



Southeast Asian Fisheries  
Development Center



United Nations  
Environment



Global Environment  
Facility

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

**REPORT**

**First Meeting of the Regional Scientific and Technical Committee**

***Trat Province, Thailand 11<sup>th</sup> – 13<sup>th</sup> September 2018***



Fisheries Refugia Project

SEAFDEC/UNEP/GEF/Fisheries *Refugia*  
November 2018





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SEAFDEC/UNEP/GEF  
Bangkok, November 2018



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## Report of the Meeting

### 1. OPENING OF THE MEETING

#### 1.1 Welcome address

1.1.1 Dr. Somboon Siriraksophon, Project Director, officially opened the meeting at 08:45 hours, 11 September 2018 on behalf of Dr. Kom Silapajarn, the Secretary-General and Chief of the Training Department (TD), Dr. Isabelle Vanderbeck, the Task Manager of the UN Environment.

1.1.2 He welcomed all participants including National Scientific and Technical Committee, Country's representatives, Regional Experts, relevant SEAFDEC Programs/Donors from Japanese Trust Funds and SEAFDEC-Sweden Project, and SEAFDEC Training Department and Secretariat representative(s) to the first meeting of the Regional Scientific and Technical Committee (RSTC1) in the framework of the UN Environment/GEF project entitled "*Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand*".

1.1.3 He informed the meeting that many things had happened since the Inception Workshop in November 2016, and that one of the tasks was the approval on Letter of Agreement (LOA) signed by 4 relevant member countries, namely Cambodia, Malaysia, Philippines and Thailand in early of 2017. The implementation of project activities, therefore has started till present. However, the Project Coordinating Unit (PCU) wishes that the remaining two relevant member countries, namely Indonesia and Viet Nam could also sign on either LOA or LOI (Letter of Intent) as soon as possible to initiate the project implementation which has been planned by the countries.

1.1.4 He also informed the meeting that after one and half year of implementations by 4 member countries there were achievements and the problems encountered. This is one of the objectives of the RSTC Meeting to discuss various issues including numerous scientific, technical, and operational matters. In addition, the RSTC needs to provide technical advice to the Project Steering Committee and Project Co-ordinating Unit.

1.1.5 He therefore expressed the wish that, all participants have a successful meeting and pleasant stay in Trat Province.

#### 1.2 Introduction of members

1.2.1 As this was the first meeting, the participants were invited to introduce themselves and there followed a "*tour de table*" in which each participant introduced him/herself, giving a brief outline of their expertise and experience and elaborating on their roles in the project. The list of participants is attached as **Annex 1** to this report.

### 2. ORGANISATION OF THE MEETING

#### 2.1 Designation of Officers

2.1.1 Dr. Somboon Siriraksophon drew the attention of the meeting to the Terms of Reference, as appeared in the Project Document that allow for the election of a Chairperson, Vice-Chairperson and Rapporteur to serve for a period of one year. He also indicated that the Chairperson and Vice-Chairperson would attend, as observers to the Project Steering Committee meeting to report on the work of the RSTC during their period of position.

2.1.2 The RSTC had elected Mr. Leng Sy Vann from Cambodia, Mr. Valerianno M. Borja from Philippines and Mr. Nguyen Thanh Binh from Viet Nam as Chairperson, Vice Chairperson and Rapporteur respectively of the 1<sup>st</sup> Meeting of the RSTC. Mr. Leng Sy Vann, therefore continued to

serve as Chairperson, Mr. Valeriano M. Borja as Vice-Chairperson and Mr. Nguyen Thanh Binh as Rapporteur, for this meeting.

## **2.2 Documentation Available to the Meeting**

2.2.1 Dr. Somboon Siriraksophon, introduced this agenda item by referring participants to **ANNEX 2**. He informed the meeting that most documents for this meeting had been circulated to the members of the Committee via E-mail before the meeting. He further informed the meeting and apologized that some of documents had been sent to the members late due to various reasons. He also excused that PCU did not provide the template for the report of project activities at the national level during Jan 2017 to June 2018 which should appear under agenda 7. In this regard, PCU requested the RSTC to develop a progress paper from presentation slides of each country and submit to PCU within one week after the meeting.

## **2.3 Organization of Work**

2.3.1 Dr. Somboon Siriraksophon briefed the meeting on the proposed program of work, prepared by the PCU and contained in the information document (RSTC1\_Inf.1\_information note). He further advised members of the plenary discussion and administrative arrangements for the conduct of the meeting.

2.3.2 The Committee agreed to conduct its meeting in plenary as far as possible. The committee further agreed that sessional working groups could be formed when necessary to deliberate on items between the plenary sessions.

## **3. ADOPTION OF THE MEETING AGENDA**

3.1 The Chairperson, invited the Project Director to introduce the Provisional Agenda prepared by the PCU for the meeting as **ANNEX 3**, and invited members to propose any amendments or additional items for consideration by the committee.

3.2 The Regional expert from Thailand, Ms. Ravadee Prasertcharoensuk suggested to rearrange on *agenda 8: Data and Information Needs to Support Activities* in topic "Gender Mainstreaming to the Project Implementation" to be presented before "Baseline Survey Template" for more clear vision and idea before suggestion and adjustment to the draft template.

3.3 In this connection, Dr. Somboon Siriraksophon also suggested to move the sharing experiences from Thailand to present after the gender mainstreaming topic and rearrange the topic in agenda 8 as following: 8.1) Gender Mainstreaming to the Project Implementation; 8.2) Sharing Experiences on Implementation of Fisheries *Refugia* for Sustainable Fisheries (DoF/Thailand); 8.3) Baseline Survey Template; and 8.4) Networking and Regional Cooperation.

3.4 The Regional expert from Philippines, Mr. Noel Barut informed the meeting that in the first phase of the Project entitled "Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand (SCS)" the Fisheries Working Group implemented activities at the four habitat (corals, seagrass, mangrove and wetland) sites together with the four Habitat Working Groups. He also reminded the meeting that before an area could be considered fisheries *refugia* site, the integration of fisheries and habitat management should be implemented in the *refugia* sites.

3.5 Dr. Somboon Siriraksophon explained details of fisheries *refugia* project that fishery is only one of six components of SCS project which is not yet implemented. So, for this time we will focus only the working group of fisheries *refugia* part, then make linkage to the habitat management working group of the SCS whenever the project started.

3.6 National Focal Point of Philippines, Mr. Joeren S. Yleana proposed PCU to introduce the background about the fisheries *refugia* project before presenting the "Term of References for



Establishment of the Institutions” for better understanding since many members of the RSTC are new to the meeting.

3.7 Mr. Nguyen Thanh Binh, also supported Mr. Joeren S. Yleana proposal and requested the PCU to introduce for understanding on work of this project.

3.8 Dr. Somboon Siriraksophon acknowledged to introduce of the fisheries *refugia* project as refers under the additional sub-agenda 4.1.

3.9 There was no other proposals or amendments, the meeting proceeded to adopt the amended agenda, as contained in **ANNEX 3**.

#### **4. FISHERIES REFUGIA PROJECT AND TERMS OF REFERENCE**

##### **4.1 Introduction of fisheries *refugia* project**

4.1.1 Dr. Somboon Siriraksophon introduced the Strategic Action Program for the South China Sea in which the fisheries *refugia* was one of the 6 components including: 4 habitat component, 1 land-based pollution component and 1 fisheries component called as fisheries *refugia*. He also introduced, in brief, the project on “Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand” as appeared in the **ANNEX 4**.

4.1.2 Representative of Indonesia, Dr. Ngurah Nyoman Wiadnyana asked how to determine the area of *refugia* and does the project targeting only for fish? Dr. Somboon Siriraksophon explained that it depends on the hosting area because only the stakeholder that knows well about the situation of each species to determine fisheries *refugia* site. He also informed that the project does not focus only fish but for any species as target species that related to 3 following conditions:1) The species that we know the migration pattern; 2) the species that we want to protect; and 3) The species that we know the critical stage of life cycle.

4.1.3 In response to the query made by Mr. Nguyen Thanh Binh on the necessary to select the trans-boundary species and the connection between this project and SCS project, Dr. Somboon Siriraksophon clarified that it depends on country interest, no need to select only trans-boundary species. And fisheries *refugia* project will be a part of SCS project after it starts, then we will have the other 5 working groups, each working group for each habitat (coral, seagrass, mangrove and wetland) and land-based pollution as Mr. Noel Brut mentioned.

4.1.4 PCU technical staff, Mr. Weerasak Yingyuad, informed the meeting about the documents and VDO-media of the project are available at project website <http://www.fisheries-refugia.org>

##### **4.2 Terms of Reference for Establishment of the Institutions**

4.2.1 Dr. Somboon Siriraksophon presented the Terms of Reference (TOR) to establish the institutions at national level as **ANNEX 5a** and **ANNEX 5d-5f**, he explained the “decision making flowchart and organizational chart between institutions concerning of the project” in national and regional structures.

4.2.2 In the discussion that followed, suggestions were made with regards to the TOR as follows:

- Regarding to TOR the committee suggested to hold the meeting at least once in each quarter (4 times/year) to summarize the report of activities and adopt the budget for submission to PCU to secure the budget and direction of activities.
- The name of committee in each country can be adjusted as proper name to avoid wording problem but the role of those committee must be strict as the TOR

4.2.3 Dr. Somboon Siriraksophon also presented the TORs to establish the institutions at regional level, the linkage and role as **ANNEX 5b-c**.

4.2.4 In the discussion that followed, the PCU will further communicate with the National Focal Point (NFP) of 4 countries namely Indonesia, Malaysia, Thailand and Viet Nam to nominate officially the country representative as mentioned in the TORs to be a member and attend the next RSTC meeting.

