top ten Commercial Species of Region 12 (Volume), 2005-2015

Rank by Volume (MT)		Common English Name	Genus/Species	Local Name	Size Range (cm)
1	 1,401,945.60 MT	Skipjack Tuna	*Katsuwonus pelamis*	Tulingan; Gulyasan	L_m=40-45 cm CS = 80 cm FL Max =100 cm FL
2	 563,737.43 MT	Yellowfin Tuna	*Thunnus albacares*	Bariles; Tambakol	L_m = 78-158 cm CS = 160 cm FL Max= 239cm FL
3	 183, 388.01 MT	Frigate Tuna	*Auxis thazard*	Pidlayan, Pirit Budburon,	L_m = 29.5cm CL = 60cm TL Max = 65cm FL
4	 110, 923.89 MT	Roundscad	*Decapterus spp*	Borot; Galunggong	Max.Size Range: 35-50cm TL (several species)
5	 43, 844.80 MT	Eastern Little Tuna	*Euthynnus affinis*	Kawakawa; Tulingan	L_m = 40-65 cm CS = 60 cm FL Max =100 cm FL
6	 13, 342.47 MT	Big-eye Tuna	*Thunnus obesus*	Bariles; Tambakol	L_m = 100-125 cm CS = 180 cm FL Max =250 cm FL
7	 13, 132.66 MT	Big-eye Scad	*Selar crumenophthalmus*	Matambaka	L_m = 17.0 cm CS = 22-25cm TL Max =70 cm TL
8	 9, 727.57 MT	Pelagic squid	*Loliolus uyii; Photololigo sp*	Nokos; Pusit	SR: 2.0-7.0 cm ML; Max = 12.0 cm ML
9	 9, 442.28 MT	Flying Fish	*Cypselurus/ Cheilopogon spp*	Barongoy; Bangsi	Max.Size Range: 20-35 cm TL (several species)
10	 2, 738.29 MT	Grouper	*Epinephlus/ Cephalopholis spp*	Lapu-lapu; Pugapo	Max.Size Range: 24-100 cm TL (several species)

Legend: Lm = Length at First Maturity; CL = Common length in catches; Max = Maximum Length all in cm, total length (TL) or fork length (FL)

Source: BFAR 12 2015b

Table 9. Top ten species caught by municipal fishing gears in Region 12 (volume), 2005-2015

Rank by Volume (MT)		Common English Name	Genus/Species	Local Name	Usual Size Range (cm)
1	 38,907.20 MT	Roundscad	*Decapterus spp*	Borot; Galunggong	Max.Size Range: 35-50cm TL (several species)
2	 28,596.57 MT	Flying Fish	*Cypselurus/ Cheilopogon spp*	Barongoy; Bangsi	Max.Size Range: 20-35 cm TL (several species)
3	 27,573.49 MT	Big-eye Scad	*Selar crumenophthalmus*	Matambaka	L_m = 17.0 cm CS = 22-25cm TL Max =70 cm TL
4	 24,520.87 MT	Frigate Tuna	*Auxis thazard*	Pidlayan, Pirit, Budburon	L_m = 29.5cm CL = 60cm TL Max = 65cm FL
5	 23,620.53 MT	Yellowfin Tuna	*Thunnus albacares*	Bariles; Tambakol	L_m = 78-158 cm CS = 160 cm FL Max= 239cm FL
6	21,462.49 MT	Oil Sardine	*Sardinella lemuru*	Tamban; Tuloy	L_m = 14-15 cm CS = 20 cm TL
7	 19,923.25 MT	Skipjack Tuna	*Katsuwonus pelamis*	Tulingan; Gulyasan	L_m=40-45 cm CS = 80 cm FL Max = 100 cm FL
8	15,256.85 MT	Pelagic squid	*Loliolus sp; Photololigo sp*	Nokos; Pusit	SR: 2.0-7.0 cm ML; Max = 12.0 cm ML
9	 9,376.10 MT	Anchovy	*Stolephorus spp*	Bolinaw; Dilis	L_m= 7.3 cm CS = 8.0-10 cm TL
10	 5,586.45 MT	Eastern Little Tuna	*Euthynnus affinis*	Kawakawa; Tulingan	L_m = 40-65 cm CS = 60 cm FL Max = 100 cm FL

Source: BFAR 12 2015b

2.5 Institutional Context and Policy/Legal Framework

The legal and policy framework for Philippine fisheries is hierarchical, with the 1987 Philippine Constitution at the top, followed by national laws and international agreements, then administrative issuances to implement national laws. At the lowest level are the ordinances passed by the LGUs, but these are of critical importance in the effective management of contiguous waters to sustain fisheries production. Key international agreements include the: 2009 FAO Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing; the 2007 Regional Plan of Action to Promote Responsible Fishing Practices including Combating IUU Fishing in the Region (RPOA-IUU); the 1995 FAO Code of Conduct for Responsible Fisheries; and the 1982 United Nations Convention on the Law of the Sea (UNCLOS).

Alongside these international conventions are major Philippine laws that serve as the foundation for the current policy and regulatory framework for fisheries, namely the: (1) Philippine Fisheries Code of 1998 (Republic Act [RA] 8550) as amended by RA 10654 of 2015; (2) Agriculture and Fisheries Modernization Act (AFMA) of 1997 (RA 8435); and (3) Local Government Code of 1991 (RA 7160). Many LGUs in Region 12 have enacted relevant ordinances through the years to improve the management of their municipal fisheries within 15km; while BFAR is mandated to manage from 15-km up to EEZ waters. Some LGUs have already enacted their fisheries and/or coastal resource management (CRM) code.

The Department of Agriculture Administrative Order (DAO) No. 10, s. 2015 or the Implementing Rules and Regulations (IRR) for RA 10654 took effect on 10 October 2015. Eight significant changes were introduced by R.A. No. 10654 (Kho and Nuñez 2015).

1) First, the regulatory mechanisms to address IUU fishing include the following: penalties for engaging in IUU fishing, reportorial requirements for fish catch, deployment of fisheries observer, adoption of a monitoring, control and surveillance and traceability system for municipal fishing vessel, implementation of boarding and inspection protocols, implementation of vessel monitoring measures and vessel monitoring system, adoption and implementation of port state measures, and trade-related measures on IUU fishing-derived products.
2) The second relates to improved enforcement against violations of the Fisheries Code such as imposition of stiffer penalties based on gross tonnage of the fishing vessels, introduction of community service as penalty and citizen's suit.
3) Thirdly, there are modifications to some regulated/prohibited acts such as amended definition of active fishing gear.
4) The fourth modification pertains to the administrative penalties and adjudication of violations whereby administrative or criminal cases can be filed simultaneously and proceed independently.
5) Fifthly, there is broadening options for harvest control including the determination of number of licenses.
6) The sixth modification deals with the recognition of and alignment with international agreements whereby "The Philippines shall pursue its commitment to international conventions and cooperate with other states and international bodies, in order to conserve and manage threatened aquatic species, straddling and highly migratory fish stocks, and other living marine resources."

7) The seventh relates to the adoption of precautionary and ecosystem-based management approaches "in a manner consistent with the concept of an ecosystem-based approach to fisheries management and integrated coastal area management in specific natural fishery management areas."
8) Finally, the eighth modification pertains to the creation of a Fisheries Management committee or group whose operation is to be sourced out from the fines and penalties imposed under this Code, from the proceeds of the sale of forfeited fish, fishing gears, paraphernalia and fishing vessels, and contributions in the form of endowments, grants and donations to the fund. In addition to this, half of the fines and penalties from the violations shall be allocated to the area where the violation was committed.

2.5.1 Organizations/Institutions Involved in Fisheries Management

The management bodies for the Philippine fisheries and coastal management may be broadly categorized into three: (1) the municipal or city governments manage the "municipal waters" and resources within their territorial boundaries; (2) the DA-BFAR handle aquaculture and commercial (e.g., outside municipal waters) fishing activities and public lands such as tidal swamps, mangroves, marshes and foreshore land and ponds; and (3) the DENR take charge of the shoreline and foreshore areas and, through Protected Area Management Boards (PAMBs), for areas under the category of protected landscapes and seascapes under the ENIPAS Act).

Outside of municipal waters (15 km limit), BFAR is the lead fisheries management agency that has jurisdiction over management and development of all fisheries and aquatic resources. The Regional Office of BFAR 12 (http://region12.bfar.da.gov.ph) has been providing fisheries-related services to its regional constituents, which is in line with the bureau's mission to improve fisheries productivity within ecological limits and empower stakeholders towards food security, inclusive growth, global competitiveness and climate change adaptation. A functional Provincial Fishery Office carries out BFAR's programs in every province within the region, in addition to City Fishery Offices in General Santos City and Cotabato City. At the local government level, the Office of the Provincial Agriculturist (OPAG) also provides technical support to the municipal LGUs in the implementation of fisheries development projects and in the conduct of participatory coastal resource appraisals (PCRAs) and establishment of fish sanctuaries and/or marine refugias. At the municipal level, the Office of the Municipal/City Agriculturist (OMAG/OCAG) is the primary office mandated for fisheries management. The OMAG's/OCAG's functions related to fisheries management include, but not limited to the following:

(1) development and implementation of plans and programs for coastal and fishery resources;
(2) enforcement of fishery laws and regulations;
(3) establishment and management of MPAs and fish refugias or sanctuaries;
(4) information, education and communications (IEC) campaigns;
(5) monitoring and evaluation of fisheries programs, projects and activities;
(6) registration and licensing of municipal fishers, fishing vessels and gears; and
(7) technical advice - the Municipal Environment and Natural Resources Offices (MENROs) may provide support in terms of management of coastal marine habitats.

