



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

REPORT

**FISHERIES REFUGIA SITE MANAGEMENT COMMITTEE MEETING:
MASINLOC SITE**

**ZAMBALES, PHILIPPINES
8 NOVEMBER 2021**

Prepared by
**NATIONAL FISHERIES RESEARCH AND DEVELOPMENT INSTITUTE
PHILIPPINES**

SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER
TRAINING DEPARTMENT



**Southeast Asian Fisheries
Development Center**



**United Nations
Environment**



**Global Environment
Facility**

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Southeast Asian Fisheries Development Center
Training Department
P.O.Box 97, Phrasamutchedi, Samut Prakan, Thailand
Tel: (66) 2 425 6100
Fax: (66) 2 425 6110
<https://fisheries-refugia.org> and
<https://seafdec.or.th>

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1. OPENING OF THE MEETING

1.1. On behalf of the Municipality of Masinloc, Ms Olive Gregorio, the Municipal Environment and Natural Resources Officer and the LGU Focal Person of the Refugia Project welcome and acknowledged the participants of the meeting. Mr. Valeriano Borja, the Project Leader from NFRDI also gave an opening statement, recognizing the support of the Site Committee in the implementation of the project.

1.2. After the acknowledgement and introduction of participants, Mr. Noel Barut, Technical Advisor of the Project, updated the Site Com of the recent capacity development activities conducted by the project such as the Basic Law Enforcement Training and the Project Proposal Writing Training. After which, he presented the provisional agenda of the meeting for comments, additional topic and adoption. There being no additional comments the provisional agenda was adopted and is attached as **Annex A**.

2. Approval of the Minutes of the Previous Meeting

2.1. The reading of the minutes of the previous meeting conducted last 12 May 2021 was read and reviewed by numbered line items. After the reading of the minutes of the previous meeting, the discussion of the action points and matters arising from the last meeting followed. The following items were revised and updated following the discussion and clarification made:

2.1.1. On the Initial Results of Fisheries Landing Survey (2018-2019), the common name of *Auxis thazard* was changed from Bilogan to Tulingan.

2.1.2. On the fisheries profile- MENRO specified that SIBOL Project has conducted an updated assessment of the fisheries habitat (corals, seagrass, mangrove)

2.1.3. For the suggestion to review boundary delineation: MENRO clarified that there is no need to change the delineation since the identified refugia site is part of an existing MPA.

2.1.4. For the top three priority species for Masinloc refugia, the following species were confirmed, namely:

- *Auxis thazard* (Tulingan)
- *Pterocaesio tessellata* (Terong)
- *Sardinella fimbriata* (Bilis)

2.1.5. The Site Committee agreed to add locally called monamon dilis, a species of anchovy as additional priority species of the fisheries refugia (exact species to be determined)

2.1.6. On the Establishment of Refugia Management Teams and Site Based Volunteers- it was informed that the matter is already submitted to the Sangguniang Bayan (SB) or the Local Legislative Body for the issuance of an appropriate policy such as:

- Executive Order or Memo for volunteer teams to be prepared by SB Chair on Women Kagawad Gigi E. Juarez with assistance from MENRO.
- Participants of the Law Enforcement Training to be part of the Enforcement Team
- Academe will help out in the distribution of Information, Education and communication materials.

- 2.2. After the review of the minutes, MENRO moved to approve the document, seconded by SB Gigi E. Juarez and unanimously approved by the Site Com members present.

3. Presentation of National Guidelines for the Establishment of Fisheries Refugia

- 3.1. Mr. Noel Barut, reported that a National Guidelines for the Establishment of Fisheries Refugia has been drafted, taking off from the consultations conducted in the three priority fisheries *refugia* sites in the Philippines such as Masinloc, Coron, Palawan and Bolinao, Pangasinan. He added that the initial draft has been submitted to the National Economic and Development Authority (NEDA), and that NFRDI has already received its comments to the documents.

- 3.2. He then presented the draft guidelines along with the received comments from NEDA. The Site Com proposed additional revisions as follows:

- On the Formulation and Adoption of Management Plan- to specify Fisheries and Coastal Plans as well as other related plans, to wit:

If the fisheries refugia established is within the Marine Protected Area (MPA), the fisheries refugia management plan may be integrated with the existing Coastal Fisheries and Coastal Resources Management Plan and other related plans.

- Drafting of the plan by a working group – It is recommended that the action plan that will be drafted will include policies with appropriate fines and penalties in addition to strategies and activities.

A copy of the draft guidelines with NEDA comments is attached as **Annex B**.

4. Refugia Management Plan

- 4.1. Mr. Barut shared that site specific plan for refugia management has been initiated, taking off from the inputs of the stakeholders from Masinloc. After which, the Site Com agreed on the vision and mission for the management plan, as follows:

Vision

Masinloc is a model fisheries refugia management area (community) with abundant & sustainable resources and managed environment, equitably enjoyed by law abiding citizens and guided by a dynamic, efficient and responsible governance.”

Mission

The Municipality of Masinloc shall implement the spatial and temporal management of the fisheries resources and marine critical habitat to protect, conserve, manage the marine environment, and ensure the rational utilization of the fishery resources towards the sustainable growth of fisheries productivity thru the community-based collective mechanism.

- 4.2. Strategies and Activities under each component/EAFM pillar were also discussed and unanimously approved. A copy of the draft plan is attached as **Annex C**.
- 4.3. After the discussion, the Site Com agreed to adopt a separate plan in addition to the existing management plan in Oyon Bay Protected Landscape and Seascape Management Plan. As a way forward, the refugia plan shall be officially adopted by the Sangguiniang Bayan. Part of the activities of the plan will be implemented by the LGU (MAO, MENRO, Bantay Dagat).