### **4.3 Proposed Timeline for the RSTC and PSC Meetings**

4.3.1 Dr. Somboon Siriraksophon presented the proposed timeline for the bi-annual RSTC and annual PSC meetings as **ANNEX 5h**. He proposed the RSTC meeting twice a year during the beginning of May and the end of October, starting from 2019 for the 2<sup>nd</sup> and 3<sup>rd</sup> RSTC meetings.

4.3.2 For the PSC meeting, the PCU proposed to organize once a year during the last week of November or first week of December.

4.3.3 The RSTC agreed with the proposed period of RSTC meeting but for the PSC meeting period will be informed again by PCU after consulting National Focal Point (NFP) of each country.

## **5. REPORT OF THE PROJECT DIRECTOR ON ACTIVITIES DURING NOV 2016 – JUN 2018**

5.1 Dr. Somboon Siriraksophon presented the Report of the Project Director on Activities for Establishment and Operation of Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand during a period of Nov. 2016 – June 2018 as **ANNEX 6**.

5.2 Referring to the project title, Dr. Ngurah Nyoman Wiadnyana sought clarification on how the regional system of Fisheries *refugia* work. In this regard, Mr. Valerianno M. Borja pointed out that the connectivity between each target species for fisheries *refugia* should be clarified. For instance, Mr. Noel Barut informed that Philippines selected frigate tuna fisheries *refugia* site, but the project may have to investigate more on how connectivity or linkage to other countries due to migratory behavior of frigate tuna.

5.3 In addition, Mr. Joeren S. Yleana informed the meeting that establishment of a regional system of fisheries *refugia* is not focused on small-pelagic species only, but the project could include demersal species too such as the tiger prawn fisheries *refugia* in Miri city, Sarawak state, Malaysia.

5.4 The project manager of SEAFDEC-Sweden, Ms. Pattaratjit Kaewnuratchadasorn shared the information on the trans-boundary species at sub-regional Gulf of Thailand particularly the genetic study on Indo-Pacific mackerel. It is expected that the results from genetic study would support for development of the management measures at sub regional Gulf of Thailand.

5.5 To seek support to the regional cooperation among the relevant member countries, Dr. Somboon Siriraksophon informed the meeting that this issue will be addressed at the Regional Project Steering Committee for their consideration and support.

## **6. PRESENTATIONS BY THE NATIONAL SCIENTIFIC AND TECHNICAL COMMITTEE ON THE PROGRESS OF WORK AT THE NATIONAL LEVEL DURING JAN 2017 - JUN 2018**

### **6.1 Cambodia**

6.1.1 Mr. Leng Sy Vann introduced the past activities conducted by FiA since June 2017 to June 2018. He indicated the change of a fisheries *refugia* site from Preah Sihanouk to Kampot province targeting groupers due to different management authority at Preah Sihanouk. He also introduced the structure of the institutions established at national level to support the implementation of the project. In addition, he updated the progress of works on site selection through the stakeholder consultation, development of mapping, and MFMA Proclamation issued by MAFF's Minister. The overall detailed presentation is appeared as **ANNEX 7a**.

6.1.2 Ms. Pattaratjit Kaewnuratchadasorn sought clarification on the migration patterns of the Indo-Pacific mackerel in Koh Kong province. Mr. Leng Sy Vann replied that, due to lack of information at country level, only existing local knowledge from local community was used to support in selecting of the Indo-Pacific mackerel fisheries *refugia* in Koh Kong province. Mr. Leng Sy Vann therefore seeks the support from Thailand on collaborative works on this species to address trans-boundary issue.

6.1.3 Based on the local knowledge from fisheries community, there is the spawning ground for the Indo-Pacific mackerel in the Koh Kong province. Regarding to this, Mr. Noel Barut, suggested Cambodia to look for the secondary data to support the assumption for the spawning ground.

6.1.4 The National Focal Point of Thailand, Ms. Praulai Nootmorn offered to share the lesson learnt from Thailand on the management of Indo-Pacific mackerel fisheries *refugia* in the Gulf of Thailand.

## 6.2 Malaysia

6.2.1 Representative from DOF Malaysia, Mr. Ryon Siow presented progress report on country implementation of two fisheries *refugia* sites: 1) spiny lobster fisheries *refugia* in the coastal areas of Tanjung Leman, Johor and 2) Tiger prawn fisheries *refugia* in the coastal areas of Miri, Sarawak. He highlighted the work progress during the period of 2017-June 2018 including the co-financial support in term of in-kinds and in cash from the national budget allocation which is higher than project funds. In addition, he also presented the scientific report of both spiny lobsters and tiger prawn *refugia* as well as the stakeholder consultations and socio-economic survey at community level. The detailed activities in each quarter are appeared as **ANNEX 7b**

6.2.2 Taking into consideration of the preliminary results of the baseline survey on catch data collection and social aspects, there are 5 species of spiny lobsters, but *Panulirus polyphagus* is main target species in this area.

6.2.3 The challenges facing in the project implementation are changing of responsible persons of the site-base committee and not so clear understanding of Fisheries *Refugia* concept to explain to the local community level. To keep the continuity of the project implementation, the RSTC meeting will report this problem to the Regional Project Steering Committee for their consideration and advice.

6.2.4 Dr. Somboon Siriraksophon suggested to apply for crab bank concept together with establishment of fisheries *refugia* to enhance the spiny lobster stock. In this connection, Mr. Noel Barut also suggested to understand the spawning and nursery fisheries *refugia* before taking any management actions.

6.2.5 The meeting was informed that based on the study, the size of the spiny lobster is decreasing gradually from the past to present, and most of the spiny lobster harvested by trawl fisheries normally dead due to long towing duration (3 hours).

## 6.3 Philippines

6.3.1 The RSTC from Philippines, Mr. Valerianno M. Borja presented the highlights of activities related to three selected fisheries *refugia* sites in the west coast of the Luzon Islands facing the South China Sea. He also highlighted the establishments of the institutions at the national and municipal levels to support the implementation of the fisheries *refugia* project, the data collection at the landing sites, and the larvae samplings/survey at the selected fisheries *refugia* sites. The detailed activities are described as **ANNEX 7c**.

6.3.2 Mr. Valerianno M. Borja presented photograph of aerial survey by drone at fisheries *refugia* sites. Then the PCU encourages the use of aerial visual application from the operation of drone to support the fisheries/environmental management at the fisheries *refugia* sites.

## 6.4 Thailand

6.4.1 The RSTC from Thailand, Mr. Kumpon Loychuen presented the activities of fisheries *refugia* project at two sites: one in Chang Strait, Trat Province and the other in Samui Island, Surat Thani Province. He also reported on the establishment of the national institutions concerned to support the implementation of the project. The detailed presentation included the stakeholder meetings at two selected fisheries *refugia* sites as well as the National Scientific and Technical Committee and National Fisheries *Refugia* Committee are appeared as **ANNEX 7d**. He also showed the result maps of the abundance and distribution of larvae and adult of Indo-Pacific mackerel in the Gulf of Thailand in 2017.

6.4.2 Ms. Ravadee Prasertcharoensuk pointed out on the trans-boundary species such as Indo-Pacific mackerel requires the cooperation among those concerned countries in development of the management measures, Identification on the role of local government and communities to support the implementation are needed. In this connection, sharing of scientific data and information collected by fisheries authority to relevant stakeholders in supporting the implementation at field level. Balance participations of gender are required.

6.4.3 Representative from DoF/Thailand, Ms. Ratana Munprasit also raised the issues on priority species which are the output from the stakeholder consultations. However, the NFRC suggested to strict emphasis on the technical support for selecting of the species and the coverage areas for establishment of the fisheries *refugia*.

6.4.4 Regional expert on marine fisheries, Mr. Pirochana Saikliang suggested to RSTC for Thailand to consider the original project document on selecting of the fisheries *refugia* sites in Thailand which the Indo-Pacific mackerel is identified for both selected sites

6.4.5 Mr. Leng Sy Vann suggested that Thailand and Cambodia should work together in establishment of the fisheries *refugia* in Trat and Koh Kong Provinces. In this connection the Gulf of Thailand Sub-region Coordinator, Ms. Saisunee Chaksuin proposed the joint workshop with the SEAFDEC/UN Environment/GEF project to further assessment on transboundary species, Indo-Pacific mackerel which could lead to the development of the management measures between Cambodia and Thailand. However, the idea of Joint workshop between SEAFDEC-Sweden project and SEAFDEC/UN Environment/GEF project will be considered upon the preliminary results of the genetic studies to be analyzed and reported.

6.4.6 The meeting supported the Fisheries *Refugia* PCU to work closely with the SEAFDEC-Sweden Project for further clarification on the population of the Indo-Pacific mackerel in the trans-boundary areas between Cambodia and Thailand.

6.4.7 Ms. Praulai Nootmorn informed the meeting that the Department of Fisheries has invested a lot of budget to investigate the migration patterns of Indo-Pacific mackerel in the Gulf of Thailand. Regarding this, she stated that the existing information from Thailand could be shared to the other countries concerned through cooperation.

## 6.5 Indonesia

6.5.1 Dr. Ngurah Nyoman Wiadnyana suggested the PCU in consultation with SEAFDEC to re-send the official letter and LOA to the responsible agency for SEAFDEC/UN Environment/GEF Fisheries *Refugia* Project and /or to the SEAFDEC Council for Indonesia to seek the advice and result of the status of the Letter of Agreement.

## 6.6 Viet Nam

6.6.1 Mr. Nguyen Thanh Binh informed the meeting on the status of the Letter of Intent (LOI) approval is in the process. However, he mentioned that the D-FISH as a responsible agency in Viet Nam has already established of the institutions arrangements to support the implementation of the

Fisheries *refugia* project. In this connection, the PCU has already revised submission the LOI to D-FISH for further consideration since 15 August 2018.