Within the Sarangani Bay Protected Seascape the Protected Area Management Board (PAMB) exercises jurisdiction and management over the protected area under Republic Act 11038 or the Expanded National Integrated Protected Area Systems (ENIPAS) Act of 2018 (amending

RA No. 7586 or the NIPAS Act of 1992). Currently, the PAMB's TWG Members and Secretariat are provided by the DENR 12.

2.5.2 Links to Fisheries and Coastal Resource Management Plans

This SFMP for Sarangani Bay and Sulawesi Sea is not a stand-alone management framework but is linked with relevant fisheries plans and/or programs at various levels of governance. The plan aligns with the Sustainable Development Goals (SDGs), a set of 17 "Global Goals" that are part of the 2030 Agenda for Sustainable Development which is spearheaded by the United Nations. This SFMP specifically relates to Goal 14: Life Below which aims to conserve and sustainably use the oceans, seas, and marine resources of which the fisheries are a major component. This plan is also aligned with the Sulu Sulawesi Seas (SSS) sub-regional EAFM plan which recognizes the transboundary fisheries shared among Indonesia, Malaysia, and the Philippines within the Sulu and Sulawesi Sea systems.

This SFMP is also linked with national programs, namely, the Philippine Development Plan (PDP) for 2017-2022 and the CNFIDP (2016-2020) which laid down the country's five-year strategic plan for capture fisheries, aquaculture, post-harvest, and marketing sub-sectors and supports its multiple programs of national food security, inclusive growth within the industry, and law enforcement to prevent, deter and eliminate IUU fishing, among others. It will naturally link with fisheries management plans such as the Tuna Fisheries Management Plan, the NPOA for IUU Fishing, and the Fisheries Annex of the SBPS PAMP and the respective Fisheries/CRM plans of LGUs. The implementation of the SFMP shall follow Philippine policy (i.e. RA 10654) which espouses the adoption of precautionary and an ecosystem-based approach to fisheries management and integrated coastal area management frameworks and shall align with regional programs such as NEDA's Regional Development Plan (2017-2022) with highlights the development of the AFF sector. This plan will also promote observance of international conventions to conserve and manage living marine resources, such as UNCLOS, CCRF, and CBD, and compliance with conservation and management measures (CMMs) adopted by RFMOs (i.e. WCPFC) for fishing in international waters. In particular, this SFMP supports the national/local implementation of the Sulu-Sulawesi Seascape Sub-regional EAFM Plan endorsed by the CTI-CFF and implemented with Indonesia, Malaysia and the Philippines.

CHAPTER 3: MAJOR THREATS AND ISSUES

A host of fisheries management issues and problems[3] are present in the Sarangani Bay and the adjoining waters of Sulawesi Sea, all the way to the EEZ boundary with Indonesia. Many of these issues and problems have long been identified or described in the following documents: CNFIDP (2006, 2015), PAMP (PAMB 2017), and profile of Sarangani Bay (de Jesus et al. 2001) as well as the municipal and provincial LGU plans and Region 12 Region Development Plan.

[3]Appropriate references are made with the proceedings (*https://www.seafdec-oceanspartnership.org/wp-content/uploads/USAID-Oceans_Stakeholder-Validation-Workshop-Proceeding_Philippines_final_LR.pdf*) of the earlier event titled as "Towards Improved Fisheries Management and Biodiversity Conservation in Southern Mindanao: Stakeholder Validation and Initial Crafting of a Sustainable Fisheries Management Plan, GreenLeaf Hotel, General Santos City, 21-23 February 2017" (See Table 4-6 for a list of fisheries problems/issues also considered in crafting the SFMP for the Sarangani Bay-Sulawesi Sea).

What are described here as the priority problems/issues were identified during the "EAFM Planning Process Workshop for the Crafting of the Sarangani Bay and Sulawesi Sea Fisheries Management Plan" by the EAFM TWG and various stakeholders. Following Pomeroy et al. (2013) and Staples et al. (2014), these problems/issues are broadly classified into the three EAFM clusters or categories: (1) ecological well-being, (2) human well-being and (3) good governance. Ecological well-being issues relate largely to the fisheries concerns that are bio-physical in nature, such as impacts of the fisheries on the environment. Human issues are mainly socio-economic in context that relate to the people and pertinent stakeholders who are involved in fisheries, covering general socio-economic and welfare concerns, including gender issues. Governance issues are primarily institutional and/or organizational in context and these include issues affecting the agency or organization's ability to achieve the fisheries management objectives.

As part of the process the workshop participants were tasked to prepare a list of fisheries-related issues and problems within these categories, then similar items were clustered together and prioritized using the Risk Assessment Matrix. Each problem or issue was put into one of the four quadrants in terms of likelihood of impact, namely: (1) high impact, very likely; (2) high impact, not likely; (3) low impact, very likely; and (4) low impact, unlikely. Problems or issues listed in Quadrant 1 were considered top priority. A review of the Draft SFMP held in October 2018 and the plenary discussion during the February 2019 workshop refined the lists of issues presented in the following section.

3.1 Ecological Issues/Problems

Eleven priority ecological issues or problems were identified (Table 10) which are grouped into three clusters, namely: overfishing, pollution, and habitat degradation. Overfishing is related with excessive fishing effort and/or depleted fishery resources. Declining fish catch is manifested by the declining trend in capture fisheries production as reported in Sarangani Province's municipalities of Maitum, Kiamba, Alabel and Malapatan. Fishers report that their catches have been declining since the late 1990s, with NSAP data reporting a downtrend beginning 2005 (WorldFish 2017f). Fishers blame a reduction in fish stock (depletion) but also blame the numerous Fish Aggregating Devices (FADs) scattered throughout the bay mouth, which allegedly prevent the commercially valuable fish species from entering Sarangani Bay. Other manifestations include fishing during spawning season, uncontrolled vessel registration/licensing and possible ecosystem overfishing with changing species or catch composition. An example of the latter is the increasing squid population within the bay due to the loss of its natural predators. A conference paper presented at the PAMS National Symposium in 2017 (Correa et al. 2017) showed that squid proportion in the catches from artisanal fisheries had been steadily increasing.

Table 10. Priority Ecological Well-Being Problems and Issues

Sub-Cluster	Issues and Problems
Overfishing	• Excessive fishing effort/Increasing fishing pressure • Declining fish catch • Fishing on juvenile fish • Use of fine/illegal mesh size that contribute to juvenile fishing • Destructive fishing methods
Pollution	• Water pollution from domestic/ industrial/agricultural sources • Marine litter/solid waste disposal • Biological pollution, coliform
Habitat degradation	• Siltation • Coral & seagrass degradation • Excessive cutting of mangrove trees
Climate change effects*	• Increasing SST triggers coral bleaching • Habitat damage due to storm surges • Sea level rise • Impact on fisheries production

*Additional inputs from the SFMP review workshop, February 2019

Catching of juvenile fish is commonplace in Sarangani Bay and are often landed in community fish landing centers (CFLCs). Juvenile fishing occurs mostly near FADs. Bycatch of juvenile fishes highlight the need for new gears that would only catch the mature species. The use of fine mesh nets is among the destructive fishing methods. Other forms include the use of some noxious substances such as cyanide and locally-manufactured organic substances like *tubli* or *lagtang*. In the case of commercial fishers, destructive fishing methods are linked more with FADs or *payaws* and superlights.

The second cluster relates to pollution of coastal waters from domestic, agricultural and industrial point sources. Nutrient and sediment run off mainly emanate from terrestrial sources. These include residues from livestock manure and erosion sediments caused by deforestation and destructive farming practices. Watershed degradation in GSC contributes to flooding during rainy season that carry with it nutrient and sediment loads. Sediments from Region 12's highlands or watersheds are among the agricultural pollutants in the coastal areas. Large amounts of dissolved nutrients released into the bay may result in eutrophication and reef degradation. Some of the pollutants originate from the aquaculture ponds. Sewage or liquid wastes largely come from both coastal households and industrial establishments, and is concentrated in GSC's Barangay Tambler where the fish canneries are located. Some of these canning factories do not have adequate wastewater treatment facilities. Among the region's surrounding coastal municipalities, only Alabel has a functional sewage treatment plant (STP). Marine litter is an issue associated with solid waste management. Littering and/or throwing of garbage in the open sea were noted in Maitum. In Malapatan, the solid waste generated by residents is among the critical coastal issues identified. Coastal/marine pollution from shipping and maritime industries is concentrated in GSC as the industrial center of Region 12. Some fishing boats reportedly dump their used fuel and/oil products directly into the coastal waters. In terms of energy sector, coal-fired power plants have potentially negative impacts on the fisheries.

The third cluster covers marine habitat degradation, including excessive cutting of mangrove trees which was documented in Maasim. Generally, degraded coastal/fishery habitats are attributed to siltation from agricultural and other economic activities such as illegal shoreline development in Glan

due to tourism development. Degradation of Bacud Reef in Kiamba was documented when a large fishing vessel was grounded here in 2012.

Climate change is a cross-cutting issue and not originally listed in the top three priority concerns under ecological well-being but is added as suggested during the February 11, 2019 workshop. Climate-associated factors such as storminess, increasing sea surface temperature (SST), and rising sea level are expected to have significant impact on fisheries and habitat integrity of the region. The prolonged El Niño event beginning the last quarter of 2015 until the first quarter of 2016 was perceived by many industry players in General Santos City to have caused lower fisheries production which also affected the postharvest and processing industry (WorldFish 2017c). Ecosystem approach to fisheries management needs to also address this important cross-cutting issue in order to sustain fisheries production and other industry-related programs.