5. Updates on the Establishment of Volunteer Teams

- 5.1. The Chair followed up with the Site Com on the status of the Volunteer Teams which was proposed to be formed last Site Committee Meeting. He also suggested to form a Resource Mobilization and Project Development Team instead of the earlier suggested Livelihood Team.
- 5.2. In response, it was agreed that an Executive Order or Memorandum for the formation of volunteer teams to be prepared by Kagawad Gigi E. Juarez with assistance from MENRO. It was also agreed that participants of the Law Enforcement Training to be part of the Enforcement Team. With regards to the Public, Education and Communication campaign, the representative from the academe expressed their willingness to help in the distribution of IEC materials to the local community.

6. Other Matters and Way Forward

6.1. For other matters, the following agreements were made:

- On review of fisheries and environmental laws, the Site Com noted that the project has already identified the consultant who will conduct the review. In line with suggested.
- On Information Education and Communication Activities, the Site Com raised a suggestion to include local radio broadcasting, which they find as an effective medium to reach the fisherfolks in the municipality.
- On the Memorandum of Agreement with the LGU of Masinloc- the draft MOA was presented to the group with the end goal to facilitate the implementation of future project activities. As a way forward, the draft MOA was agreed to be presented to the SB, for them to consequently endorse a resolution authorizing the mayor to sign on behalf of the LGU. A copy of the draft MOU is attached as **Annex D.**

7. Other Matters and Way Forward

- 7.1. As there had been no further matters for discussion, Mr. Borja thanked the Site Com for their participation to the meeting and for Mr Barut and Ms Gasmin for their support and facilitation. He also thanked the MENRO, for the continued partnership in the project implementation, and expressed optimism for a successful implementation of the project in Masinloc.
- 7.2. A representative from the LGU declared the site committee meeting close.

FISHERIES REFUGIA SITE MANAGEMENT COMMITTEE MEETING – Masinloc Site**D Farm, Park and Co. Inc****8 November 2021****Program of Activities**

Time	Agenda
9:00 AM	Preliminaries <ul style="list-style-type: none"> - Opening Statement Site Com Member LGU Masinloc Valeriano Borja Project Leader, Refugia Project NFRDI
9:15 AM	Adoption of the Provisional Agenda
9:30 AM	Approval of the Minutes of the Previous Meeting
10:00 AM	Matters Arising from the Previous Meeting
10:45 AM	National Guidelines for the Establishment of Fisheries Refugia
11:15 AM	Refugia Management Plan
11:45 AM	Updates on the Establishment of Volunteer Teams
12:00 PM	Other Matters
12:20 PM	Closing Statements Site Com Member LGU Masinloc Noel Barut National Technical Adviser, Refugia Project

FISHERIES REFUGIA SITE MANAGEMENT COMMITTEE MEETING – Masinloc Site**D Farm, Park and Co. Inc****8 November 2021****Meeting Minutes****MEMBERS****Present:**

Local Government Unit (LGU)	
Municipal Mayor	Hon. Mayor Arsenia J. Lim (Chairperson) <i>Via Zoom</i>
Vice Mayor	Hon. Pedro O. Enciso (Vice Chairperson)
SB Chair - Agriculture and Fisheries	Hon. Arnel Aquino (Member)
SB Chair - Environment	Hon. Norman Acierto (Member)
SB Chair – Women Sector	Sorayda Sison (Member)
SB Chair – Women Sector	Gigi E. Juarez (Member)
Sanggunian Kabataan (SK)	Hon Levi Eduvala (Member)
Federation President (Youth Sector)	
Municipal Environment and Natural	Ms. Olivia Gregorio (Member) via Zoom
Resources Officer (MENRO)	
BFAR Provincial Fisheries Office (PFO)	represented by Ms. Mary Jane delos Reyes
Philippine Coast Guard (PCG)	PO1 Jeffrey Doctor (Member)
People’s Organization (PO)	Mr. Joel Butulan (Member)

Absent:

SB Chair –Association of Barangay	Hon Christian Piere Nacin (Member)
Chairman (ABC)	
Municipal Agriculture Office	MS. Joanne N. Rosete (Member)
Community Environment and Natural	Mr. Bernado Montalla (member)
Resources Office (CENRO-DENR)	

Academe Representative	Mr. Zaldy Elaugos (Member)
Municipal Disaster Risk Reduction	Mr. Juliano Ebue, Jr. (Member)
Management (MDRRM) Focal Point	
Municipal Gender and Development	Donnah Feline Port (Member)
(GAD) – Focal Point	
Philippine National Police (Maritime)	Chief PNP-Maritime
MPA Network Representative	Mr. Richard G. Pascual (Member)
Municipal Fisheries and Aquatic	Mr. Oscar Fontillas (Member)
Resources Management Council (MFARMC)	
National Technical Coordinator/Consultant	Mr. Noel C. Barut
Independent Consultant	Ms. Eunice A. Gasmin

Secretaria:

Science Research Specialist 1	Ms. Raziel Ares
Science Research Analyst	Ms. Lilibeth C. Abina

Guests:

Fisherfolks

DRAFT

**National Guidelines in the Establishment
and Operations of Fisheries *Refugia*
for Capture Fisheries Management
Philippines**

Background

To advance the long-term conservation and sustainable use of fisheries resources, the 1995 Food and Agriculture Organization (FAO) Conference adopted the Code of Conduct for Responsible Fisheries (CCRF). The code, which is non-binding and voluntary in nature, is comprehensive and applicable to all fisheries worldwide and provides guidance to reduce incidental catch or by catch, promote environmentally friendly fishing gear and establishing formal institutional arrangement among stakeholders for fisheries management. The principles and standard of the CCRF covers the following:

- Conservation of aquatic ecosystems,
- Sustainable utilization,
- Prevention of overfishing and excess fishing capacity,
- Use of the best scientific knowledge,
- Application of the precautionary approach,
- Use of selective and environmentally friendly fishing gear and practices,
- Maintenance of biodiversity and aquatic ecosystems,
- Protection of critical habitats in marine ecosystems,
- Strengthening of flag state control of fishing vessels, and
- Cooperation at sub-regional, regional and global levels

Following the adoption of the code, the 10 ASEAN Member States (AMS), through the Southeast Asian Fisheries Development Center (SEAFDEC), developed the Regional Guidelines of the FAO CCRF. The regional guidelines were produced in four sets namely:

- 1) Regional Guidelines for Responsible Fisheries Management in Southeast Asia (1999),
- 2) Regional Guidelines for Responsible Fisheries in Southeast Asia: Fishing Operation (1999)
- 3) Regional Guidelines for Responsible Aquaculture in Southeast Asia (2001),
- 4) Regional Guidelines for Responsible Fisheries in Southeast Asia: Post-harvest practices and trade.

In 2006 the four-part supplemental guidelines were developed entitled "Regional Guidelines for Responsible Fisheries in Southeast Asia Supplementary Guidelines". Part of the supplemental documents include the Regional Guidelines on the Use of Fisheries Refugia for Capture Fisheries Management (RCCRF-FM) in Southeast Asia, which was developed to assist the AMS in the implementation of the FAO CCRF and the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region. Moreover, it highlights the importance of item 7.6.4 ADD.1 on Responsible Fishing, which states that in terms of taking appropriate action to ensure that Fishing gear, methods and practices that are not consistent with responsible fishing are

phased out and replaced with more acceptable alternatives:

7.6.4 “(8) States should consider area or seasonal closure to protect critical stages of the life cycle of fisheries resources.”

In addition, these Guidelines also highlighted the importance of item 7.6.9 of the Regional Guidelines on Wastes, Discards and Ghost Fishing, which states that in taking appropriate action to minimize waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species and negative impacts on associated or dependent species in particular endangered species:

7.6.9 “(2) States should strongly implement management measures such as closed areas and seasons in critical habitats (e.g. coral reefs, seagrass beds, mangrove areas, etc.) which are important for sustaining fish stocks.”

Taking cognizance of the existing guidelines, the Fisheries Component of the UNEP/GEF Project entitled “Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand (UNEP/GEF SCS Project) in collaboration with SEAFDEC, developed the fisheries refugia concept. Along with the Habitat Component (Mangrove, Coral reefs, Seagrass and Wetlands), the Fisheries Component of the project confirmed that the spawning population and the juveniles are the critical stages in the life cycle of the fish. Recruitment overfishing will be addressed by protecting the spawning population while growth overfishing will be addressed by protecting the juveniles.

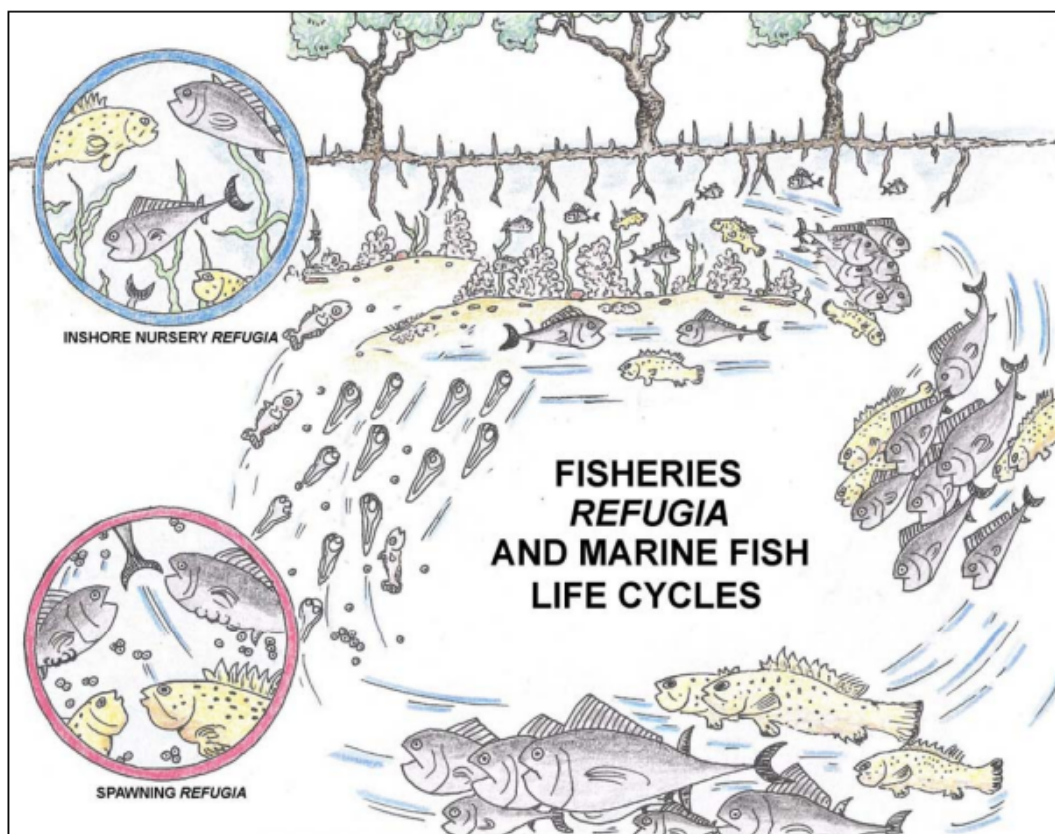


Figure 1 The refugia types prioritised by the RWG-F in relation to the generalised life-cycle of demersal marine fishes