## **6.7 General Discussions**

6.7.1 The meeting suggested to enhance the knowledge and build the awareness on important for establishment of fisheries *refugia* to the local community to ensure that the benefit to local community in the long-term sustainable fisheries. Regarding this, it is better to share the good lesson learned on establishment of fisheries *refugia* from one country to another relevant countries.

6.7.2 Ms. Ravadee Prasertcharoensuk suggested that for the success in implementation on establishment of fisheries *refugia*, it is important that all relevant stakeholders could access the information, in addition all stakeholders need to arrive with an agreement for any policy management measures, including monitoring its progress to ensure that the needed issues are addressed.

6.7.3 In most ASEAN Member States, operating a drone is regulated by law. In this regard bringing/transporting a drone from SEAFDEC may be impractical. Regarding this, the representative of Malaysia, Ms. Haryati Abdul Wahab asked the PCU whether the drone can be purchased using the project budget.

6.7.4 In this connection, the PCU will consider the request from Member Countries if the work plan for drone operation were clear and could support the decision maker for establishment of the Fisheries *Refugia* at site level.

## **7. DISCUSSION AND ADOPTION OF THE REVISED NATIONAL WORK PLAN AND SELECTED FISHERIES REFUGIA SITES FROM 2017-2020**

7.1 Dr. Somboon Siriraksophon introduced time frame of project activities started from year 2017 as **ANNEX 8**. The workplan includes 4 components with 4 quarters per year starting from January-December. The member countries were requested to update their own timeline based on actual activities and submit to the PCU by the mid of October (by 15 Oct 2018). The revised workplan as appeared in the **ANNEX 8.1-8.6** from six member countries will be addressed for the consideration and approval by the forthcoming Regional Project Steering Committee Meeting.

7.2 In the discussion that followed, suggestions were made with regards to the workplan as follows:

- The limited budget allocation from the project can be solved by co-financing arrangements from member country to facilitate the implementation of other activities.
- Thailand raised the issues of holding quarterly NFRC meetings which are too frequent for Head of the office and members to operate. In this connection, the meeting suggested the country undertake appropriate means for project governance.

## **8. DATA AND INFORMATION NEEDS TO SUPPORT ACTIVITIES**

### **8.1 Gender mainstreaming to the project implementation**

8.1.1 Ms. Pattaratjit Kaewnuratchadasorn introduced the overall goal of the SEAFDEC-Sweden Project, she also called the attention of the meeting to integrate gender perspectives in fisheries. In this manner the outputs on toolkits for gender mainstreaming from the Experts Consultation Workshop on Guidance to Monitoring and Evaluation of Gender Equity and Social Well-being in Fisheries Community organized in August 2018 is realized. The detailed presentation is appeared in **ANNEX 9**.

8.1.2 Dr. Somboon Siriraksophon referred to the project Inception Workshop organized in November 2016 that pointed out by the Project Task Manager Dr. Isabelle Vanderbeck on integration of gender mainstreaming to the Fisheries *Refugia* project implementation. In this connection, Mr. Valeriano M. Borja informed the meeting that recently all proposed projects for funding approval in the Philippines have to integrate the gender mainstreaming context.

8.1.3 Mr. Ryon Siow inquired about the benchmark to measure the gender mainstreaming. In response to this, Ms. Ravadee Prasertcharoensuk clarified the simple way to integrate the gender mainstreaming to the project, the good indicator is to include the perspective into decision making, in addition, all men and women can access the information and decision at the same level. In case of the Fisheries *Refugia* project, it is better to ensure that the information access and influence of the women into decision making. In addition, the results on beneficial to the social well-being should be taken into accounts.

8.1.4 Referring to the proposed toolkit of the gender mainstreaming, Mr. Joeren S. Yleana suggested that the indicators appeared in the **ANNEX 9** at 2.2) on social development, employment and decent work, 2.3) value chain, post-harvest and trade, and 2.4) disaster risk and climate change is enough to cover the gender main streaming to the project.

8.1.5 Mr. Noel Barut suggested that all activities at local community need to include the involvement of the Indigenous People (IP) as applicable.

8.1.6 The Chairpersons requested the PCU to finalize on gender mainstreaming to the project. In response to this, the PCU informed the meeting that this issue will be linked to the proposed draft Baseline Survey Template to be discussed in agenda 8.3.

## **8.2 Sharing experiences on implementation of fisheries *refugia* for sustainable fisheries (DoF/Thailand)**

8.2.1 Mr. Pirochana Saikliang presented the experience on fisheries management of the Indo-Pacific mackerel in the Gulf of Thailand based on the studies since 1959 till present including the several tagging programs to determine the migration patterns of fish within the Gulf of Thailand. The results from tagging showed two migratory routes: 1) west coast route; and 2) east coast route. The results concluded that the larvae move from spawning ground along the coast to the inner Gulf, then move back to the spawning areas. The fisheries *refugia* concept such as areas closure, seasonal closes were applied as a management measure based upon the migration pattern to protect the critical life cycle of Indo-Pacific mackerel. He also responded to the meeting that some fishing gears that are not impact to the target species can fish. In addition, the process for identification of the Areas Closure should be based on scientific data and information, local knowledge, and agreement among relevant stakeholders. He clarified on the fish larvae samplings from the marine resources survey by national Research vessels, and the implementation on MCS during the areas closure period by application of Vessel Monitoring System (VMS) attached to the large and medium size fishing vessels and applying patrol boat for the small-scale fishing vessels operated in the coastal area.

8.2.2 The detailed presentation is appeared in **ANNEX 10**.

## **8.3 Baseline survey template**

8.3.1 The PCU Technical staff, Ms. Parinthon Veerapattananon presented the Draft of Baseline Survey on Socio-Economic Template in which divided into 7 parts including 1) General information, 2) Fisheries *refugia* system and existing co-management approaches, 3) Safety at sea and regulations, 4) Post-harvest and Marketing, 5) Livelihood enhancement and diversification, 6) Fisheries and Management, and 7) Biodiversity and marine environment. The meeting was also informed that the Draft template does not include fish landing data and biological data, which focusing different target groups. The detailed template is as **ANNEX 11**.

8.3.2 The meeting deliberated on the draft template particularly the objectives, contents, indicators as well as the specific issues to be included. After deliberation, the Chairperson, Mr. Leng Sy Vann requested the PCU to compile all suggestions and revise the template to be submitted for consideration by the members of the meeting within three weeks after the RSTC meeting.

8.3.3 Ms. Rawadee Prasertcharoensuk suggested that the project should have clear gender mainstreaming outcomes. To put the principle in actions, the countries should ensure as follows: 1) develop segregated gender data system of all related aspects; 2) balance gender representatives to all decision making bodies targeted gender for meaningful participation; 3) capacity building for project staffs on gender mainstreaming and allocate budget to address needs / problems in an implementation process; 4) develop gender indicators, and monitor progress and changes.

#### **8.4 Networking and regional cooperation**

8.4.1 Dr. Somboon Siriraksophon informed the meeting on the enhancing the networking for regional outcomes which requires the national activities inputs from 6 relevant member countries. Taking into accounts three outputs from the project documents: 1) The outcome 2.5 on “Improved national and regional-level management and sharing of information and data on fish early life history in the waters of the South China Sea” in which the outputs are 6 databases online and populated with datasets and one regional database; 2) The outcome 2.6 on “Enhanced access to information relating to the locations and status of coastal habitats and management areas in the South China Sea and Gulf of Thailand” in which the outputs are 6 national and 1 regional Geographical Information System online; and 3) The outcome 2.8 on “Improved basin-wide understanding of linkages between ocean circulation patterns, nutrient/chlorophyll concentrations, and sources and sinks of fish larvae in the South China Sea in which the outputs are 1 modeling system online.

8.4.2. The meeting was informed that data and information available from the national project activities as well as from historical collaborative survey conducted by SEAFDEC are compiled to support the assessment and to create the target outputs as planned.

8.4.3 Dr. Somboon Siriraksophon also pointed out, based on the proposed fisheries *refugia* sites and species that related to the trans-boundary issues, the requirements for sub-regional, or regional cooperation in facilitate the better understanding on the establishment of fisheries *refugia*. He summarized three regional cooperation for consideration by the committee: 1) the Joint research program between Cambodia and Thailand supported by the SEAFDEC/ Japanese Trust Fund program on the Collaborative Research Program for larvae samplings and identification using the MV. SEAFDEC2 covering the Gulf of Thailand, and by the SEAFDEC-Sweden program on genetic study with aims to clarify the Indo-Pacific mackerel population in the Gulf of Thailand sub-region; 2) Possibility to create the regional cooperation between Malaysia and Brunei Darussalam on migration pattern to support establishment of tiger prawn fisheries *refugia* in Malaysia; and 3) Possibility to create the regional cooperation between Philippines and other ASEAN Member States on frigate tuna fisheries *refugia* due to highly migratory species, in addition ASEAN had established the Scientific Working Group for stock assessment of neritic tuna and economically small pelagic species.

8.4.4 The meeting appreciated the proposed issues for networking and regional cooperation raised by the PCU as appeared in the **ANNEX 12**. In addition, the meeting noted that these issues will be further discussed again in details at the next Regional Scientific and Technical Committee Meeting.

### **9. OTHER BUSINESS**

#### **9.1 Project budgeting and reporting**

9.1.1 The PCU Technical staff, Mr. Weerasak Yingyuad presented the Project Budgeting and Reporting as **ANNEX 13**. This paper highlighted the requirements and responsibility of the national lead Agency for budgeting and reporting of the progress of activities to the Project Coordinating Unit

(PCU). Following the UN Environment standard monitoring, reporting and evaluation processes and procedures, the substantive and financial project reporting requirements are summarized.