3.2 Human Well-Being Issues/Problems

Fourteen issues pertaining to human well-being in the SB-SS FMA are summarized under six clusters in Table 11. Three issues are associated with 'trade and marketing' which point to a distortion in market prices due to intentional underpricing or price manipulation of fish by buyers or middlemen. There is limited to no control on prices of fish catch, specifically in the local market. Another concern is the increasing food demands, particularly for fishery products, from both domestic and international markets. There is also a high external demand for specialized fishery products. For example, tuna gonad is traded as a delicacy and therefore is sold on a seasonal basis. Trade and marketing is associated with 'limited catch or production'. Municipal or marginalized fishers often have very little capital to travel far distances from their coastal residence to the fishing grounds, thus the issue on limited production in nearshore waters. This is a manifestation of depleted fishery resources in the nearshore areas.

Table 11. Priority human well-being problems and issues

Sub-Cluster	Issues and Problems
Trade and marketing	• Under-pricing of fish by buyers or middlemen • Increasing demand for fish • No price control on fish in the local market • Poor product quality
Limited catch/production	• Distance from fishing grounds for marginalized fishers • Low production or catch in municipal waters • Limited capital or capacity of municipal fishers to fish • Lack of viable alternative livelihood opportunities and support for fisherfolk (from LGU and other agencies)
Labor and gender	• Child Labor (below 18 years old) • Children have poor access to education due to need to work or fish for a living
Piracy/extortion	• Extortion practices ("borites," "ambak pari")
Limited knowledge base	• Inadequate knowledge on CRM
Human settlement and tenure	• Lack permanent shelter for fisherfolk • Relocation sites of informal settlers not favorable • Fisherfolk security of tenure

The third sub-cluster relates to 'labor and gender.' Children are becoming a source of cheap or free labor for various fishing-related activities such as catching, processing, and trading. Some youth are likewise engaged in capture fishing activities instead of pursuing their formal primary and secondary education. Hence, out of school youth (OSY) are fairly common in the FMA's coastal fishing villages. Labor issues linked with gender also relate to child labor and rights of female workers. Generally, labor concerns revolve around labor rights and social protection for fishing workers. The fourth concern is 'piracy/extortion', locally called "borites" or its variant "ambak pari." Armed intruders board the fishing vessels and extort the fish catch or material possessions on board. The fifth issue pertains to 'limited knowledge base' of the stakeholders, i.e. inadequate knowledge on CRM and the linkages between fisheries with other social and economic sectors in the coastal area. A last issue cluster is related to informal settlers whose increasing number along the coastal areas poses financial and administrative problems for the local government.

3.3 Governance Issues/Problems

The governance dimension is the most populated issue cluster with some 22 priority problems and issues to address (Table 12). These are classified into six inter-related categories or sub-cluster. The issue of 'weak/limited law enforcement' is prevalent region-wide. Weak law enforcement is manifested in a number of ways such as failure to arrest several prohibited or illegal activities at sea that include the use of destructive fishing gears such as fine mesh net that catch juveniles and use of obnoxious substances in fishing. Many commercial fishers encroach on municipal waters or within the 15-km limit from the shoreline. Weak enforcement is also manifested by poor implementation of local fisheries ordinances. There is also a transboundary and security implication as some fishers are caught fishing within Indonesia's territorial boundaries. The second sub-cluster is reflected by the absence of a unified fisheries ordinance across LGUs that covers the relevant facets of fisheries management.

The third sub-cluster relates to lack of enforcement of policy on 'habitat conversion/degradation'. Particularly affected are the mangrove trees that are either converted into fish pond areas for culture of high-value species or are being utilized for various economic uses such as raw materials for charcoal or as housing materials. Another sub-cluster relates to 'population pressure'. This involves an increasing number of municipal and commercial fishers, transient fishers and the general increase in the population of coastal areas. The region's population growth rate is 1.94% over the period 2010-2015. The poorly regulated 'human settlements' still prevail. Most of the fishing households are considered as informal settlers as they do not own the lots where their houses are located. Therefore, they do not have security of tenure over these properties.

The sixth sub-cluster pertains to the 'limited support' to the fishing households. This covers limited assistance in terms of livelihoods and marketing. This is associated with the concern for 'access' to the fisheries and associated coastal resources. The 'limited infrastructure facilities' include the lack of fish processing facilities for value adding and longer shelf-life of fishery products, the lack of transport facilities for fisherfolk to and from the fish landing sites, and lack of pollution-related or sewage treatment facilities.

Table 12. Priority governance issues

Sub-Cluster	Issues and Problems
Weak/Limited law enforcement	• Weak enforcement or poor implementation of fishery laws and local ordinances, and limited budget • Some LGUs have no policy on catching of Juvenile, immature fish • Illegal fishing persists in the coastal areas • Destructive methods of fishing (including poisonous substances and blast fishing) • Lack of political will or community empowerment • Encroachment of commercial fishing in municipal waters • Peace and order • Fishermen caught fishing inside Indonesian boundaries and incarcerated • Lack/limited CDT
No integrated policy	• No unified fisheries ordinance
Habitat conversion/ degradation	• Poor implementation of environmental laws (e.g. mangrove cutting and conversion to fishponds) • Conflict of policies on foreshore land use • Degradation in mangrove forests (garbage, sewage)
Population pressure	• Increasing number of commercial fishers vs. local (small fishers) • Entry of unregistered fishers in the locality • Increasing population dependence on ocean & fisheries resources • Overpopulation in the coastal areas
Inequitable Access	• No equal opportunity for the access of marine resources • Resource use conflicts between FAD-based and non-FAD fishers (e.g. BFAR's Tuna Conservation Mgmt. Program)
Limited infrastructure facilities	• Lack of post-harvest facilities in some municipalities • Limited overhead facilities (transportation, etc.) • Lack of Waste water treatment facility and Sewage Facilities

CHAPTER 4: MANAGEMENT GOALS

This chapter sets the goals of each of the major fisheries issues and problems presented in Chapter 3. Each goal was developed for each cluster to address the prioritized issues and problems. A management goal is a broad or general statement of a desired outcome or of a desired state towards which the stakeholders are working. A goal is characterized as brief, relatively general, and visionary. Long-term goals are what need to be achieved so that the vision set for the FMA becomes a reality and are intended to support the SFMP's vision.

Goals here are expressed as outcome statements and presented in Table 13 opposite each issue cluster and sub-cluster. The goal for ecological well-being is *"restored fisheries, fish habitats and clean and healthy environment."* This goal is inclusive enough to cover the relevant spectrum of pertinent ecological well-being problems/issues. These relate to the conservation of fish stocks and sustainable harvesting of fishery resources, protection of fishery habitats (including rehabilitation of degraded ones) and the maintenance of a healthy marine environment as manifested by acceptable levels of

pollution. The goal to address the priority human well-being problems and issues is an *"Improved quality of life in coastal communities within the FMA."* The enhancement of the so-called quality of life relates to various social and economic concerns. Hence, these may encompass trade and marketing, labor and gender and even knowledge., The goal to address the priority governance problems and issues is *"a government that is responsive and accountable, transparent and engaged with the concerned stakeholders in its plans and implementation"* This goal covers various institutional constraints related to weak/limited law enforcement and lack of unified or integrated fisheries policies.

Due to the weaknesses or limitations in governance, many of the conventional fisheries issues remain despite past initiatives. Ecologically, fishery habitats are continuously being degraded, particularly the illegal cutting of mangroves for household and commercial uses or their conversion into fish ponds. Some human well-being problems likewise remain. Population pressure in the coastal areas remain rampant as manifested by the many informal settlers along with poorly regulated human settlements. There is limited economic support to the fishing households particularly in terms of livelihoods. This goal is manifested by, among others, equal opportunity for the access of marine resources equitable distribution of benefits from resource use. The goals to help promote the social well-being of the people is supported by a strong fisheries economy, sustained by a healthy marine environment and guided by a good governance of the fisheries sector.

Table 13. Goal statements to address the priority issues and problems

Issue Cluster	Issues Sub-Cluster	Goal
Ecological well-being	• Overfishing	Restored fisheries, fish habitats and clean and healthy environment
	• Pollution	
	• Habitat degradation	
	• Climate Change	
Human well-being	• Trade and marketing	Improved quality of life in coastal communities within the FMA
	• Limited catch/production	
	• Labor and gender	
	• Piracy/extortion	
	• Limited knowledge base	
	• Human settlement and tenure	
Good governance	• Weak/Limited law enforcement	A governance that is responsive and accountable, transparent and engaged with the concerned stakeholders in its plans and implementation
	• No integrated policy	
	• Habitat conversion/ degradation	
	• Population pressure	
	• Inequitable Access	
	• Limited infrastructure facilities	

The three management goals set here to address multiple issues and concerns appear achievable as the building blocks for achieving them are already laid out. All the relevant stakeholder groups—academe, civil society groups, donor agencies, LGUs, local communities, people's organizations and private sector—have been actively engaged in the fisheries planning process and have sufficient experience in their respective roles. The political support has likewise been expressed at various governmental levels, particularly support from the national government agencies, particularly DA-BFAR and DENR.

CHAPTER 5: OBJECTIVES, INDICATORS, AND BENCHMARKS

This chapter presents the nine objectives of the EAFM plan in relation to the three goals described in the previous chapter to address the ecological well-being, human well-being, and good governance issues. In this plan's context, an objective pertains to a specific result that needs to be attained in relation to the goal. In effect, these objectives state what will be achieved by management actions within a certain time period and with available resources. Each objective was originally framed following the typical SMART framework: specific, measurable, achievable, relevant and time bound. During the February 2019 workshop, however, the time-bounded element of each objective and the idealistic targets sparked controversy among the participants. As a result it was agreed that the timeline of accomplishment and targets of each objective will be removed to allow for flexibility in approach and timing to achieve the management actions.