I. INTRODUCTION

Fisheries Management in the Philippines

1. The Philippines' fisheries sector employs around a million people which constitutes 3 to 4% of the national labor force. The fisheries sector indirectly provides employment to those engaged in fish distribution, marketing, processing, operation of ice plants and cold storage, and related industries such as net-making, boat-building, and boat-engine sales and repairs.
2. Given the increasing population of the Philippines, there is significant pressure to increase domestic fish production to meet demand. Coupled with this high level of fishing pressure and dependence on fisheries are threats to critical fisheries habitats.
3. A number of legal instruments form the basis for managing the country's fish stocks and marine habitats. National laws define the limits and management responsibilities for the use of fishery resources. These laws are mirrored through fishery ordinances at the local level. Various aspects of fish stock, marine habitat, and coastal resources management are articulated in the 1987 Constitution of the Philippines, the Local Government Code of 1991 (Republic Act 7160), the Agriculture and Fisheries Modernization Act of 1997 (RA 8435), and the Philippine Fisheries Code (RA 8550 as amended by RA 10654).
4. In February 2019, the Philippine Department of Agriculture upon the recommendation of the Bureau of Fisheries and Aquatic Resources issued the Fisheries Administrative Order 263 (FAO 263) series of 2019 on the Establishment of Fisheries Management Areas (FMA) for the Conservation and Management of Fisheries in Philippine Waters.
5. Fisheries Management Areas or FMAs is the spatial delineation of the Philippine waters as a means to find an appropriate scale of management. The objective of the FAO is "to establish FMAs and provide a science-based, participatory and transparent governance framework and mechanism to sustainably manage fisheries in such areas, consistent with the principles of Ecosystem Approach to Fisheries Management (EAFM) anchored on food security and supplementary livelihood for poverty alleviation consistent with the objectives of the Amended Fisheries Code.
6. The scope of the FAO applies to all FMAs in Philippine waters for the compliance and guidance of all concerned national government agencies (NGAs), Local Government Units (LGUs), Fisheries and Aquatic Resources Management Councils (FARMCs), the commercial fishing industry, the municipal fisherfolk, academe, non-government organizations and other stakeholder directly or indirectly involved in fisheries or in the management of such areas.
7. Managing fisheries at the FMA level allows for a more ecosystem-based approach to fisheries management (EAFM) as it now considers the range and distribution of fish stocks based on an approximation of an ecosystem, rather than based on political or legal jurisdictions only.

The Fisheries Refugia

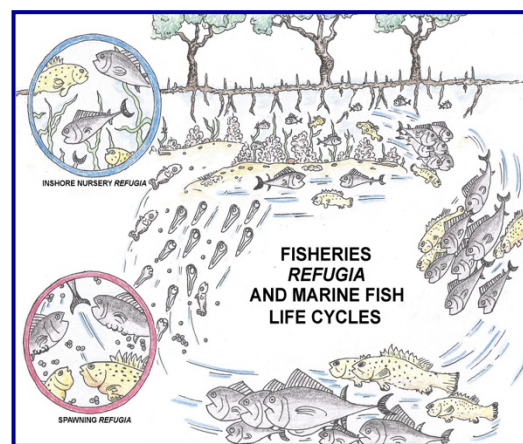
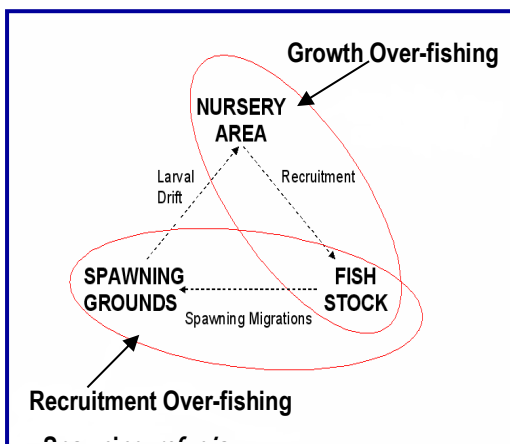
8. The Fisheries Refugia in the ASEAN context is defined as: ***Spatially and geographically defined, marine or coastal areas in which specific management measures are applied to sustain important species [fisheries resources] during critical phases of their life-cycle, for their sustainable use.***
9. With the end goal to sustain significant world fishery that is important to the food security and livelihood of the coastal communities, the fisheries refugia focuses on priority areas where the integration of fisheries and habitat management can be implemented.

10. It emphasizes on the quality of the different habitat and its important function to the life-cycle of the different fished species. Thus, the protection and management efforts of refugia is on the habitat and fish resources and not just to declare close fishing either temporally or spatially to a particular fishing grounds.
11. Promoting the spatial temporal approaches to resource management and planning, management measures that could be applied in the fisheries refugia include the following, among others.
 - Exclusion of a fishing method (e.g. light luring purse seine fishing),
 - Restricted gears (e.g. mesh size),
 - Prohibited gears (e.g. push nets, demersal trawls),
 - Vessel size/engine capacity,
 - Seasonal closures during critical periods,
 - Seasonal restrictions (e.g. use of specific gear that may trap larvae),
 - Limited access and use of rights-based approaches in small-scale fisheries

The Fisheries Refugia should:

- NOT be “no take zones”,
- Have the objective of sustainable use for the benefit of present and future generations,
- Provide for some areas within refugia to be permanently closed due to their critical importance [essential contribution] to the life cycle of a species or group of species,
- Focus on areas of critical importance in the life cycle of fished species, including spawning, and nursery grounds, or areas of habitat required for the maintenance of broodstock,
- Have different characteristics according to their purposes and the species or species groups for which they are established and within which different management measures will apply,
- Be sub-dividable to reflect the differing importance of sub-areas to the species or species groups for which they are established.