9.1.2 Mr. Weerasak Yingyuad also informed the meeting on the submission of the annual report as well as the co-finance report which appeared in the working paper.

9.1.3 Representative from Thailand, Ms. Prulai Nootmorn appreciated the support from PCU to assisting country for budgeting and reporting.

9.1.4 During the discussion, the PCU informed the meeting that SEAFDEC finance can transfer the money to each country within 5 working days after receiving the cash advance request.

## **9.2 Others**

9.2.1 Mr. Weerasak Yingyuad informed the meeting on the fisheries *refugia* site visit in morning session on the 3<sup>rd</sup> day (Thursday) that included the requests from Member Countries on crab bank and landing site for Indo-Pacific mackerel.

## **10. DATE AND PLACE OF THE NEXT MEETING OF THE REGIONAL SCIENTIFIC & TECHNICAL COMMITTEE**

10.1 The Chairperson proposed the 2<sup>nd</sup> RSTC meeting taking place in Viet Nam in May 2019. The RSTC Members supported the proposal. The alternate meeting venue will be in Cambodia.

10.2 The PCU will consult with the host country on the schedule of the meeting and inform all RSTC members via e-mail 3 months before the meeting.

## **11. ADOPTION OF THE REPORT OF THE MEETING**

11.1 The rapporteur, Mr. Nguyen Thanh Binh, presented the draft report prepared by the PCU, which was considered, amended, and adopted as it appears in this document.

## **12. CLOSURE OF THE MEETING**

12.1 The Chairperson thanked all members for their active participation in concluding the business of the meeting. He expressed appreciation for the opportunity to assume responsibility for the work of the committee and for the confidence members had displayed in electing him for the first RSTC Meeting.

12.2 The Vice-Chairperson also thanked, on behalf of the RSTC Members, to the PCU staffs for their hospitality and careful preparation of the meeting.

12.3 The Project Director expressed his gratitude to the members of the committee for their contributions and efforts, he expressed personally his pleasure in being a part of the committee and expressed the belief that the members could be justly proud of what had been achieved during the first year till now of the project. He finally noted that the PCU would not be able to support the work of the committees without the capable and tireless efforts of the support staff and expressed his personal thanks to them.

12.4 There being no further business the outgoing Chairperson closed the meeting at 17:00 on Thursday 13th September 2018.



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## ANNEX 2

### List of Documents

#### DISCUSSION DOCUMENTS

SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.1a	Terms of Reference for the National Lead Agencies
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.1b	Provisional Terms of Reference for the Project Steering Committee
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.1c	Provisional Terms of Reference for the Regional Scientific and Technical Committee
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.1d	Provisional Terms of Reference for the National Fisheries <i>Refugia</i> Committees
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.1e	Provisional Terms of Reference for the National Scientific and Technical Committees
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.1f	Provisional Terms of Reference for the Site-Based Management Boards
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.1g	Terms of Reference for the Project Co-Ordinating Unit
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.1h	Proposed Timeline for the RSTC and PSC Meetings
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.2	Introduction of the Project Document
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.3	Report of the Project Director on Activities During Nov. 2016 – June 2018
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.4.1	Workplan and Timeframe
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.5.1	Baseline Survey Template
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.5.2	Gender Mainstreaming to the Project Implementation
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.5.3	Discussion on the Networking and Regional Cooperation
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.5.4	Advancing the Application of the Fisheries <i>Refugia</i> Concept in The Gulf of Thailand
SEAFDEC/UNEP/GEF/FR-RSTC.1 WP.6.1	Project Budgeting and Reporting

**INFORMATION DOCUMENTS**

SEAFDEC/UNEP/GEF/FR-RSTC.1 INF.1	Logistic Information for Participants
SEAFDEC/UNEP/GEF/FR-RSTC.1 INF.2a	Provisional Prospectus
SEAFDEC/UNEP/GEF/FR-RSTC.1 INF.2b	Provisional Agenda
SEAFDEC/UNEP/GEF/FR-RSTC.1 INF.2c	Annotated Agenda
SEAFDEC/UNEP/GEF/FR-RSTC.1 INF.3	List of Participants
SEAFDEC/UNEP/GEF/FR-RSTC.1 INF.4	List of Documents

## ANNEX 3

### Agenda of the Meeting

- 1. Opening of the Meeting**
  - 1.1 Welcome Address
  - 1.2 Introduction of Members
- 2. Organization of the Meeting**
  - 2.1 Designation of Officers
  - 2.2 Documentation Available to the Meeting
  - 2.3 Organization of Work
- 3. Adoption of the Meeting Agenda**
- 4. Terms of Reference**
  - 4.1 Terms of Reference for Establishment of The Institutions
  - 4.2 Terms of Reference for the Regional Scientific & Technical Committee
- 5. Report of the Project Director on Activities During Nov. 2016 – June 2018**
- 6. Presentations by the National Scientific and Technical Committee on the Work of the Project Activities at National Level During Jan 2017 - June 2018**
  - 6.1 Cambodia
  - 6.2 Malaysia
  - 6.3 Philippines
  - 6.4 Thailand
  - 6.5 Viet Nam And Indonesia (progress on LOA)
- 7. Discussion and Adoption of the National Work Plan and Selected Fisheries *Refugia* Sites From 2017-2020**
- 8. Data and Information Needs to Support Activities**
  - 8.1 Baseline Survey Data
  - 8.2 Gender Mainstreaming to the Project Implementation
  - 8.3 Networking and Regional Cooperation
  - 8.4 Sharing experiences on implementation of fisheries *refugia* for sustainable fisheries (DoF/Thailand)
- 9. Other Business**
  - 9.1 Project Budgeting and Reporting
  - 9.2 Others
- 10. Date and Place of the Next Meeting of the Regional Scientific & Technical Committee**
- 11. Adoption of the Report of The Meeting**
- 12. Closure of The Meeting**

**ANNEX 4**

**Introduction of the Project Document on  
“Establishment and Operation of a Regional System of Fisheries *Refugia*  
in the South China Sea and Gulf of Thailand”**

**I. BACKGROUND**

1.1 At the 1<sup>st</sup> Meeting of the Regional Scientific and Technical Meeting, the committee requested the PCU to briefing a background of the Project Document for better understanding in the same ways before further discussion and consideration other agenda of the meeting. In this connection, Project director refers to the agreed Project Document that distributed during the Project Inception Workshop in November of 2016 as a reference.

**II. BRIEFING ON THE PORJECT DOCUMENT**




	<p>Establishment and Operational of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand is one of the TDA/SAP for the South China Sea. SEAFDEC acted as a Executing Agency of the Project. The Project Coordinating Unit is located at SEAFDEC/Training Department, Samut Prakan, Thailand.</p>
	<p>Referring to the high pressures from both small scale and commercial fisheries in the past 3 decades particular in the South China Sea including Gulf of Thailand. The Red dot is the accumulated areas where the fishing operated at nighttime during a period from 2012 to 2015. A Reddot represented the illuminated light from fishing boats, in which high density of dot showed high density of fishing vessels operated at night.</p>
	<p>Open Access was one of the problems caused number of fishing vessels increased rapidly in the Southeast Asian countries. During the past 3-4 decades, there was no proper management and control on the suitable fishing capacity in each country. Therefore, there was very high number of fishing vessels. In 2015, it was about 1.6 million fishing vessels operated in the Southeast Asia. And 93 percent were small scale fishing vessels.</p>




 <p style="text-align: center;"><b>DECLINING FISH STOCKS</b></p>	<p>Fish stock in the SCS and Gulf of Thailand are therefore rapidly declined. The significant indicators for declining of fish stock are percentage of trash fishes as well as small fishes are high comparing to the total catch. The CPUEs of many types of fishing gears are also decreased comparing to the past.</p>
 <p style="text-align: center;"><b>LOSS OF HABITAT</b></p>	<p>In addition, the marine habitats such as seagrass, mangroves, coral reefs, and wet land are also significant reduced. These marine habitats are important in the life cycle of many fish species. Then loss of habitats will affect to the fish stock in the SCS and the Gulf of Thailand, and link to what the project have to take into consideration to rehabilitation the ecosystem to support the sustainable fisheries.</p>
 <p style="text-align: center;"><b>Strategic Action Program for the South China Sea</b></p> <ul style="list-style-type: none"> <li>❖ Sets out priority costed actions to address             <ul style="list-style-type: none"> <li>❖ habitat degradation,</li> <li>❖ land-based pollution,</li> <li>❖ establish a network of fisheries refugia, and promote regional cooperation</li> </ul> </li> <li>❖ Inter-governmentally adopted</li> <li>❖ Based on cost-benefit analysis of action versus non-action</li> </ul>	<p>Based on the sound science, ecologically effective action, cost effective action, appropriate economic valuations, and etc, the Strategic Action Program for the South China Sea was developed and funded by UNEP/GEF. This project sets up priority costed actions to address habitat degradation, land-based pollution, and establishment a network of fisheries refugia and promote regional cooperation.</p>
<p><b>Longer-term goals of the fisheries refugia initiative:</b> :</p> <p>This project focus on <b>transformational change in how the fisheries and environment sectors work together</b></p> <p><b>Aim to contribute to:</b></p> <ul style="list-style-type: none"> <li>❖ improved integration of habitat and biodiversity conservation considerations in the management of fisheries in the South China Sea and Gulf of Thailand</li> <li>❖ improved national management of the threats to fish stock and critical habitat linkages within fisheries <i>refugia</i>; and,</li> </ul> <p>enhanced uptake of good practice in integrating fisheries management and biodiversity conservation in the design and implementation of regional and national fisheries management systems</p>	
<p><b>The Specific Objectives:</b></p> <p><i>“to operate and expand the network of fisheries refugia in the South China Sea and Gulf of Thailand for the improved management of fisheries and critical marine habitats linkages in order to achieve the medium</i></p>	

and longer-term goals of the fisheries component of the Strategic Action Programme for the South China Sea”, including:

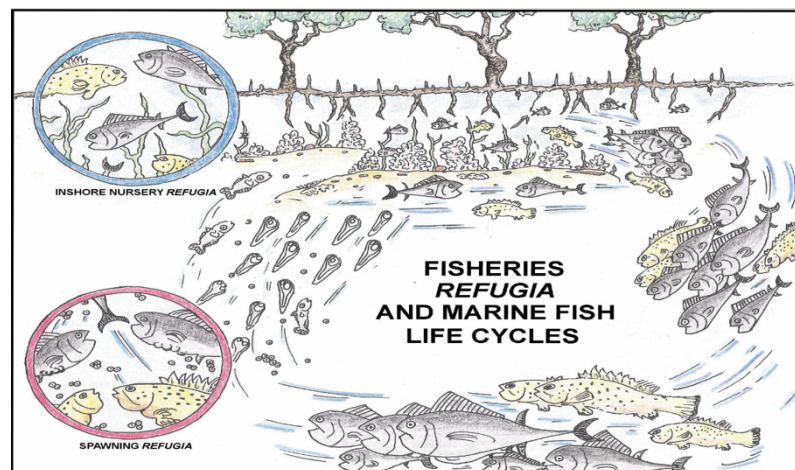
- ❖ by 2020, to have established a regional system of a minimum of fourteen (14) *refugia* for the management of priority transboundary, fish stocks and endangered species; and
- ❖ by 2020, to have prepared and implemented fisheries management systems in the identified priority *refugia* based on and consistent with, the ASEAN SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia.

<p><b>Component 1: Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in the South China Sea</b></p>  <p><b>Component Indicator:</b> Status of formal designation, management plan adoption, and community engagement in implementation of agreed management measures, including enforcement, for priority sites</p>	<p>There are 4 components as follows: COMPONENT 1: Component 1: Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in the South China Sea</p> <p>Component Indicator: Status of formal designation, management plan adoption, and community engagement in implementation of agreed management measures, including enforcement, for priority sites</p>
<p><b>Component 2: Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in the South China Sea</b></p>  <p><b>Component Indicator(s):</b> (a) Status of enabling environment reform, including extent of behavioural change among small-scale fisherfolk at priority sites; (b) Extent of use of available environmental state and socio-cultural information in policy and planning frameworks</p>	<p>COMPONENT 2: Component 2: Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in the South China Sea</p> <p>Component Indicator(s): (a) Status of enabling environment reform, including extent of behavioural change among small-scale fisherfolk at priority sites; (b) Extent of use of available environmental state and socio-cultural information in policy and planning frameworks</p>
<p><b>Component 3: Information Management and Dissemination in support of national and regional-level implementation of the fisheries <i>refugia</i> concept in the South China Sea and Gulf of Thailand</b></p>  <p><b>Component Indicator:</b> Extent of demonstrable use of examples of good practice in guiding the replication, scaling-up and mainstreaming of fisheries <i>refugia</i> approaches</p>	<p>COMPONENT 3: Component 3: Information Management and Dissemination in support of national and regional-level implementation of the fisheries <i>refugia</i> concept in the South China Sea and Gulf of Thailand</p> <p>Component Indicator: Extent of demonstrable use of examples of good practice in guiding the replication, scaling-up and mainstreaming of fisheries <i>refugia</i> approaches</p>
	<p>COMPONENT 4: Component 4: National and regional cooperation and coordination for integrated</p>

<p><b>Component 4: National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand</b></p>  <p><b>Component Indicator: Extent and continuity of stakeholder participation in meetings of project management bodies, including the scope and uptake of joint management and planning decisions</b></p>	<p>fish stock and critical habitat management in the South China Sea and Gulf of Thailand</p> <p>Component Indicator: Extent and continuity of stakeholder participation in meetings of project management bodies, including the scope and uptake of joint management and planning decisions</p>
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### III. CONCLUSIONS

The concept of fisheries refugia was developed as a novel approach to make sure that the integrate fisheries and habitat management in the context of high and increasing levels of small-scale fishing pressure in the South China Sea.



## ANNEX 5a

### Terms of Reference for National Lead Agencies

The National Lead Agencies shall:

1. Assume overall responsibility for the execution of the national-level activities of the SEAFDEC/UN Environment/GEF Fisheries *Refugia* Project in accordance with the National Project Document and regional UN Environment Project Document;
2. Provide Secretariat support to the operation of the National Fisheries *Refugia* Committee (NFRC) and the National Scientific and Technical Committee (NSTC) and convene quarterly and biannual meetings of these bodies, respectively;
3. Nominate a National Focal Point to (a) act as the main point of contact with SEAFDEC, UN Environment, Chairs of the NFRC, NSTC and site-based management boards, and (b) participate in annual regional Project Steering Committee meetings;
4. Plan and implement activities based on the results framework, work plan and timetable contained in the National Project Documents aimed at achieving the national-level goals and objectives for the SEAFDEC/UN Environment/GEF Fisheries *Refugia* Project;
5. Prepare and facilitate endorsement, by the National Fisheries *Refugia* Committee (NFRC), of quarterly costed work plans to guide the execution of national and site-based activities of the project;
6. Submit endorsed quarterly national costed work plans to the Project Director at SEAFDEC within five (5) working days before the end of each quarter (*i.e.* Quarter 1 is January-March, Quarter 2 is April-June, Quarter 3 is July-September, Quarter 4 is October-December).
7. Prepare and submit quarterly progress reports, expenditure reports, and cash advance requests for endorsement by the NFRC and subsequent submission to the Project Director at SEAFDEC within five (5) working days before the end of each quarter;
8. Prepare annual progress reports on national-level activities and results of efforts to establish operational management of priority fisheries *refugia* sites;
9. Maintain accurate and up-to-date records and documents in respect of all expenditures incurred with the funds made available to ensure that all expenditures are in conformity with the provisions of the National Project Document and costed work plans endorsed by the National Fisheries *Refugia* Committee. For each disbursement, proper supporting documentation shall be maintained, including original invoices, bills, and receipts pertinent to the transaction.
10. Provide SEAFDEC with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of SEAFDEC/UN Environment/GEF project funds;
11. Be responsible for the proper custody, maintenance and care of all equipment purchased for use at the national level;
12. Lead national-level efforts to secure co-financing committed to this project and to leverage additional funding required to replicate and scale-up best practices in integrated fisheries and habitat management generated through this project; and
13. Ensure that the work of the parties under this agreement is suitably promoted as part of the SEAFDEC/UN Environment/GEF Fisheries *Refugia* Project, including labelling of outputs with agreed logos.

## ANNEX 5b

### Provisional Terms of Reference for Project Steering Committee

#### 1. RATIONALE AND PURPOSE OF THE PROJECT STEERING COMMITTEE

1.1 To facilitate the achievement of the goals and objectives of the SEAFDEC/UN Environment/GEF project entitled "*Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand*", a Project Steering Committee (PSC) will be established as the primary policy-making body for the project.

1.2 The PSC's role will be to provide managerial and governance advice to the project, and to guide the Project Coordination Unit (PCU) of the Southeast Asian Fisheries Development Center (SEAFDEC) in the implementation and monitoring of the overall regional project. The PSC will also provide a regional forum for reviewing and resolving national concerns, reviewing and approving annual work plans and budgets, and provide a regional forum for stakeholder participation. One of the first activities during full project implementation will be to reconfirm and/or reconstitute the membership of the PSC, agree on meeting procedures, and finalise Terms of Reference for the PSC.

#### 2. THE PROJECT STEERING COMMITTEE SHALL:

2.1 Provide direction and strategic guidance to the Project Co-ordinating Unit (PCU) and to National Lead Agencies regarding project implementation and execution of agreed activities over the entire period of the project;

2.2 Meet on an annual basis during the operational phase of the project to guide the timely execution of project activities;

2.3 Receive, review, and approve reports from the Project Co-ordinating Unit (PCU) regarding the outputs and outcomes of project activities;

2.4 Assist the Project Co-ordinating Unit in ensuring co-ordination among national site-based activities and other national level activities to further enhance national capacity to develop integrated approaches fisheries and environmental management;

2.5 Review stakeholder involvement in project activities and take action where necessary to ensure appropriate levels of government, NGO, community, and private sector engagement;

2.6 Ensure compatibility between the activities of site and other national level activities;

2.7 Approve annual progress reports for transmission to the SEAFDEC Council, the Implementing Agency UN Environment and the GEF Secretariat;

2.8 Assist the PCU in leveraging required project co-financing and additional funds that may be required from time to time;

2.9 Work with the PCU and National Lead Agencies in mainstreaming integrated fisheries and environmental management and the replication of project successes at the national level;

2.10 Agree at their first meeting: a) the membership, meeting arrangements, and terms of reference of the committee; and b) such standing orders and manner of conducting business as may be considered necessary by the committee.