Three objectives were developed for each cluster of ecological well-being, human well-being and good governance, respectively. In turn, each objective has a corresponding benchmark or baseline condition upon which any indicator is measured progressively in future time. Some indicators are numeric (such as numbers or %) while others are qualitative (like description of change). A benchmark, on the other hand, is a reference for comparing the indicator. Often, an indicator is expressed in terms of target (responding to where you want to be) and baseline (in relation to where you have come from). When the indicator is compared to the benchmark, it provides a numerical or qualitative comparison on how the particular objective is met. In essence, the indicators and benchmarks are set for each objective to measure management performance to determine whether or not the established objectives are being achieved or met.

The ecological well-being cluster has three objectives with their corresponding indicators and benchmarks (Table 12). As the actual data/information were not available during the workshop, the values for baseline benchmarks are simply referred to during particular years. The first objective on reduction of juvenile fish catch is capture fisheries in focus. Most of the juveniles are caught by illegal or prohibited gears, particularly fine mesh nets. The target within five years is a quarter reduction of juvenile catch from the 2017 baseline. The second objective's thrust is on the rehabilitation and/or conservation of the marine habitats. The health of these marine habitats are directly linked with the sustainability of the fish stocks as these serve as nursery or breeding grounds. Mangrove forests are continuously degraded as a result of unregulated harvesting and/or conversion into fishponds and other land uses. Hence, the target is 50% increase of rehabilitated area by 2022. Also, the conditions of coral reefs and seagrass beds shall be improved/enhanced through the establishment of MPAs. Additionally, a 50% increase of improved protected area from the 2017 data is targeted for 2022.

The third objective relates to waste management focusing on solid waste. Technically, solid waste management (SWM) in the coastal areas refer largely to marine litter. At the EAFM plan's end date in 2022, the target is 80% compliance to a SWM program. Solid wastes do not directly affect the sustainability of fish stocks. However, an effective SWM program of a municipal LGU, may help promote a healthier fisheries. If human excreta are not directly discharged into the marine waters, these will not be 'consumed' by fishes thus, making them safer for human consumption.

Table 14. Objectives, indicators, and benchmarks for the ecological well-being goal

Goal	Objectives	Indicators	Benchmarks
Restored fisheries, fish habitats and clean and healthy environment	1. Reduction of juvenile fish catch on all registered fishing vessels in the fisheries management area	No. of kg juvenile fish caught % of juvenile fish caught by registered boats	BL : 2017 data of juvenile caught
	2. Increase coral, sea grass, and mangrove cover in critical areas in FMA	No. of hectares of rehabilitated mangrove Cover of live/hard coral Seagrass cover	BL: 2017 data on mangrove area in FMA
		No. of improved MPAs	BL : 2017 data on coral, seagrass, and mangrove cover & number of MPAs
	3. Improve compliance of solid waste, agricultural waste and industrial waste management program in all municipalities and cities	No. of municipalities compliant to SWM No. of municipalities with solid waste manage-ment facilities/programs	BL: No. of municipalities implementing solid waste management program in 2017

Note: BL – base line

Three objectives – with their corresponding indicators and benchmarks – are likewise identified for the human well-being cluster (Table 15). The value criterion for the first objective's is 'total income' and oriented toward an increase of 10% per year. Such livelihood programs could be diversified from both alternative (getting out of the fisheries sector) and supplemental (additional income-generating) sources. Moreover, such livelihoods could either be within the fisheries sector or outside of its domain.

Table 15. Objectives, indicators, and benchmarks for the human well-being goal

Goal	Objectives	Indicators	Benchmarks
Improved quality of life in coastal communities within the FMA	1. Annual increase in total income of fishing households through improved and diversified livelihood program	% increase in income	BL: 2017 monthly income of fishing families from all sources
	2. Empowered 5,500 families through capability enhancement	No. of families & HH members empowered or trained	BL: 2017 number of families empowered By gender group (male & female)
	3. Provide security of tenure to informal settlers	% of informal settlers provided security of tenure	BL: 2017 number of informal settlers provided tenurial security

The focus of the second objective's thrust is family empowerment through capability building. Some 5,500 families are targeted for empowerment by the terminal period of this EAFM plan. Gender will be integrated in the process as both the male and female recipients are duly considered. Thirdly, it aims to provide security of tenure to a significant proportion of informal settlers by 2022. One paradox of the fishing households is most of them are informal settlers in the coastal areas. Although they own the housing structures, they are virtual squatters on the lots where the houses are built.

The specific target (in percentage of families) will be determined according to the capacity of each LGU.

Similar to the first two clusters, the good governance dimension has three objectives with their associated indicators and benchmarks (Table 16). The first objective includes two elements to be increased by the plan's end date. The first element is to increase the level of awareness of fishery laws, preferably of all residents. An appropriate target level of increased compliance of fishery laws shall be determined by each province or LGU. Various forms of media and/or IEC materials will be used for this purpose which include flyers, TV and radio airings and community consultations.

Table 16. Objectives, indicators, and benchmarks for good governance goal

Goal	Objectives	Indicators	Benchmarks
A governance that is responsive and accountable, transparent and engaged with the concerned stakeholders in its plans and implementation	1. Increased awareness and compliance of fishery laws in 4 provinces	No. of IEC flyers distributed No. of reading materials to be distributed No. of LCE and legislative bodies No. of TV and radio airings per day No. of Licensed boat owners No. of consultations conducted	BL: 2017 data on compliance of fishery laws (based on enforcement logbook of LGU and PO
	2. Institutionalize fishery task force for Region 12	No. of consultations conducted No. of law enforcement teams established No. of intervening enforcement task force in Region 12	BL: None
	3. Developed proper management of fishery policies, plans and program, law enforcement and conflict resolutions for Region 12	No. of ordinances consolidated No. of policy review No. of harmonized ordinances in Region 12	BL: None

It is desirable that the second objective of institutionalizing one fishery task force for Region 12 be achieved in the early part of the Plan's timeline. Since there is none at the moment, only one fishery task force is targeted over the plan's five-year period. Indicators for this objective include the number of consultations conducted and the number of law enforcement teams established. The third objective relates to the harmonization of fishery ordinance on a region-wide level. Currently, the many fishery ordinances are not yet harmonized at the inter-municipality, provincial and regional levels. This objective requires the physical consolidation of existing ordinances as well as appropriate policy reviews.

CHAPTER 6: MANAGEMENT ACTIONS

This chapter presents some 40 management actions for the nine ecological well-being, human well-being and good governance objectives. Management actions refer to the proposed measures, interventions, projects or activities to attain the desired fisheries management objectives. Currently, these management actions may be regarded as more of project concepts, ideas, listing or notes. These may be developed later into full project proposals during the operational or detailed planning to be scheduled within the first year of implementing the SFMP.

Some of these management actions are only thematic in focus while others have generic geographic reference. The exact spatial focus - individual LGUs, provincial/inter-LGU projects, whole of Sarangani Bay or entire Sulawesi Sea – may be determined later. Applicable management actions may be incorporated by the concerned LGUs later in their respective CRM/fisheries plans or into the programs of other national agencies or the private sector.

6.1 Ecological Well-Being Management Actions

Some 21 management actions were identified to respond to the three ecological well-being objectives (Figure 19, Table 17). Eight management actions are proposed to address the first ecological well-being objective. The first five actions are combinations of research, IEC, policy making and monitoring. Conducting an inventory of fishing gears forms part of the Boat R. The national program for municipal fishing vessels and gears registration dubbed as "Boat-R" is a follow through of the Fish-R program. It is designed to enhance, fast-track and complete the nationwide registration of municipal fishing vessels three gross tons and below and municipal fishing gears as required under EO No. 305 s. 2004 and Sec. 19 of RA 10654 (that amended RA 8550). Accurate data on fishing boats and gears shall help regulate fishing effort in Region 12 as input controls. A series of consultative meetings and IEC activities will be undertaken in line with the first action. IECs are advocated to enhance the general awareness of the coastal communities with specific focus against the catching of juvenile fish.

Figure 19. Workshop output for ecological well-being management action planning

The third action relates to the benchmarking of best practices of closed season. Seasonal closure is a temporal measure to regulate fishing effort. Examples of successful cases include the seasonal closures for commercial fishing on sardine in the Zamboanga Peninsula and all commercial fishing in Davao Gulf; rabbit fish in Palonpon, Leyte; small pelagics in Balayan Bay, Batangas; and roundscad in Northern Palawan. Based on the benchmarking results and best available data, an appropriate local ordinance for a closed season of fishing activities shall be enacted.

The fifth action is essentially a monitoring and evaluation (M&E) endeavor. As such, the socio-economic as well as biophysical impacts (including reduction of juvenile fish catch) of implementing such closure shall be evaluated. If the result is positive, it could either be continued or replicated in other areas.

Table 17. Ecological well-being management actions

Goal 1: Restored fisheries, fish habitats and clean and healthy environment

Management Actions	Responsible Agency	Timelines	Place	Estimated Budget
Objective 1: Reduction of juvenile fish catch on all registered fishing vessels in fisheries management areas.				
1. Conduct inventory of fishing gears 2. Conduct of assembly of meeting and IEC 3. Benchmarking of best practices of closed season 4. Enactment of local ordinance for closed season of fishing activity 5. Conduct monitoring activity	M/LGUs, BFAR, Phil. Coast Guard	2019-2023	All coastal municipalities	TBD
6. Strengthen Bantay Dagat/FARMC 7. Apprehension of illegal activities	LGU, DENR, PNP, PCG			
8. Provision of livelihood projects (technical and capital)	BFAR, LGU, DENR, DTI, DOST, DSWD, CSO, PO			
Objective 2: Increase coral, sea grasses and mangrove cover by in critical areas in FMA				
9. IEC to Community 10. Regular monitoring of mangrove areas 11. Mangrove rehabilitation	LGU, BFAR, DENR-CMEP, all stakeholders	2019-2023	All coastal municipalities	TBD
12. Assessment of coral areas 13. IEC to Community 14. Mapping of all coastal areas 15. Rehabilitation/ Planting of Corals 16. Regular monitoring and annual assessment of coastal habitats & MPAs	LGU, BFAR, DENR-CMEMP, NGOS, all stakeholders			
Objective 3: 100% compliance of solid waste, agricultural waste and industrial waste management program in all municipalities and cities				
17. IEC to community 18. Formulation/Updating of SWM Plan 19. Conduct regular quantity monitoring in FMA 20. Establishment of ESWM Program 21. Formulate 'buy back' policy/ guideline on used fuel of fishing boats	LGU, DENR-EMB & CMEMP, DTI	2019-2023	All coastal municipalities	TBD

The next two actions are law enforcement in context. The fisheries law enforcement units (*Bantay Dagat*) shall be strengthened. Part of this action could be the FARMC's institutional strengthening. This may require various training and capability building measures as well as logistical support. Apprehension of illegal activities naturally follows. The fisheries law enforcement units could perform their mandates better if they are fully trained (including legal protocols of apprehending the violators) and are well-equipped with proper patrol boats with the necessary accessories.