Fisheries refugia are sites of importance to critical stages of the life-cycle of fish species



Source Function

Spawning Refugia (Pelagic species)

Nursery Refugia (Demersal Species)

Sink Function

Purpose of the Guidelines

12. Taking off from the Regional Guidelines on the Use of Fisheries *Refugia* for Capture Fisheries Management (RCCRF-FM) in Southeast Asia, this national guideline aims to provide a step-by-step guidance on the establishment and operationalization of fisheries *refugia* in the country for capture fisheries management and policy support particularly for the coastal communities.
13. This guideline will specifically protect the two critical stages in the life cycle of the fish such as the spawning population and the juveniles. The ASEAN-SEAFDEC Regionalized FAO CCRF, the Philippine Fisheries Code, the Philippine Local Government Code were the main sources in the preparation of this guidelines.
14. The Vision of the Fisheries *Refugia* Guideline is “A guideline that supports the Local Government Units in fisheries management for sustainable fisheries and prevent habitat destruction to accelerate the sustainable growth of fisheries productivity”
15. While the Goal is ‘To improve the use of spatial and temporal approaches to fisheries management’ and this guideline has the following objectives:
 - a. Protect spawning and juvenile/nursery areas,
 - b. Integrate fisheries management into protected area management (coordination between fisheries and environment agencies),
 - c. Enhance fisheries resources and their habitats,
 - d. Prevent degradation of habitats and loss of important species,
 - e. Increase use of zoning within fisheries management,
 - f. Build awareness amongst fishers of ecosystem-fisheries links,
 - g. Identify life history of fishes, and
 - h. Promote the role of sub-populations in stock resilient

Guidelines for the Establishment and Operationalization of the Fisheries *Refugia*

To establish and initially operationalize a fisheries *refugia* in the local sites, the following process shall be considered. The figure below illustrates key steps undertaken by the NFRDI in setting up the pilot fisheries *refugia*.

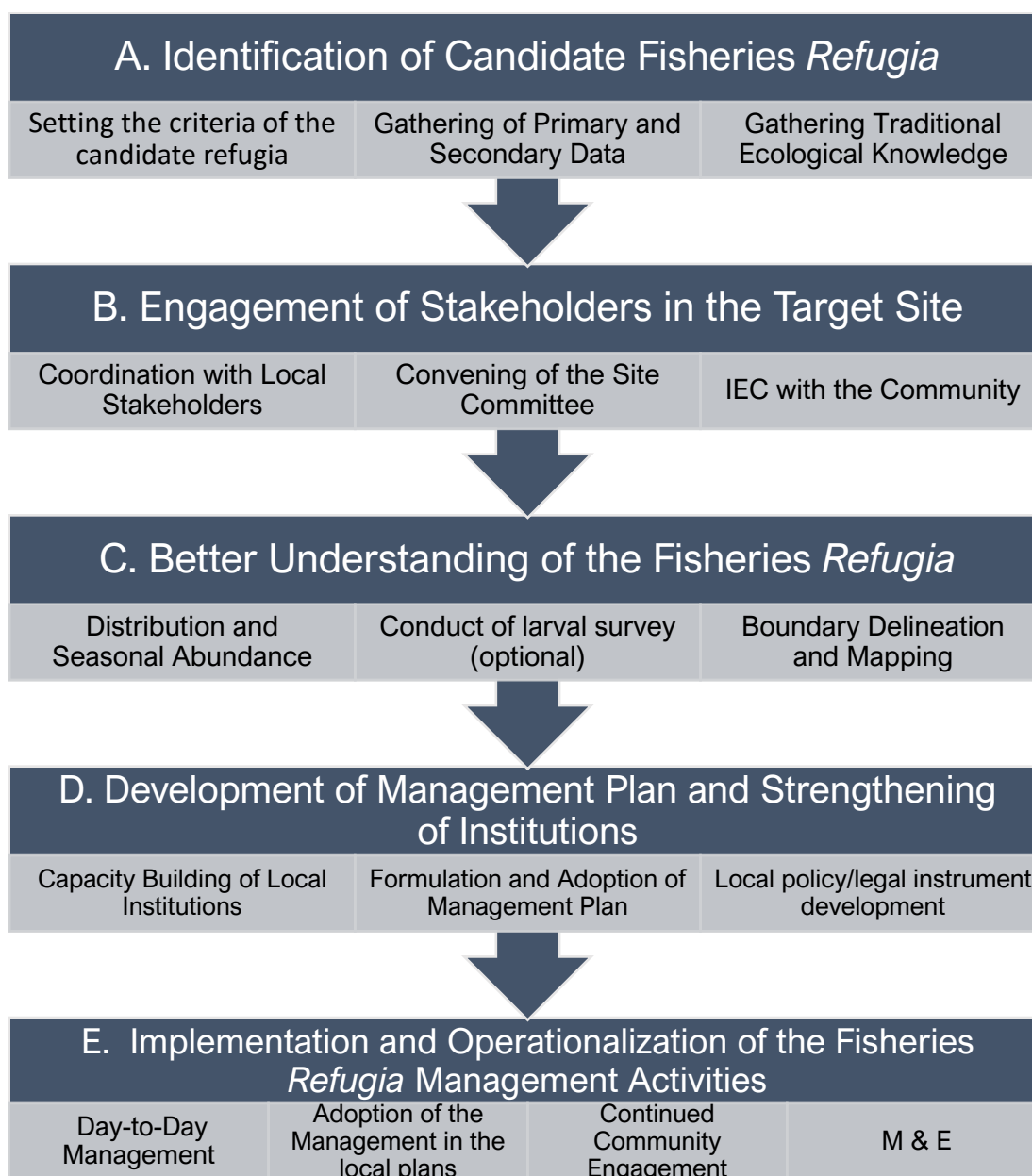


Figure 1: Overview of the Process in the establishment of Fisheries *Refugia*

A. Identification of Candidate Fisheries *Refugia*

The fisheries refugia is aligned with the objective of the FMA and the MPAs to implement conservation and management measures to ensure the sustained fish population. While all the three management initiatives are spatially delineated based on available science, the identification of fisheries refugia is ***more focused on the specific areas of significance to the life cycle of particular species, and serve to protect spawning aggregations, nursery grounds, and migratory routes.*** Thus, if a fisheries refugia is located within an MPA site, it can be included in the MPA management plan and Fisheries refugia management can be a sub division in an MPA mechanism.