#### 3. PROPOSED MEMBERSHIP FOR THE PROJECT STEERING COMMITTEE

3.1 Full members of the Project Steering Committee (PSC) shall consist solely of representatives of all participating countries in the project. Each country shall designate two members: one member

shall be the Chairperson of the policy-level, National Fisheries *Refugia* Committee; the other shall be the Chairperson of the National Scientific and Technical Committee;

3.2 The UNEP Task Manager will participate as an observer in PSC meetings;

3.3 The PSC shall elect a Chairperson and a Vice-Chairperson from amongst its full members with responsibility for chairing each formal meeting of the Committee and for acting as Chairperson and Vice-Chairperson of any meetings convened during the subsequent inter-sessional period; and

3.4 The PSC may agree, by consensus at the commencement of each meeting to co-opt additional experts as observers or advisors to any meeting or meetings of the Committee or part thereof, as the committee shall deem appropriate.

#### **4. SECRETARIAT OF THE COMMITTEE**

4.1 The Project Director of SEAFDEC's PCU shall act as Secretary to the meetings of the Committee.

4.2 Other staff of SEAFDEC's PCU may provide Secretariat and technical support to the meetings of the PSC as required.

#### **5. MEETINGS OF THE COMMITTEE**

5.1 The PCU shall convene regular annual meetings of the RSC immediately following the Regional Scientific and Technical Committee meeting when the latter is convened at an appropriate time.

5.2 *Ad hoc* meetings may be convened by the Chairperson: when a majority of the Committee members make a request for such a meeting to the Project Co-ordinating Unit; and at the request of the Project Co-ordinating Unit when circumstances demand.

#### **6. CONDUCT OF COMMITTEE BUSINESS**

6.1 The Committee shall operate and take decisions on the basis of consensus, regarding any matter relating to project execution that has regional significance. Where full consensus cannot be achieved in reaching agreement during a full meeting of the Committee, on any matter relating to project execution that has regional significance, the Secretariat shall, in consultation with the Chairperson, facilitate negotiations during the subsequent inter sessional period with a view to seeking resolution, and will report the results of these negotiations to the Committee members.

## ANNEX 5c

### Provisional Terms of Reference for Regional Scientific and Technical Committee

#### 1. RATIONALE AND PURPOSE OF A REGIONAL SCIENTIFIC AND TECHNICAL COMMITTEE

1.1 To facilitate the achievement of the goals and objectives of the SEAFDEC/UN Environment/GEF project entitled “*Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand*”, a Regional Scientific and Technical Committee (RSTC) will be established with responsibility for: overseeing the scientific and technical elements of the project; ensuring effective implementation of activities undertaken during project execution; and providing sound scientific and technical advice to the Project Steering Committee.

1.2 The RSTC will also be responsible for ensuring that scientific and technical aspects of the fisheries *refugia* project meet International standards. Specifically, it will review the substantive activities of the project to: (1) identify and manage fisheries and critical habitat linkages at priority fisheries *refugia* in the South China Sea and Gulf of Thailand; (2) improve the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries *refugia* management; (3) enhance information management and dissemination in support of national and regional-level implementation of the fisheries *refugia* concept; and (4) strengthen national and regional cooperation and coordination in the operation of a regional system of fisheries *refugia*.

#### 2. ROLE AND FUNCTION

2.1 As the over-riding scientific and technical body for the project, the RSTC shall provide sound scientific and technical advice to the Project Steering Committee regarding matters requiring decision and shall provide direction and strategic guidance to the national level activities of the fisheries *refugia* initiative as required.

#### 3. THE REGIONAL SCIENTIFIC AND TECHNICAL COMMITTEE SHALL:

##### 3.1 Regional Activities

3.1.1 Review and co-ordinate regional scientific and technical activities of the fisheries *refugia* project;

3.1.2 Review and evaluate, from a scientific and technical perspective, progress in implementation of the fisheries *refugia* project, and provide guidance for improvement when necessary;

3.1.3 Provide the Project Steering Committee with recommendations on proposed regional activities, work plans, and budgets;

3.1.4 Provide the Project Steering Committee with technical guidance and suggestions to improve project activities where necessary, including reforms of national and regional policy and planning frameworks for integrated approaches to fisheries and environmental management;

3.1.5 Facilitate co-operation with relevant international, regional, and national organisations and projects to enhance the effectiveness and efficiency of the fisheries *refugia* initiative;

3.1.6 Monitor the progress of the project’s regional activities and ensure the quality of outputs.

### **3.2 National Activities**

3.2.1 Review and evaluate, from a scientific and technical perspective, progress in implementation of the national activities of the fisheries *refugia* project, and provide guidance for improvement when necessary;

3.2.2 Receive, and review reports, data and information from national level activities of the project and oversee the regional syntheses of this information to identify overall needs and priorities for strengthening scientific and technical support to the operation of a regional system of *refugia*;

3.2.3 Receive, review, and comment on drafts of national policies and/or action frameworks; and

3.2.4 Advise the regional Project Coordinating Unit and National Focal Points of the need for public awareness and information materials concerning integrated approaches to fisheries resource and environmental management in the South China Sea and Gulf of Thailand.

## **4. PROPOSED MEMBERSHIP FOR THE REGIONAL SCIENTIFIC AND TECHNICAL COMMITTEE**

4.1 The Regional Scientific and Technical Committee shall consist of: the Chairpersons of the National Technical and Scientific Committees (NTSC); a representative of SEAFDEC; up to 5 selected regional experts; and the Project Director of SEAFDEC's PCU.

4.2 SEAFDEC's PCU, in consultation with National Focal Points, shall nominate no more than 5 regional experts to ensure a balance of expertise and specialisation consistent with the mandate of the Committee. The membership of the RSTC shall be formally established at the first meeting, of the committee.

4.3 At the commencement of each meeting the committee shall elect a Chairperson and a Vice-Chair from amongst the members. The Vice-Chair shall act as Chairperson of meetings in the absence of the Chairperson. The Chairperson and Vice-Chair shall participate in the annual meetings of the Regional Project Steering Committee at which they shall present the reports and recommendations of the RSTC.

## **5. SECRETARIAT**

5.1 The regional Project Co-ordinating Unit shall act as Secretariat to the RSTC and shall ensure that reports of the meetings are circulated to all members of the regional Project Steering Committee.

## **6. MEETINGS OF THE REGIONAL SCIENTIFIC AND TECHNICAL COMMITTEE**

6.1 The regional Project Coordinating Unit in consultation with the Chairperson shall convene meetings of the RSTC according to an agreed schedule, which will form part of the agreed work plan and timetable for the work of the Committee.

6.2 The first meeting of the RSTC will be convened during project inception to: agree on the detailed activities, work plan and timetable for the twenty-four months leading to the project's mid-term evaluation: and to provide guidance to the project's emerging scientific and technical needs.

## **7. CONDUCT OF REGIONAL SCIENTIFIC AND TECHNICAL COMMITTEE BUSINESS**

7.1 The Committee shall operate and take decisions on the basis of consensus, regarding any matter relating to project execution that has regional significance. Where full consensus cannot be achieved in reaching agreement during a meeting of the Committee, the Chair, Vice Chair and Project Director shall decide on the least contentious course of action to be adopted.

## **8. PARTICIPATION OF OBSERVERS IN REGIONAL SCIENTIFIC AND TECHNICAL COMMITTEE MEETINGS**



- 8.1 The RSTC may invite observers to participate in its meetings;
- 8.2 Upon the invitation of the Chairperson, observers may participate in the discussion of issues within their competence or scope of activities, without the right to participate in decision-making; and
- 8.3 Observers may, upon invitation of the Chairperson, submit written statements that shall be circulated by the Project Coordinating Unit to the members of the RSTC.

## ANNEX 5d

### Provisional Terms of Reference for National Fisheries *Refugia* Committees

The national fisheries *refugia* committees shall operate on the basis of consensus to:

1. Assume overarching responsibility for the execution of national level activities of the SEAFDEC/UN environment/GEF fisheries *refugia* project [insert country name];
2. Receive, review, and approve reports from the fisheries *refugia* management boards regarding the outputs and outcomes of efforts to establish and manage fisheries *refugia* sites;
3. Meet on a quarterly basis during the operational phase of the project to guide the timely execution of project activities, particularly activities at the individual *refugia* sites, and to consider, amend and endorse quarterly work-plans, narrative progress and financial reports for submission to the regional project coordinating unit;
4. Provide direction and strategic guidance to the national lead agency and site-based management boards for individual *refugia* sites on the national and local reforms to enhance the uptake of the fisheries *refugia* approach and strengthen the integration of fisheries and environmental management;
5. Review planned and ongoing fisheries and environment projects being operated along the south china sea coast of the Philippines with the aim of minimising duplication of efforts, and to identify opportunities for cooperation and the sharing of examples of best practices in integrated fisheries and environmental management;
6. Assess stakeholder involvement in fisheries and environmental management and to take action where necessary to ensure appropriate levels of government, civil society and community organisation, environmental NGOs, women's groups, and private sector engagement in project activities.
7. Ensure compatibility between site-based activities of the fisheries *refugia* project and other national, provincial and municipal activities in fisheries and environmental management;
8. Approve annual progress reports for transmission to the SEAFDEC council, UN environment and the GEF secretariat;
9. Assist the national lead agency and focal point in securing co-financing committed to the project and in leveraging additional funding that may be required from time to time.
10. Agree at their first meeting:
  - a) The membership, meeting arrangements, and terms of reference of the committee; and
  - b) Such standing orders and manner of conducting business as may be considered necessary by the committee.