Eight management actions are also proposed to pursue the second ecological well-being objective. The first three actions relate to mangroves. One involves IEC to raise community awareness. Regular monitoring of mangrove areas will be undertaken to assess their conditions or status. Mangrove rehabilitation shall likewise be undertaken in previously denuded areas, including abandoned fishponds. The next five activities are more specific to the coral reefs. The research part involves resource assessment and mapping of coral areas and other coastal habitats. IEC is intended to enhance community awareness. For degraded sites, there will be rehabilitation or planting of corals. Regular monitoring and annual assessment of coralline areas and other habitats, most particularly in the 23 established MPAs and proposed MPA sites will be undertaken. The establishment of MPA networks, as encouraged by the DENR-BMB under its CMEMP program, may be explored by the LGUs and the SBPS PAMB.

Five management actions relate to the third ecological well-being objective. The thrust is about solid waste management (SWM) which would involve IEC and awareness programs about SWM. Existing SWM Plans of LGUs will be updated while SWM Plans need to be formulated for the majority of LGUs without such plans. The conduct of regular quantity monitoring in FMA relates more to marine litter or debris. Solid waste may include human excreta that are directly discharged into the fishing grounds. If consumed by fishes, this may have implications on food safety. Meanwhile, the establishment of ecological solid waste management (ESWM) Program has a wider geographical scope. The last management action emerged from the last workshop as pointed out by participants. To address the perennial issue of indiscriminate dumping of used fuel in the coastal area it was suggested that a 'buy back' policy be formulated, and also monitoring of petroleum sales by fishing boats to aid management policy.

6.2 Human Well-Being Management Actions

Some seven management actions are proposed to address the three human well-being objectives (Table 18). Figure 20 summarizes these management actions diagrammatically. There are two management actions for the first human well-being objective. The first relates to 'livelihood support' that covers several aspects. Modern food processing facilities are needed for value adding of the raw fishery products so these could be sold at higher prices for both domestic consumption and export market. In terms of capture fisheries, infrastructure facilities are needed such as community fish landing centers (CFLCs) and cold storage plants as well as motorboats and fishing gears. In the case of aquaculture, quality fingerlings are needed for dispersal. The DENR- Coastal and Marine Ecosystem Management Program (CMEMP) is implementing biodiversity-friendly enterprises that can be adopted by LGUs in Region 12 under this SFMP.

Table 18. Human well-being management actions

Goal 2: Improved quality of life in coastal communities within the FMA

Management Actions	Responsible Agency	Timelines and Milestone	Place	Estimated Budget
Objective 1: Annual increase in the total income of all fisherfolks through improved and diversified livelihood program				
1. Livelihood Support	BFAR, LGU, DTI, GFI, Private Companies	2019-2023	All FMA (LGUs)	TBD
2. Education Support for fisherfolk children	BFAR, LGU, DepEd, TESDA, DOST, CHED			
Objective 2: Empowered at least 5,500 families through capability enhancement				
3. Capability building of fishing households/families	BFAR, BLGU, DTI, DOLE, DOST, DAR, DSWD	2019-2023	All FMA (LGUs)	TBD
4. Capability building of LGU personnel	BFAR, LGUs, USAID			
Objective 3: Provide security of tenure to informal settlers				
5. Securing tenure of migrants in SBPS 6. Establishment of fisherfolk villages 7. Urban housing for fisherfolk households	DENR, DSWD, LGU, NHA, DAR, BFAR	2019-2023	All FMAs	TBD

The next action relates to education support for fisherfolk children. DepEd may provide scholarship program for basic education (elementary and high school). TESDA provides support for technical and/or vocational skills; some of these are fisheries-specific such as modern techniques for fish processing. The so-called alternative learning schools (ALS) may also be sought. Various government entities provide academic sponsorship for higher education. BFAR offers the Fisheries Scholarship Program (FSP). The 8th batch of FSP – Fisherfolk Children Educational Grant (FCEG) is underway. CHED and DOST likewise offer scholarship programs related to agriculture and fisheries.

Figure 20. Workshop output for human well-being management action planning

Two parallel management actions relate to the second human well-being objective. The thrust is about capacity building (particularly trainings) of two groups of constituents: (1) fishing households/families and (2) LGU personnel. Pertinent household members may be trained on various skills such as fish processing and value adding, marketing/social enterprise development, CRM process and IEC. They may also be trained about various aspects of gender and development (GAD). Capability building of LGU personnel are of different types. These could be more formal, such as the trainer's training of technical personnel. There are few personnel within the Office of Municipal Agriculturist who are trained in various

facets of fisheries management. These may also involve cross learnings of agriculture/fisheries technicians with concerned stakeholder groups.

Three management actions are proposed to pursue the third human well-being objective. The first is about securing the tenure of migrants who are in SBPS. They are covered by what is known as Protected Areas Community-Based Resource Management Agreement (PACBARMA). Such legal instrument provides tenure options that extend some access, use and management rights to communities that may include indigenous peoples and local communities, including migrants. The next action is the establishment of fisherfolk villages in appropriate location. Human settlements in Region 12's coastal area are either not properly planned or poorly regulated. The third action deals with the establishment of urban housing for fisherfolk households. Most fishing families are classified as informal settlers or squatters. Hence, they do not own titles to the lands where they reside.

6.3 Governance Well-Being Management Actions

A total of 13 management actions are listed in relation to the three good governance objectives (Table 19) that are visually represented in Figure 21. There are five management actions for the first objective. The first is to create an FMA Governing Board and Council to manage the entire area as a single unit. This will involve all the relevant stakeholder groups that include, among others, academe, CSOs, donor agencies, LGUs, NGAs NGOs, POs, private sector and research institutions. This will be a priority activity in 2018. Secondly, appropriate IECs will be undertaken along this cluster of tasks. Thirdly, there will be reviews of existing fisheries policies and regulations. The aim is to fully harmonize or integrate them thereby eliminating the overlaps and inconsistencies. The fourth action is the implementation of catch documentation and traceability system (CDTS). This is an on-going initiative being spearheaded by BFAR 12.

Figure 21. Workshop output for governance well-being management action planning

A particular recommendation is to adopt (and consequently implement) an ordinance on catch documentation about municipal fisheries that may include several parameters such as log sheets on boats and catch validations of landings. The last action relates to mobile registration pertaining to Boat R and Fish R. These national programs for municipal fishing vessels and gears registration are described in the earlier activities. Having a comprehensive and complete data on fishing boats and gears in Region 12 shall help in more appropriate/realistic regulation of fishing effort.

Table 19. Governance well-being management actions

Goal 3: Developed proper management of fishery policies, plans and program, law enforcement and conflict resolutions for region 12.

Management Actions	Responsible Agency	Timelines and Milestone	Place	Estimated Budget
Objective 1: Increased awareness and compliance of fishery law in 4 provinces				
1. Create FMA Governing Board and Council	BFAR 12, LCEs, TWG-EAFM, Stakeholders	2019	Gen San	200,000
2. IEC	TWG, BFAR, LGUs, PIA, DENR, Stakeholders	2019 onwards	Region 12 FMA Coastal Areas	500,000
3. Review of Policy and Regulation	BFAR, MARINA, LGUs	2019-2020	Gen San Palimbang	100,000
4. Implementation of CDTS	BFAR, PFDA, Exporters, LGU	On-going	Region 12 FMA	500,000
5. Mobile Boat R and Fish R	BFAR, LGU, FARMC, MARINA	On going	Region 12 FMA	100,000
Objective 2: Institutionalize fishery task force for Region 12				
6. Legislative Formulation of Fishery task force thru administrative order 7. Consultation and meetings 8. Creation of TWG 9. Draft of JAO 10. JAO Consultation 11. Finalize JAO	BFAR, MARINA, PCG, LGU, FARMC, Bantay Dagat, Provincial Tourism Office	2019 onwards	Region 12 / FMA	1,500,000
Objective 3: Harmonize fishery ordinance by Region 12				
12. Creation of Governing Board for harmonizing fishery ordinance	All Coastal Municipalities/FMA	BFAR LGUs, Stakeholders	2018-Q1	100,000
13. Creation of harmonized fishery ordinance in the FMA	All coastal municipalities/FMA	BFAR, Municipal Legislators, SB, Stakeholders	2018-2020	5,000,000

Six management actions are recommended to pursue the second governance objective. The desired outcome is the institutionalization of one fishery task force for the entire Region 12. The stated actions follow the standard legislative process of coming up with a JAO or a Joint Administrative Order. Once the JAO has been signed by all concerned parties, the regional fishery task force could be fully operationalized. As a consequence, the entire FMU may be managed as a single, unified entity.