The process of identifying candidate fisheries *refugia* shall consider how fisheries refugia shall interface with the existing area-based management initiatives of the LGU. Fisheries refugia can also be established within the Marine Protected Area (MPA) if certain area of the MPA needs strict protection like the spawning and juvenile sites. It should be noted/emphasized that Fisheries refugia is not a replacement of an MPA or any declared Fisheries Management Areas (FMAs) but will complement in the management area or outside of these areas for the maintenance of the spawning populations and their habitat. Stakeholders should have a clear understanding of the difference between an MPA, FMA, sanctuary and reserve with fisheries refugia in terms of coverage, institutional arrangement and management measures to ensure harmonization and avoid confusion, duplication with the existing management initiatives.

1. Setting up the Criteria of the Candidate Refugia

The decision for selecting a refugia should consider the pillars of the ecosystem approach to fisheries management which considers the ecological and human well-being of the community in the site, as well as the existing governance mechanisms in place.

In setting up a refugia site, the following criteria are proposed:

- a) Ecological significance of the area: Does the area include important ecological functions (such as spawning, nursery or feeding areas of commercially important/ vulnerable species?
- b) Fisheries value: is the area strategic for enhancing fisheries?
- c) Vulnerability: does the area have rich resources and/or biodiversity that are relatively vulnerable to disturbance & destruction?
- d) Governance mechanism: is there an existing management arrangements in place?
- e) Social acceptance: would a refugia receive acceptance from all stakeholders concerned?

2. Gathering of Baseline and Secondary Data

As an initial step, collection of background information on target sites is required. This includes primary data collection such as conduct of fish eggs and larvae surveys and compilation of secondary data on each potential fisheries *refugia*,

- a. Spawning Refugia
 - i. For the first track, review of known spawning areas for pelagic and invertebrate species should be initiated, with the aim of evaluating these sites as candidate spawning refugia and will address recruitment overfishing.
 - ii. Review information regarding the spatial dynamics of pelagic fish and invertebrate populations, oceanographic features, fish behavior, and fishing effort dynamics should be used to determine the target locations and sizes of spawning refugia.
- b. Juvenile or pre-recruit fisheries/nursery refugia
 - i. The second track is the evaluation of inshore areas as potential juvenile/pre-recruit refugia for significant demersal species.
 - ii. These juvenile refugia should be aimed at reducing the impact of growth overfishing and may be identified using information regarding the catch and size composition of small-scale and commercial fisheries operating in or adjacent to sites.
- c. Socio-economic conditions

In addition to understanding the resources, socio-economic conditions of the community must also be considered. Thus, socio economic data may be collected to include in making recommendations on fisheries refugia. Aside from data on education, income and occupation, existing livelihood and potential supplemental income generation activities for affected fishers (i.e. tourism, seaweed farming, crab/clam culture, crab fattening, etc.) should be assessed.

d. **Traditional Ecological Knowledge (TEK)**

The local community would be the good source of information regarding the fish species to be managed. Thus, harnessing the traditional ecological knowledge of local fishers is advised. This will require interviews and focus group discussions with fisherfolks to compile information based on generations of observations. For collecting secondary and traditional ecological knowledge, the following should be considered:

- i. Data/information on published known spawning areas of the target refugia site
- ii. Identify what fish species are in the target site/area and seasonal distribution and abundance
- iii. Use catch and effort trends, size composition and other biological parameters to determine the particular fish species for specific management approach.

B. Engagement of Stakeholders in the Target Site

1. Coordination with Local Stakeholders

In establishing fisheries refugia, fisheries management must balance the interests of multiple stakeholders with respect to their interests and their role in the community. Thus, the support of the community is essential. Consultations with the local stakeholders in the candidate Fisheries Refugia is necessary to secure their trust, support and commitment in the implementation of activities. The following activities may be conducted:

- a. Coordination and consultation meetings with the relevant National and Local Government Units (DA/BFAR, NFRDI DENR, LGU) as well as Civil Society Organizations(CSOs) and Fisherfolk Groups and their identified focal persons and representatives.
- b. Courtesy visit and partnership building with the Local Chief Executives (Mayor, SB Councils), key LGU officials (MAO, MENRO, MPDO, OCA) and the community champions (ie. MFARMC, fisherfolk group presidents) to introduce the initiative and solicit their support in future initiatives.

2. Convening of the Site Committee

A project management committee is important in the attainment of the project outcomes. However, in creating the fisheries refugia management committee, the existing management committees under the different management initiatives in the area should be considered. This is to avoid duplication and people involvement in the different management committees that more or less have the same functions. An arrangement with the existing management committee could be done to include additional function related to the concern of the fisheries refugia. This will reduce the burden of the membership of the same person in the community to the different management committees.

Prior to the establishment of the committee, the Terms of Reference (TOR) specifying the roles of the members is recommended relative to the other existing management committee in the area. This will help the members formalize its involvement and make them more responsive and supportive of the initiative.