## ANNEX 5e

### Provisional Terms of Reference for National Scientific and Technical Committees

The National Scientific and Technical Committee shall operate on the basis of consensus to:

1. Review and co-ordinate national scientific and technical activities of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in [country name];
2. Review and evaluate, from a scientific and technical perspective, progress in the establishment of fisheries refugia sites, and provide guidance for improvement when necessary;
3. Provide the National Fisheries Refugia Committee with recommendations on proposed national and site-based activities, work plans, and budgets;
4. Provide the National Fisheries Refugia Committee with technical guidance and suggestions to improve project activities where necessary, including the reform of policy, legislation and institutional arrangements;
5. Facilitate co-operation with relevant national and provincial organisations and projects to enhance the information and science base for use in identifying and managing fisheries refugia in [country name];
6. Compile and evaluate national level sources of information and data for sharing at the regional level;
7. Receive, and review reports, data and information from the fisheries refugia sites and oversee the national synthesis of this information to identify overall needs and priorities for individual sites and networks of refugia sites in [country name];
8. Ensure that planned national level project activities are consistent with the national results framework for the project, and that the subsequent monitoring and reporting of project results is undertaken in a standardized and consistent manner;
9. Agree at their first meeting:
  - a) the membership, meeting arrangements, and terms of reference of the committee; and
  - b) such standing orders and manner of conducting business as may be considered necessary by the committee.

## ANNEX 5f

### Provisional Terms of Reference for Site-Based Management Boards

The Site-Based Fisheries Refugia Management Boards shall operate on the basis of consensus to:

1. Meet on a monthly basis during the project inception period and a quarterly basis thereafter to guide the timely execution of activities to establish and operate fisheries refugia;
2. Receive, review and approve reports from the Fisheries Refugia Management Team regarding the outputs and outcomes of project activities;
3. Assist the Fisheries Refugia Management Team in ensuring co-ordination among the fisheries refugia project and other local activities undertaken during the course of the project to further enhance local capacity to strengthen the integration of fisheries and habitat management;
4. Review stakeholder involvement in project activities and take action where necessary to ensure appropriate levels of government, NGO, community, and private sector engagement;
5. Ensure compatibility between the recommendations for action at the fisheries refugia site with other local level activities for fisheries and coastal habitat management;
6. Review and evaluate, at the site level, progress in implementation of the project, and provide guidance for improvement to the Fisheries Refugia Management Team and National Fisheries Refugia Committee;
7. Approve quarterly progress reports for transmission to the meetings of the National Fisheries Refugia Committee;
8. Facilitate the approval and implementation by the competent municipal authority, management plans and courses of action developed during the course of project execution;
9. Assist the Fisheries Refugia Management Team in leveraging required project co-financing and additional funds that may be required from time to time;
10. Work with the Fisheries Refugia Management Team in identifying best practices for replication and scaling-up as well as the mainstreaming of the fisheries refugia approaches at the local level; and
11. Agree at their first meeting:
  - a) the membership, meeting arrangements, and terms of reference of the committee
  - b) such standing orders and manner of conducting business as may be considered necessary by the committee.

## ANNEX 5g

### Terms of Reference for Project Co-ordinating Unit

#### 1. RATIONALE AND PURPOSE OF A PROJECT CO-ORDINATING UNIT

1.1 The Project Co-ordinating Unit (PCU) for the UN Environment/GEF Project entitled: *“Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand”* is established under the Project Document paragraph 124 as approved by the collaborating institutions and organisations during the project preparation phase as follows:

1.2 A regional Project Co-ordinating Unit (PCU) will be established within the Southeast Asian Fisheries Development Center for: overall coordination and supervision of the execution of the SEAFDEC/UN Environment/GEF project entitled *“Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand”* in line with the policy and administrative guidelines provided by the GEF, UN Environment and SEAFDEC. The PCU will be led by a Project Director and shall provide quality technical support, guidance and advice on the fisheries *refugia* initiative in the South China Sea.

#### 2. ROLE AND FUNCTION

2.1 The PCU will be responsible for: overall leadership, management and technical oversight of the fisheries *refugia* project; regional project governance, monitoring and reporting; policy/technical advice and advocacy; regional coordination, including the establishment of partnerships and networking; and external communications.

#### 3. THE PROJECT CO-ORDINATING UNIT SHALL:

3.1 Assume general responsibility for the day-to-day management and implementation of all project objectives and activities;

3.2 Prepare the annual work plan of the project, in a format consistent with SEAFDEC’s budget, work programme and monitoring and evaluation procedures and financial regulations on the basis of the regional UN Environment Project Document, and in close consultation and coordination with the Project Steering Committee, National Fisheries *Refugia* Committees, National Focal Points, the UN Environment Task Manager and relevant donors;

3.3 Provide Secretariat support to both the Project Steering Committee and Regional Scientific and Technical Committee;

3.4 Coordinate and monitor the activities described in the work plan, and report to UN Environment and the regional Project Steering Committee;

3.5 Facilitate liaison and networking between and among the 6 country participants, relevant regional organisations, other relevant organisations, non-governmental organisations, key stakeholders and other individuals involved in *refugia* project implementation;

3.6 Foster and establish links with other related programmes and projects and, where appropriate, with other regional GEF International Waters projects, e.g. IW: LEARN;

3.7 Oversee the development of Terms of Reference for consultants and contractors, and be ultimately responsible for the delivery of work produced by consultants under the fisheries *refugia* project;

3.8 Coordinate and oversee the preparation of the substantive and operational reports for the fisheries *refugia* project;

3.9 Collect and disseminate information on policy, economic, social, scientific, and technical issues related to operation of a regional system of fisheries *refugia*;

3.10 Promote public awareness and stakeholder engagement activities necessary for successful fisheries *refugia* project implementation;

3.11 Assist in the delivery of training courses on technical matters, project management, and monitoring and evaluation to strengthen regional capacity in GEF project execution; and

3.12 Lead in the development of integrated and simplified results tracking and reporting tools for the fisheries *refugia* project to ensure effective communication with national governments, SEAFDEC Council, UN Environment and the GEF.

#### **4. MANAGEMENT OF THE PROJECT CO-ORDINATING UNIT**

4.1 The Project Co-ordinating Unit will be led by a Project Director. He/she shall liaise directly with the National Focal Points and other relevant bodies and stakeholders where relevant. He/she will also liaise with representatives of UN Environment and GEF, as well as other regional donors, in order to coordinate the annual work plan for the project. He/she shall be responsible for all technical, planning, managerial, monitoring, progress and financial reporting for the project.

4.2 The Project Director will consult and coordinate closely with the Secretary General and other representatives of SEAFDEC and report directly to the Secretary General of SEAFDEC and to the UN Environment Task Manager. The position of Project Director encompasses the following major functions:

- Leadership, management and technical oversight of the fisheries *refugia* project;
- Regional project governance and monitoring;
- Policy/technical advice and advocacy;
- Regional and national coordination, partnership and networking; and
- External communication

4.3 A Project Accountant of SEAFDEC will be assigned to work under the direct supervision of the Project Director. The Project Accountant will: assist in the collation of project financial information and financial reporting to UN Environment and the GEF; prepare draft budget revisions and working budgets in consultation with the Project Director; assist the Project Director to prepare budget and financial statements for Project Steering Committee meetings and regularly brief the PCU on the financial status of the project; serve as an expert resource for the various committees and working groups of the project on financial reporting requirements; and provide will provide support to the PCU and the national teams on efficient and effective financial management, including training support.

4.4 Additionally, a Project Administrator of SEAFDEC will be assigned to work under the direct supervision of the Project Director. He/She will be responsible for the overall provision of administrative assistance and support across all aspects of the project. This will include: provision of administrative and technical support for the organisation of meetings/conferences; developing and maintaining the project's filing system (electronic and hardcopies of all inward and outward communications); liaison with the National Lead Agencies on asset procurement and maintenance to

ensure transparent and efficient procurement and operations of project assets; providing logistical support to the conduct of project activities (workshops, stakeholder consultations, arrangements of study tours, etc.); and arrange and organise travel for project staff.

## **5. APPOINTMENT OF THE REGIONAL PROJECT DIRECTOR**

Decision-making regarding the selection and recruitment of this post will be made jointly by the UN Environment Task Manager and SEAFDEC. Selection criteria identified during project preparation are outlined below.

The selected candidate will have:

5.1 At least ten years of relevant experience in international development in cross-sectorial natural resource management with a minimum of ten years operating in developing country contexts at both strategic regional and technical national levels;

5.2 Proven skills in project team leadership, coordinating multi-disciplinary team inputs, and managing programmes and resources in developing countries;

5.3 Proven ability to work with partners and the ability to plan, coordinate and manage complex programmes and projects in developing countries;

5.4 Demonstrable excellent verbal and written communications skills, both at a technical level and in the preparation of information for policy makers and wider civil society;

5.5 Previous experience in the operational aspects of large UN-implemented projects or similar regional/multi-country projects in developing countries, as well as experience with funding organizations such as the GEF will be an advantage;

5.6 Post-graduate qualifications in one or more of the following disciplines: fisheries science and management, coastal policy and planning, and/or ecology;

5.7 Excellent working knowledge of English;

5.8 Familiarity with the goals and procedures of international organizations, in particular those of the GEF and UN Environment; and