Only two management actions are proposed to pursue the third governance objective. The first step is the creation of a Governing Board (or a TWG) for harmonizing existing fishery ordinances. The existing ordinances – that cover villages, cities/municipalities, provinces and entire Region 12 – are yet be harmonized or fully integrated. At times, there are conflicting provisions such as in terms of payments of fees and imposition of penalties. The second activity will lead to the desired end state of

a harmonized fishery ordinance on a region-wide basis. Accomplishing this legal document may lead to better management of the region's fisheries sector.

Lack of/limited CDT could be tackled in several dimensions. One is to explore available technology to support CDT in innovative ways. That means looking at the operational models for both the commercial and municipal fisheries. The second one is to find cheaper alternatives to VMS (vessel monitoring system). Reliable but affordable electronic equipment are requisites for effective CDT. The third recommendation relates to capacity building. More specifically, the fishing crews need to undergo specialized training on CDT recording and/or documentation. A new research grant from USAID Oceans will endeavor to develop a simple but innovative mobile technology to explore the best ways to optimize existing CDT data from Oceans-supported e-CDTS technology in partnership with the Futuristic Aviation and Maritime Enterprise (FAME) for the purpose of improved fisheries governance in the Sarangani Bay-Celebes Sea FMA.

CHAPTER 7: INSTITUTIONAL ARRANGEMENT, COMMUNITY EMPOWERMENT, AND CAPACITY BUILDING

An appropriate Organization and Management (O&M) shall be established to effectively implement this SFMP. During the October 2017 EAFM Planning workshop, it was agreed that the finalization and adoption of this plan will be undertaken by the EAFM Technical Working Group (Table 20). The institutional lead is BFAR 12 with representations from relevant sectors. Other institutions will likewise be involved which may include - but not limited - to the following: DENR 12, other NGAs, municipal/provincial LGUs, private sector, civil society groups and people's organizations.

Table 20. Proposed EAFM team members in Region 12

Proposed Representatives	No. of Persons
BFAR FMRED	1
PFO	4
CFO	1
RFARMC	1
Commercial Fishing	1
Municipal Fishing	1
CSO/NGO	1 (Spectrum)
SBPS- PAMB	1
Law Enforcement Group	3 (PNP, Maritime, Coastguard)
LGU	4 (Sarangani, Sultan Kudarat, South Cotabato, Cotabato City)
Academe	1 (MSU – General Santos)

An important policy development in support of the SFMP is the issuance of BFAR FAO 263, series of 2019 on the "*Establishment of Fisheries Management Areas (FMA) for the Conservation and Management of Fisheries in Philippine Waters"* approved on January 28, 2019. Section 6 of this FAO provides for the establishment of a Management Body for each FMA, whether in the form of a Council or Board as appropriate. For the SOCCSARGEN FMA-3 this management body shall be composed of the BFAR-RFO 12 (as Chair), a Local Chief Executive (as Co-Chair), and representatives from the LGUs, municipal and commercial fishing sectors, aquaculture sector, fish processors/traders/market

organizations, academe, indigenous people (where appropriate), local NGOs, other NGAs, and the SBPS PAMB Chair. Where an Integrated FARMC exists, its Chair becomes a member of the FMA management body.

A strategic program will be developed to build the capacity of various stakeholders in order to enhance their ability to implement an EAFM approach to managing the fisheries systems and resources of the SB-SS FMA. Developed capacities for managing a complex resource system would lend to empowerment and building political will. Upon the formal adoption of this SFMP the BFAR TWG and its partners shall conduct an Action Planning to formulate this program.

CHAPTER 8: SUSTAINABLE FINANCING

There are existing and potential sources of funds to finance the plan's management actions. There will be associated costs to such management actions such as personal services, maintenance and other operating expenses (MOOE) and capital outlay. Both the provincial and municipal LGUs may finance certain management actions. These funds may come from the LGUs' internal revenue allocation (IRA) and local revenues such as auxiliary invoices, business permits, docking fees, fines, licensing fees, penalties, taxes and user fees.

Other NGAs may provide additional funds. Foremost among these are DA-BFAR (more specifically BFAR 12 itself), DENR (e.g., BMB Protected Seascape and Coastal Management programs) and DTI. The Government Financing Institutions (such as Development Bank and Land Bank) may provide funding support, particularly for livelihood-related activities.

Other possible funding sources are donor agencies. These may include Asian Development Bank (ADB), Australian Agency for International Development (AusAID), World Bank and GIZ. The USAID Oceans may provide technical assistance particularly with regard to CDT. Project proposals for possible funding may be submitted to international NGOs with interests in fisheries and CRM.

A separate EAFM Business Plan will be developed later, which intends to establish a sustainable funding mechanism for the LGUs' outlined activities. This shall contain the details of management actions. As such, the management actions may be translated into a 'project format' that may include these elements: site/coverage, rationale/background, objectives, key activities, expected outputs and corresponding budget/cost estimates. As appropriate, the said EAFM Business Plan will be incorporated into the respective annual investment and/or business plans of the LGUs.

Upon adoption of the plan by the BFAR, a financing strategy and/or roadmap will also be developed including list of potential sources of funding including a Public-Private Partnership scheme.

CHAPTER 9: IMPLEMENTATION PLAN AND COMMUNICATION STRATEGY

A communication plan or strategy helps communicate the actual EAFM plan to all stakeholders once it has been formalized. As such, this document formally defines who should be given specific information, when that information should be delivered, and what communication channels will be used to deliver the information. It identifies ways of communicating with different stakeholders for accessing more information/data as well as generating feedbacks through consultation processes. The results of the implementation of this plan, from 2019-2023, will be communicated to identified target audiences through various methods. These audiences are conveniently divided into the three EAFM clusters. Table 21 presents the ecological well-being target audiences, communication methods, key messages and timing. The target audiences include LGU officials and community members while the communication methods include consultation meeting and orientation.

Table 21. Ecological well-being communications components

Target Audiences	Communication Methods	Key Messages	Timing
1. LCE	Consultation Meeting	Plan Briefing EAFM	Through appointment Scheduled
2. SB/SP Member	Orientation		
3. Community Stakeholders	Consultation		

Table 22 presents the communication strategy for the human well-being. Due to more target audiences, the communication methods are more diverse here while Table 23 presents the good governance's elements for its communication strategy. The stakeholders here are the most diverse covering representatives from the NGAs and LGU officials. Consequently, the communication methods and key messages are likewise varied in sharing the EAFM plan.

Table 22. Human well-being communications components

Target Audience	Communication Method	Key Messages	Timing
1. P/C/M LGUs officials	Social media/radio/elevator pitch EAFM lead	EAFM selected / salient topics -capability Livelihood Marketing Gender development CRM Financial Housing settlement	Scheduled time and date
2. Fisherfolk coastal communities	General assembly Consultation/FGD Training		

Table 23. Governance well-being communications components

Target Audience	Communication Method	Key Messages	Timing
1. Governor	Letter with Proposal	EAFM Plan Roles of Agencies	2019 Q1
2. Coastal Mayors	Orientation Meeting/Dialogue		

Target Audience	Communication Method	Key Messages	Timing
3. Regional Director/BFAR/DENR	Orientation Meeting/Dialogue		
4. SB Committee on Fisheries and Agriculture	Orientation Meeting/Dialogue		
5. MAO and AT	Orientation Meeting/Dialogue		
6. Fisheries Legal Officers	Orientation Meeting/Dialogue		

As part of implementation planning, the list of management actions shall be translated into more implementable or operational terms. This may be regarded as the project development phase. The actions listed and/or described in Chapter 6 are more of tasks, activities or concept notes. These are not yet in implementable or readily executable format. It proposed that an Implementation work plan will be developed, which with the EAFM Plan will result in action. The implementation plan can be a set of steps to take on how each agency/LGU/other stakeholders can incorporate into their existing planning/implementation processes the management actions in the EAFM plan they are responsible for/contribute to.

CHAPTER 10: MONITORING AND EVALUATION

This chapter describes the plan's M&E system, anchored on the principle of participatory approach whereby the stakeholders are involved in the identification of indicators to be used, as well as in the actual collection of data. Monitoring and Evaluation (M&E) is meant to gauge if our management actions are getting us closer to achieving our objectives and goals. Monitoring refers to the collection of data that are focused on the indicators that in turn are linked to the plan's objectives. It is a continuous process that provides information enabling you to track changes. Monitoring data could either be qualitative or quantitative. Evaluation, on the other hand, is more concerned with collating the results of monitoring and assessing the management performance against benchmarks; this part/stage also entails reporting. At regular intervals, we evaluate how well we are meeting the objectives by comparing the indicator against the benchmark. Benchmarks are essential as they provide the reference point for assessing the various facets or programs of fisheries management. Hence, this plan's M&E system provides the critical information for adaptive management.

This plan's M&E system may include reporting system, documentation processes, evaluation/performance indicators, implementation mechanisms, and baseline data/information. This M&E scheme/system shall track progress in achieving the goal, objectives and targets of the SFMP through time. In this way, accurate and timely feedback may be provided to the implementing units/organizations. This Chapter also provides for a continuing process of updating data on the state of coastal habitats and fishery resources of Region 12.

The monitoring indicators, frequency and method, targets and evaluation parameters vary across the three EAFM clusters. The ones for ecological well-being are presented in Table 24. Two indicators relate to marine/coastal habitats; two indicators pertain to fisheries and one is focused on pollution. The geographical coverage of rehabilitated mangrove areas will be monitored frequently (quarterly) as compared with coral reefs and seagrasses (twice a year). Monthly collection of data from NSAP

sites will be undertaken to monitor the volume of juvenile fish caught. In the case of handline fishing zone, it will be monitored by BFAR patrol boat. Monitoring of the municipal SWM program shall be done annually.