3. IEC with the Community

A well-informed community on fisheries refugia will ensure the support of all the stakeholders for the successful implementation of the fisheries refugia. To promote awareness about the project and enjoin public participation, information, education, and communication activities are proposed to be conducted in the community. This may be done through and general orientation among fisherfolk groups, women, IP groups, academe and CSOs. Continuous preparations of IEC materials and IEC campaign should be developed to further increase the level of awareness of the community on fisheries and habitat management to ensure that the community will change their usual fishing practices from doing inappropriate fishing practices to the sustainable fishing practices.

- a. Present and discuss the results of the background information gathered for the possible fisheries refugia site by the National Agency to the LGU and to other stakeholders in the community
- b. Consider the different sectors of the community in terms of their values, norms and knowledge in the selection of the fisheries refugia site.
- c. Conduct Impact assessment to determine the belief and concern of the fisherfolks and other members of the community

C. Better Understanding of the Refugia Sites

1. Distribution and Seasonal Abundance

Better knowledge on the biology, ecology and distribution of the fisheries resource, is necessary to the formulation of strategies for sustainable fisheries and habitat management in the area.

To complement and validate the available secondary data, primary data collection to assess the status of fisheries resources in the site should be conducted. This may include fish landing survey to assess the seasonal distribution of commercially important Fish species.

2. Conduct of larval survey

If information on the source and sink is unavailable, primary data collection may be conducted to identify fisheries refugia objective. The following methods may be employed:

- a. Conduct fish eggs and larvae survey: Identify the source (spawning area) and sink (where the seasonal current takes the eggs) of fish eggs and larvae;
- b. Collect meteorological (wind pattern) and hydrological data (surface water current, tides, temperature, salinity, etc)
- c. Determine what type of refugia shall be established (Spawning or juvenile refugia) and identify fisheries refugia objective

3. Mapping of boundaries of the fisheries refugia sites

Identifying boundaries of the refugia sites and validated by the local stakeholders:

- a. The inter-agency coordinating committee shall agree on the boundaries of the refugia site by preparing the fisheries refugia map for the priority species with the corresponding coordinates. Seek the input of 2-3 fisherfolks in boundary delineation using traditional ecological knowledge in mapping the area at sea-level survey.
- b. Validate the site boundaries made at sea-level survey with stakeholders/fisherfolks through the community consultation.
- c. Confirmation of the local stakeholders of the recommended refugia site
- d. Endorsement of the community of the proposed refugia site
- e. Finalize the fisheries refugia map with actual coordinates.
- f. The LGU shall confirm the fisheries refugia site by enacting an ordinance creating the fisheries refugia site.

D. Development of Fisheries Refugia Management Plan (FRMP) and Institutions

1. Capacity Building of Local Institutions

Capacity building is an integral part of the establishment up to the operationalization of the fisheries refugia management plan. To ensure the sustainability and successful implementation of the activities, the local community and institutions should be trained with the capacity and skills necessary.

Taking off from the lessons learned from the pilot sites, the national institutions may identify the needed competencies of the local government to effectively establish and manage a refugia. This will then be validated and confirmed at local level, through a needs assessment that will be conducted in each site. It is important to assess the prevailing condition of the Local Government Units based on the particular situation of their fisheries and the marine habitats, as well as the specific needs and requirements of the local community in the conservation and management of the fisheries and marine habitat. Based on the competency needs identified both at the national and local level, a capacity building program may be implemented.

The following capacity building activities for the local institutions shall be provided by the concerned National Institutions responsible in the conservation and management of the fisheries and marine habitats:

- a. *Essential Ecosystem Approach to Fisheries Management (EAFM) Training (Spatial temporal Planning)*

In support to the fisheries refugia management, an Essential Ecosystems Approach to Fisheries Management Training is suggested to increase the capacities and appreciation of local institutions to ensuring the balance of the ecological and human well-being of each site within an improved governance framework. It is recommended to capacitate the local key stakeholders on Essential EAFM prior to the management planning proper. The training will serve as a venue to train the participants on spatial and temporal planning that is important during the management planning. Indicative list of participants to this training include the following: BFAR, DENR, LGU, PCG, PNP Maritime, Academe, NGO, PO, Barangay Council, etc. in the community.

EAFM is an approach to implement sustainable development in the fishery sector. It is balancing ecological well-being with human well-being through good governance. Ecological well-being is all about healthy ecosystems, adequate biodiversity and pollution-free oceans and coastal areas. On the other side is the human well-being, which is all about human health, education, sustainable livelihoods and increased wealth. Good governance is effective arrangements for setting and implementing rules and regulations. EAFM is broader than existing management and includes more of the issues and causes of the problems.

EAFM recognises that there are different stakeholders in a fishery that need to be included and need to work together (this is co-management). Management is also adaptive in that it starts before we have all the answers and learns by controlled trial and error and balances multiple objective

b. Basic law enforcement on Fisheries and habitat Management

A training on basic law enforcement on fisheries and habitat rules and regulations should be conducted to strengthen the capacities of the local enforcers in pursuing their functions on fisheries refugia management. Participants for the said activity may include the following units and stakeholders:

- Technical fishery personnel
- Fishery Law Enforcement Team (FLET)
- FARMC (BFAMC, MFARMC, CFARMC)
- Bantay Dagat
- Barangay Tanod
- Barangay Intelligence Network (BIN)
- Deputized Fish Wardens
- Organized coastal communities

c. Project Development Training

At the LGU proper, training on project proposal making shall also be part of the capacity building. The trained personnel shall be trained on project proposal writing for submission to possible donor and funding institutions (i.e. UNDP-SGP, UNEP, National government Agencies, private sector donor) for funding priority activities of the fisheries refugia management plan of the LGU.

d. Monitoring and Evaluation

Considering the importance of M & E in tracking the site's progress towards the attainment of its output and outcomes, training on M & E for the local stakeholders is advised. The concerned National Agencies shall develop a national M&E plan to assist the LGU in monitoring and evaluation by providing training on monitoring and evaluation processes. The training will ensure project stakeholders' understanding of their roles and responsibilities in project monitoring and evaluation. It is important that stakeholders will agree on mechanism/means for feedback and identified who will collect, analyze and report the M & E data.