Table 24. Monitoring and evaluation of ecological well-being cluster

Indicator	Monitoring Frequency	Monitoring Method	Evaluation (notes on progress)
No. of hectares rehabilitated mangrove areas	Quarterly	Geo tagging	Survival rate or mortality rate (whichever is preferred)
No. of coral reefs and seagrasses areas protected	Twice a year	Geo tagging	Survival rate or mortality rate
No. of kilos of juvenile fish caught	Monthly collection of data from NSAP	Gathering of secondary Data from NSAP	No illegal fishing Closed season/Fishing ban implementation
Handline fishing zone	Semi Annual	BFAR patrol boat	Increased municipal fish caught and reduced juvenile catch
No. of municipal implement SWM program	Annual	Monitoring Checklist	Evaluation checklist

Details of M&E for the human well-being cluster is presented in Table 25. Monitoring frequency varies across indicators. Income shall be monitored annually with a target of 10% increase in income/year. The same frequency shall be done for the percentage of informal settlers provided with security of tenure. The number of families empowered, though, shall be monitored only on a quarterly basis given a target of some 5,500 households.

Table 25. Monitoring and evaluation of human well-being cluster

Indicator	Monitoring Frequency	Monitoring Method	Evaluation (notes on progress)
Increase in monthly or annual income (% or actual amount)	Annual	Survey - Questionnaire - KII - FGD	Interventions may not result to direct increase in income Depreciation of assets
No. of families empowered	Quarterly	Survey -No. of trainings Training report	Receptive Households Adoption of knowledge Change in Values
% of informal settler provided with security of tenure	Annual	Proof of ownership -Management agreement Stewardship Award Certificate	PAMB Approval

The monitoring indicators, frequency and method, targets and evaluation parameters for the governance cluster is presented in Table 26. Monitoring frequencies range from once to annual. For example, the number of CDTS implemented will be monitored on an annual basis. The number of FADs deployed will be monitored on a semi-annual basis by BFAR through geo-tagging or MCS vessel. Meanwhile, IECs in the coastal villages will be monitored on a quarterly basis.

Table 26. Monitoring and evaluation of governance cluster

Indicator	Monitoring frequency	Monitoring Method	Evaluation (notes on progress)
No. of FADs deployed	Semi annual	Geo tagging/MCS vessel with coordinates	Depend on BFAR program
No. of municipalities and barangays to be conducted on IEC	Quarterly	Trivia contest during renewal of license	Submitted reports
No. of LCEs and Legislative Bodies	Annual	Meetings	Attendance to Meetings
No. of CDTS Implemented	Annual	Interview and survey	Submitted reports and analysis
No. of TV and radio Airings per day	Quarterly	Proof of payment (receipt)/Validation survey (household)	Validation of survey
No. of licensed boat/gear	Annual	Annual reports (BFAR, MARINA, LGUs, BIR, DTI, SEC)	Reports of concerned agencies
No. of consultation meetings conducted	Annual	Consultation and meetings	Committed stakeholders
No. of law enforcement teams established	Annual	Local EO and Resolution	Organized Established Team capacitated
Interagency task force in Region 12	Annual	Deputized fish warden/Annual report	Court cases and apprehensions
No. of consultations conducted	Annual	Reports and Documentation	Informed stakeholders
No. of ordinances consolidated	Annual	Ordinance submitted (hardcopy)	BFAR and MAO will consolidate
No. of harmonized ordinances in Region 12	Once	Drafted Joint ordinance	BFAR 12 to lead
No. of policy reviews	Annual	policy reviews	BFAR 12 to lead
Governing board created	Annual	MOU/MOA alliance	All LCE Members

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ANNEX I: LIST OF PARTICIPANTS - EAFM PLANNING WORKSHOP FOR CRAFTING THE SARANGANI BAY AND SULAWESI SEA FISHERIES MANAGEMENT PLAN, OCTOBER 23-27, 2017

	Name of Participant (First Name, Last Name)		Title	Organization	Gender	
					Male	Female
A. NGOs, CSOs, and Private Sectors						
1.	Jul-Annie	Kadil	Vice- Chairman	MFARMC- Kalamansig	x	
2.	Rey Colin	Cabureg	Project Officer	Spectrum	x	
3.	Dennis Matt	Callo	Provincial Coordinator	Spectrum	x	
4.	Aida	Magallanes	AOS, Volunteer	Apostles of the Sea		x
5.	Caredad	Felisilda	President	Gamda		x
6.	Julaide	Aparis	Manager	Isla Jardin	x	
7.	Ronald	Olarte	Chairman	MFARMC- Kiamba	x	
8.	Jerson	Nerez	OMAG Staff	LGU- Alabel	x	
9.	Nazarius	Wata	Chairman	MFARMC- Glan	x	
10.	Christine	Cañete	Acer	SFFAII		x
11.	Shalimar	Abdurahman	Project Officer	SFFAII		x
12.	Orly	Badilla	Program Coordinator	A.D.S/ OND HESED	x	
13.	Eric	Anima	Liaison	FISHER JULEMFI	x	
14.	Alvaro	Casuga	Chairman	MFARMC Palimbang	x	
15.	Marlon	Narisma	Accounting Staff	JULEMFI CORP.	x	

16.	Basil	Mustapha	Chairman	BFAR-FARMC	x	
17.	Josephine	Bonga	QA Supervisor	TENPOINT		x
B. BFAR, Academe and other National Agencies						
18.	Medardo	Jamiro Jr.	PFO South Cotabato	BFAR XII	x	
19.	Myrna	Ramos	Aquaculturist I	BFAR Central Office		x
20.	Suzette	Baresma		NFRDI		x
21.	Amor	Diaz	OIC FIDSSD	BFAR Central Office		x
22.	Blakie	Garules	Aquaculturist II	NFRDI		x
23.	Kaye Kirsteen	Alegado	Asst. Info Officer	BFAR Central Office		x
24.	Abdelnaser	Tarabasa	OIC-ARD	BFAR XII	x	
25.	Glenn	Padro	Sr FRO	BFAR XII	x	
26.	Gemma Chyrel	Moreno	Sr Aquaculturist	BFAR XII		x
27.	Mildred	Buazon	Chief, Admin & Finance	BFAR		x
28.	Ronnie	Romero	OIC, MES	NFRDI	x	
29.	Maria Angelica	Cecilio	NSAP, PROJ. LEADER	BFAR12		x
30.	Mercy	Tomo	OIC ADMIN.	BFAR12		x
31.	Joseph Albert	Uluan	CFO	BFAR12	x	
32.	Elaine	Garvilles	AQUA II	BFAR-NFRDI		x
33.	William	Dela Cruz	Researcher	BFAR-CO	x	
34.	Rafael	Ramiscal	OIC-CFD	BFAR-CO	x	
35.	Zoilo	Aquino	PHOTOGRAPHER	BFAR-CO	x	
36.	Abigail	Javier	Aquaculturist II	BFAR-NBFTC		x
37.	Lainie	Baraocor	Aquaculturist II	BFAR-CFD		x

38.	Christian Joy	Duay	Coast Guard	Philippine Coast Guard	x	
39.	Omar	Saikol	EMS II	DENR PASU	x	
40.	Ariel	Ortiz	Asst. Professor V	MSU-GSC	x	
C. Local Government Units						
41.	Amilbahar	Abdulgani	Supervising Agri	LGU Kalamansig	x	
42.	Allan	Amoroso	Planning Officer I	LGU Sarangani	x	
43.	Faith	Batatin	Agri I/ PFC	OPAG, Sarangani		x
44.	Mah. Zajed-din	Makakua	OIC MENRO/ PDO I	LGU Palimbang	x	
45.	Tita	Suib	MPDC	LGU Malapatan		x
46.	Carmelo	Velasco	MPDC	LGU Kiamba	x	
47.	Arlene	Hollero	AT/OMAG	LGU Maasim		x
48.	Dennis	Carta	AA IV	LGU Maasim	x	
49.	Elvira	Ayog	AGO 12	LGU Maasim		x
50.	Venancio	Banquil	LGU OMAG	LGU Kiamba	x	
51.	Ricky	Noble	AT/OMAG	LGU Lebak	x	
52.	Ma. Eleanor	Sondalo	AT/ Fishery Coordinator	LGU Palimbang		x
53.	Crisanto	Suarez III	AT/ MFC	LGU Glan	x	
54.	Jonathan	Balili	AT	OCAG	x	
55.	Tita	Suib	MPDC	LGU-Malapatan		x
56.	Laarni	Nagal	MPDC	LGU-Malapatan		x
57.	Reynaldo	Zaragoza Jr.	Aquaculturist II	OPAG-SK	x	
58.	Nanette	Nacional	OIC MENRO/ Fishery Coor.	LGU-Maitum		x
59.	Movima	Gono	Aquaculturist II	LGU-Gen. Santos		x

60.	Rolyn	Montajes	AA II	LGU-Glan		x
61.	Luisa	Doctor	MFARMC	LGU		x
62.	Diosdado	Cequiña	City Fishery Coor.	LGU-GENSAN	x	
D. USAID Oceans and SEAFDEC						
63.	Rattana	Tiaye	Fisheries Management Scientist	SEAFDEC/TD		x
64.	Thankyalak	Suasi	Fisheries Management Section Head	SEAFDEC/TD		x
65.	Len	Garces	EAFM Expert	USAID Oceans	x	
66.	Arlene	Satapornvanit	Gender Specialist	USAID Oceans		x
67.	Rebecca	Andong	Country Coordinator	USAID Oceans		x
68.	Francisco	Pasicolan Jr.	Assistant	USAID Oceans	x	
69.	Michael	Pido	Rapid Appraisal Specialist	USAID Oceans	x	
70.	Rosalind	Sichon	Admin. Finance Officer	USAID Oceans		x
71.	Jane Christine	Abellar	Documentor	USAID Oceans		x

ANNEX II: LIST OF PARTICIPANTS - REVIEW AND FINALIZATION WORKSHOP OF THE EAFM PLAN FOR SARANGANI BAY AND SULAWESI SEAS, OCTOBER 25-26, 2018

	Name of Participant (First Name, Last Name)	**Title**	**Organization**	**Gender**	
				Male	Female
A. Government Agencies					

1.	Glenn	Padro	Senior Fishing Regulation Officer	BFAR Region XII	x	
2.	Joseph Albert	Uluan	Senior Aquaculturist	BFAR Region XII	x	
3.	Efren	Hilario	Aquaculturist II	BFAR Region XII	x	
4.	Gemma Chyrel	Moreno	Senior Aquaculturist	BFAR Region XII		x
5.	Marie Ann	Finalla	Fishing Regulation Officer	BFAR Region XII		x
6.	Jesrel	Pantaleon	Aquacultural Technician	BFAR Region XII	x	
7.	Rey	Caballero	Technical Staff	BFAR Region XII	x	
8.	Omar	Saikol	Environmenta Management Specialist	DENR-PAMB	x	
9.	Quennie Lyn	Arellano	Staff	DENR-PASU		x
10.	PO3 Jonathan	Obedencio	Chief Master at Arms (CMMA)	Philippine Coast Guard	x	
11.	PO2 Ronald	Veranque	Staff Sergeant	Philippine Coast Guard	x	
12.	Vincent	Villacorta	Police Officer	Philippine National Police, PRO 12	x	
13.	Celestino	Daniel	Police Superintendent	Philippine National Police, PRO 12	x	
B. Local Government Units						
14.	Cesar	Mapula	Senior Fishing Regulation Officer	City Fisheries Office, Gensan	x	
15.	Enriquito	Daguplo	Municipal Agriculturis	LGU Alabel, Sarangani Province	x	
16.	Abubakar	Dupatuan	Aquaculturist I	LGU Cotabato City	x	
17.	Disdado	Cequina	Supervising Agriculturist	LGU General Santos	x	
18.	Movima	Gono	Senior Aquaculturist	LGU Gensan, City Agriculturist Office		x
19.	Crisanto	Suarez, Jr.	Senior Aquaculturist	LGU Glan, Sarangani Province	x	
20.	Amilbahar	Abdulgani	Supervising Agriculturist	LGU Kalamansig, Sultan Kudarat	x	
21.	Carmelo	Velasco	Municipal Environment & Natural Resource Officer	LGU Kiamba, Sarangani Province	x	
22.	Ricky	Noble	Agricultural Technologist	LGU Lebak, Sultan Kudarat	x	

23.	Arianne Shane	Valdez	Support Staff	LGU Maitum, Sarangani Province		x
24.	Alireza	Dialawa	Agricultural Technologist	LGU Maitum, Sarangani Province	x	
25.	Ma. Eleanor	Sondalo	Agricultural Technologist	LGU Palimbang, Sultan Kudarat		x
C. CSOs and Private Sectors						
26.	Genory Vanz	Alfasain	Technical Assistant	SFFAII	x	
27.	Eric	Sison	ICT Specialist	SFFAII	x	
28.	Ramir	Rendon	Chairman	CFARMC Gensan	x	
29.	Jayson	Kasim	Technical Specialist	FAME	x	
30.	Buenafe	Olarte	Chairman	MFARMC Lebak, Sultan Kudarat	x	
D. USAID Oceans						
31.	Len	Garces	Fisheries Management Specialist	USAID Oceans	x	
32.	Rebeca	Andong	Country Coordinator	USAID Oceans		x
33.	McLean	Suarez	ICT Specialist	USAID Oceans	x	
34.	Sheena Marie	Nolasco	Program Assistan	USAID Oceans		x
35.	Rosalind	Sichon	Admin & Finance Officer	USAID Oceans		x
36.	Asuncion	De Guzman	STTA / Consultant	USAID Oceans		x
37.	Cristopher Rey	Cadiz	Community Mobilization Specialist	USAID Protect Wildlife	x	

ANNEX III: LIST OF PARTICIPANTS - WORKSHOPS FOR THE PRESENTATION OF THE SARANGANI BAY AND SULAWESI SEAS SUSTAINABLE FISHERIES MANAGEMENT PLAN, FEBRUARY 11, 2019

	Name of Participant (First Name, Last Name)		**Title**	**Organization**	**Gender**	
					Male	Female
Government Agencies						
1.	Efren	Hilario	Aquaculturist II	BFAR Central Office	x	
2.	Al-Azeez	Pautong	NSAP Data Analyst	BFAR Region 12	x	
3.	Maria Angelica	Cecilio	Aquaculturist I	BFAR Region 12		x
4.	Glenn	Padro	Senior Aquaculturist	BFAR Region 12	x	
5.	Emelyn	Donia	NSAP Data Analyst	BFAR Region 12		x
6.	Marie Ann	Finalla	Fishing Regulation Officer I	BFAR Region 12		x
7.	Jesrel	Pantaleon	Aquacultural Tehcnician I	BFAR Region 12	x	
8.	Gemma Chyrel	Moreno	Senior Aquaculturist	BFAR Region 12		x
9.	Rey	Caballero	Aquacultural Tehcnician I	BFAR Region 12	x	
10.	Joseph Albert	Uluan	Senior Aquaculturist	City Fisheries Office-Cotabato City	x	
11.	Felix	Robles	Management Specialist	DENR Region 12	x	
12.	Joy	Ologuin	SBPS Protected Area Superintendent	DENR Region 12		x
13.	Ma. Leanna	Manubag	Environmental Management Specialist	DENR_Biodiversity Management Bureau		x
14.	Soliba	Soliba	Police Superintendent	Maritime Gensan	x	
15.	Raymund	Fortin	Coast Guard	Philippine Coast Guard-Gensan	x	
16.	Win-Love	Circulado	Coast Guard	Philippine Coast Guard-Gensan	x	
Local Government Units						
17.	Cesar	Mapula	Senior Aquaculturist	General Santos City	x	
18.	Jerson	Nerez	Fishery Coordinator	LGU Alabel, Sarangani	x	
19.	Roy Jesus	Fiesta	Supervising Agriculturist	LGU Cotabato City	x	
20.	Basil	Mustapha	Supervising Agriculturist	LGU Cotabato City	x	
21.	Abubakar	Dipatuan	Aquaculturist I	LGU Cotabato City	x	
22.	Hadzmil	Paradji	Aquaculturist II	LGU Cotabato City	x	

23.	Faith	Batatin	Aquaculturist I	LGU General Santos City		x
24.	Movina	Gono	Senior Aquaculturist	LGU General Santos City		x
25.	Virginia	Musa	Municipal Agriculturist	LGU Glan, Sarangani		x
26.	Crisanto	Suarez, Jr.	Senior Aquaculturist	LGU Glan, Sarangani	x	
27.	Wendell	Cantero	Community Affairs Officer I	LGU Kaimba, Sarangani	x	
28.	Venacio	Banquil	Aquaculturist Technician II	LGU Kaimba, Sarangani	x	
29.	Emmanuel	Albano	Municipal Agriculturist	LGU Kalammansigm Sultan Kudarat	x	
30.	Amilbahar	Abdulgani	Supervising Agriculturist	LGU Kalammansigm Sultan Kudarat	x	
31.	Ricky	Noble	Aquacultural Tehcnician I	LGU Lebak, Sultan Kudarat	x	
32.	Normita	Escobilko	Aquaculturist Technician II	LGU Maasim, Sarangani		x
33.	Arrianne Shane	Valdez	Fisheries Coordinator/MENRO Staff	LGU Maitum, Sarangani		x
34.	Jing	Bagen	Aquaculturist Technician II	LGU Malapatan, Sarangani	x	
35.	Janice	Alba	Fisheries Staff	LGU Malapatan, Sarangani		x
36.	Ma. Elanor	Sondalo	Fisheries Coordinator	LGU Palimbang, Sultan Kudarat		x
37.	Ronnie	Lariosa	Fisheries Coordinator	OPAG-Sarangani Province	x	
38.	Reynaldo	Zaragoza, Jr.	Provincial Fishery Coordinator	Province of Sultan Kudarat	x	
39.	Jeffrey	Nunez	Aquaculturist II	Provincial Fishery Office-Sultan Kudarat	x	
Civil Society Organizations and Private Sector						
40.	Jordan	Alhabsi	Fisherman	ATH Gensan	x	
41.	Diony	Seromines	Secretary	ATH Inc	x	
42.	Raul	Gonzales	Member	ATH Inc	x	
43.	Reynaldo	Cahilig, Jr.	Technical Engineer	FAME	x	
44.	Jayson	Kasim	Technical Specialist	FAME	x	
45.	Edgar	Jopson		KAMPCO	x	
46.	Orley	Badilla	Project Officer	OND Hesed Foundation	x	
47.	Genory Vanz	Alfasain	Technical Assistant	SFFAII	x	
USAID Oceans						
48.	Sheena Marie	Nolasco	Program Assistant	USAID Oceans		x
49.	Rebeca	Andong	Country Coordinator	USAID Oceans		x
50.	Len	Garces	Fisheries Management Specialist	USAID Oceans	x	
51.	Rosalind	Sichon	Admin Finance Officer	USAID Oceans		x
52.	John	Parks	Chief of Party	USAID Oceans	x	
53.	Christopher Rey	Cadiz	Community Mobilization Specialist	USAID Protect Wildlife	x	
54.	Asuncion	De Guzman	STTA-Fisheries Management Specialist	USUAID Oceans		x
55.	Wata	Nazarius	Chairman	MFARMC Glan, Sarangani	x	

56.	Elizardo	Ruaza	Chairman	MFARMC Kalamansig, Sultan Kudarat	x	
57.	Juan	Panerio	Chairman	MFARMC Maasim, Sarangani	x	
58.	Rasid	Bani	Chairman	MFARMC Malapatan, Sarangani	x	