A training of trainers may be explored to strengthen the capacities of the local institutions. Other learning methods aside from training may also be conducted. This may include mentoring, demonstration of best practices, and cross visits to other fisheries refugia.

4. Formulation and Adoption of Management Plans

Since the planning and the implementation of the management plans for locally managed areas (MPAs, fish sanctuaries, reserves) are to be carried out by the local government units, with support from the national offices, the development of the refugia management plan and its interface with the other management plans will be closely coordinated with the LGU.

If the fisheries refugia established is within the Marine Protected Area (MPA), , the fisheries refugia management plan may be integrated with the existing Coastal Fisheries Resources Management Plan and other related plans , subject to the decision of the local institutions and

management boards. Otherwise, the refugia management plan can also be integrated in other local plans, Subject to the decision of the fisheries refugia committee

The refugia management plan is a result of a series of training, workshops and consultation. In formulating the plan, the following approach may be adopted:

- a. Identify a TWG or Plan Formulation- To lead in the drafting of the plan, the Site Committee may appoint a Technical Working Group (TWG) who will compose the team that will finalize the draft fisheries refugia management plan.
- b. EAFM Training/Workshop – The plan is usually initiated during the EAFM trainings where the participants will come up with draft fisheries refugia management plan inputs. Results of the said training shall be presented to the stakeholders for their concurrence.
- c. Drafting of the plan by a working group – the draft plan will contain, among others, the action plan for the temporal and spatial planning of the fisheries refugia, implementation mechanisms and monitoring and evaluation. It is recommended that the plan will include policies with appropriate fines and penalties.
- d. Submission and Review of the Plan – the draft plan will be submitted to the Fisheries Refugia Committee for review and comments.
- e. Adoption of the FRMP through the issuance of a resolution by the SB – The management plan shall be endorsed to the proper authority for the enactment of an appropriate Ordinance/Executive Order/ Policy.
- f. Development of a communication plan- IEC strategies may be initially identified to build awareness building on the value and benefits of the fisheries refugia and the need for stakeholder engagement during the plan implementation.

5. Development of local policies and legal instruments

Development of policies and legal instruments in the form of memoranda, resolutions, special orders etc. that will formalize and support the fisheries refugia initiatives is an integral part in the sustainability of the fisheries refugia management.

Prior to the enactment of a legal instrument (Municipal Ordinance), support of an inter-agency coordination for fisheries refugia management must be secured through consultation. The support and cooperation of an inter-agency coordinating committee shall assist the Local Legislative Body in the enactment of an ordinance creating the fisheries refugia. Discuss the different relevant agencies' activities, if any in the proposed refugia. Their activities should complement or be aligned with the fisheries refugia to achieve the objectives of the fisheries refugia.

E. Implementation and Operationalization of the Refugia Management Activities

1. Undertake Day-to-Day Management

The implementation of the programs and activities based on the management plan shall be done by the different technical working teams identified in the plan to ensure the proper management of the fisheries refugia.

2. Adoption of the Management in the local plans

Following the enactment of a Municipal Ordinance by the LGU adopting the refugia site management plan, it is recommended that activities identified will be also be considered and incorporated to the annual investment plans to ensure funding and sustainability of the efforts.

3. Continued Community Engagement

Continued community engagement is highly recommended even beyond the project life. Information, education and communication (IEC) campaign materials shall be developed to increase the level of awareness of the community in fisheries refugia management and the link between management of fish stock and marine critical habitat.

4. Monitoring and Evaluation (M & E)

Monitoring and evaluation are two important activities to make sure that the project activities are implemented according to the workplan and are progressing towards achieving the goals, objectives and the desired outputs and outcome. Indicators should also be developed based on the objectives. Indicators will be useful in the monitoring and evaluation process.

It is suggested that the UNEP standard monitoring, reporting and evaluation processes and procedures be followed. An example of the M & E Results Framework (Annex 1) which was used by the Fisheries Refugia Project is presented below which includes SMART indicators for assessing project implementation progress and whether the expected project results are being attained.

REFERENCES

- SEAFDEC. 2006. Supplementary Guidelines on Co-management using Group User Rights, Fishery Statistics, Indicators and Fisheries Refugia, Southeast Asian Fisheries Development Center, Bangkok, Thailand. 84 pp.
- Republic Act 8550. An Act Providing for the Development, Management and Conservation of the Fisheries and Aquatic Resources, Integrating all Laws Pertinent thereto and for other purposes.
- Republic Act 10654. An Act to Prevent and Eliminate Illegal, Unreported and Unregulated Fishing, amending Republic Act No. 8550 Otherwise Known as "The Philippine Fisheries Code of 1998 and for other purposes."
- Republic Act 7160. An Act Providing for the Local Government Code of 1991
- Republic Act 8435. An Act Prescribing urgent Related Measures to Modernize the Agriculture and Fisheries Sectors of the Country in Order to Enhance their Profitability and Prepare said Sectors for the Challenges of Globalization through an Adequate Focused and Rational Delivery of Necessary Support Services, Appropriating Funds Thereof and for other Purposes.
- Fisheries Administrative Order 263 S. 2019. Establishment of Fisheries Management Areas (FMA) for the Conservation and Management of Fisheries in Philippines Waters.

ANNEX 1: RESULTS FRAMEWORK

Components	Outcomes	Indicators	Baseline	Target End of Project	Source of Verification	Risk Assessments