5.9 Knowledge of GEF co-financing approaches will be a distinct advantage.

**ANNEX 5h**

**Proposed Timeline for The RSTC And PSC Meetings**

**I. INTRODUCTION**

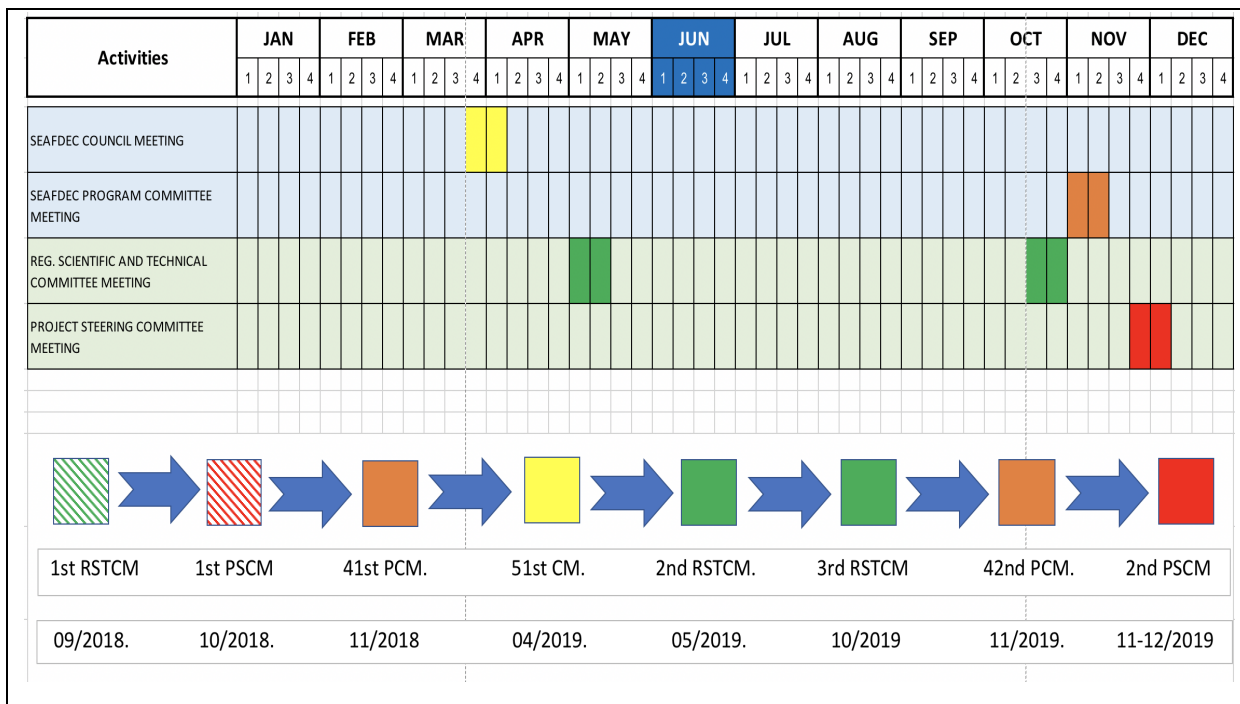
1.1 This paper proposes the timeline for organizing twice a year of the Regional Scientific and Technical Meeting (RSTCM) for consideration and endorsement by the RSTC. In addition, the PCU informed the meeting on tentative timeframe for the Regional Steering Committee Meeting for information and consideration.

**II. TIMELINE FOR THE RSTC AND PSC (see Figure 1)**

2.1 The RSTC committee in principle **supported** that the RSTC Meeting will be held twice a year: within two periods:

- 1) a period of 1<sup>st</sup> week of May and
- 2) a period of end of October.

2.2 For the tentative timeframe of the Project Steering Committee Meeting is proposed during the 4<sup>th</sup> Quarter of the year in between last week of November and 1<sup>st</sup> week of December. However, this matter will be further discussed with the PSC later during its first meeting of the PSC which be held on the 1<sup>st</sup> week of December 2018.





## ANNEX 6

### Report of The Project Director on Activities During Nov. 2016 – Jun. 2018

#### I. INTRODUCTION

The South China Sea is a global center of shallow water marine biological diversity that supports significant fisheries that are important to food security and export incomes of the Southeast Asian countries. Consequently, all inshore waters of the South China Sea basin are subject to intense fishing pressure. With fish production being intrinsically linked to the quality and area of habitats and the heightened dependence of coastal communities on fish, a need exists to improve the integration of fish habitat considerations and fisheries management in the region.

Taking into consideration the aforementioned circumstances, SEAFDEC/Training Department (TD) embarked in 2016 a 5-year project “Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand” with the specific objective of “operating and expanding the network of fisheries *refugia* in the South China Sea and Gulf of Thailand for improved management of fisheries and critical marine habitats linkages in order to achieve the medium and longer-term goals of the fisheries component of the Strategic Action Programme for the South China Sea.”

#### II. PROJECT INCEPTION WORKSHOP

To start-off, the “Project Inception Meeting” was organized on 1-3 November 2016 in Bangkok, Thailand to introduce and discuss the Project goals, objectives, management framework, strategy, and plan, in order to enhance the understanding of concerned countries on the Project implementation. Initially, information and data collection would be undertaken on fisheries and coastal habitats of 14 priority fisheries *refugia* sites to serve as basis for conducting future activities, e.g. facilitating agreement among stakeholders on the boundaries of fisheries *refugia*; developing Community-Based Management Plans for the sites; establishing operational management for the sites; and strengthening the participation of civil society and community organizations in the management of these 14 fisheries *refugia* sites. Subsequently, activities would continue on improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries *refugia* management in the South China Sea.

#### III. PROGRESS ON IMPLEMENTATION

##### 1. LOA/LOI Signing

To proceed on the project implementation during the year 2017, Letters of Agreement were signed with four out of the six participating countries, namely: Cambodia, Malaysia, Philippines, and Thailand; while for Indonesia and Viet Nam, this is still under process. The delay for LOA signing by Indonesia and Viet Nam are due to government policy change. Nevertheless, in August 2018, the national focal point for Viet Nam request for Letter of Intent (LOI) prepared by the PCU. It is expected that Viet Nam will sign the LOI soon.

##### 2. Selection of Fisheries *Refugia* Sites

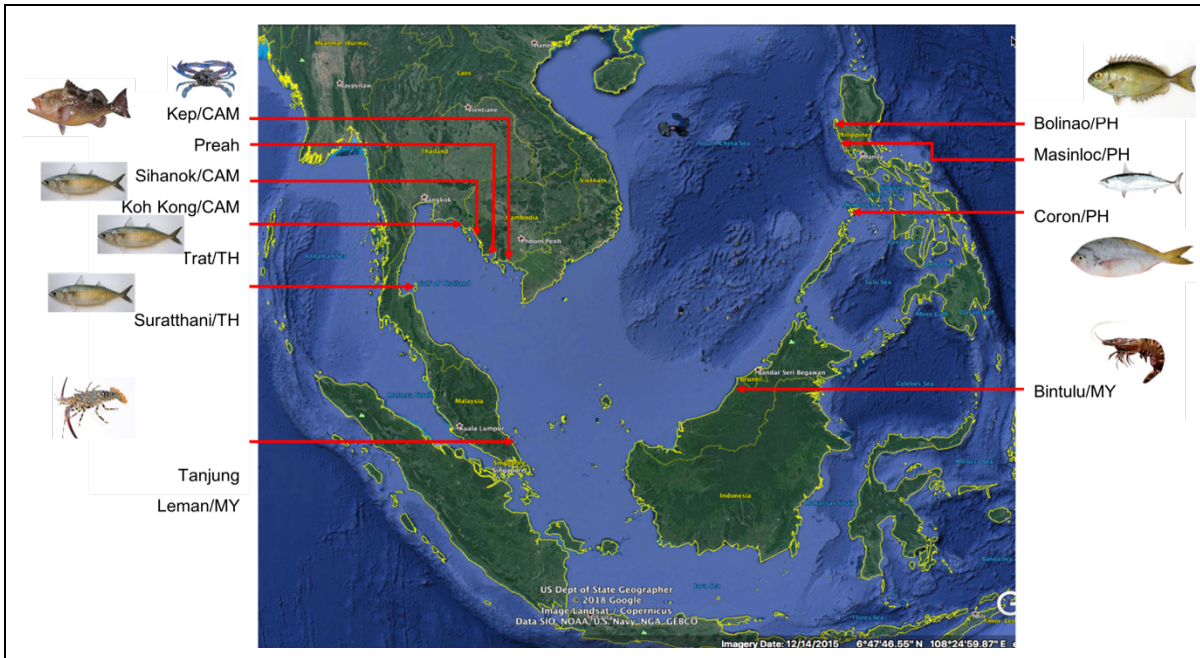
To date, a total of ten priority fisheries *refugia* sites have been identified (see details from the Map) and implemented in four countries as follows:

a) **Cambodia:** Kep Province - for blue swimming crab *refugia* in sea grass area; Preah Sihanouk Province for juvenile grouper *refugia* in the coral reef area of Koh Rong Archipelago; and Koh Kong Province - for Indo-Pacific mackerel in transboundary area with Trat Province of Thailand;

**b) Thailand:** Trat Province - for Indo-Pacific Mackerel in transboundary area with Koh Kong Province of Cambodia; and Samui Archipelago in Surat Thani Province - for Indo-Pacific mackerel *refugia*.

**c) Philippines:** Bolinao, Pangasinan - for *siganus* spp. *refugia* in very large sea grass area; Masinloc, Zambales - for juveniles of Frigate tuna (*Auxis* spp.) *refugia*; and Coron, Palawan - for fusilier fish *refugia* in coral reef area, and mud crab *refugia* in mangrove area, and

**d) Malaysia:** Tanjung Leman, Johorbahru – for spiny lobster *refugia*; and Bintulu, Sarawak – for tiger prawn *refugia*.



Map of the Fisheries Refugia Sites in 4 Countries (based on 2017 activities)

### 3. Participation to the National, Regional and International Fora

Site Level Inception Workshops and Baseline Data Collection were conducted in 2017 for three *refugia* sites in the Philippines, while Stakeholders Consultation Workshops were organized in Kep and Koh Kong Provinces of Cambodia. From the activities carried out in 2017, major achievements had been attained. These included:

a) intensive series of consultations on the boundaries of fisheries *refugia* which have been supported by facilitated processes to identify key threats to fisheries *refugia* sites and initiate discussion about effective management measures for evaluation, *i.e.* governance reviews, stakeholder analyses, socio-economic information and data collation, and reviews of existing management arrangements that are still underway;

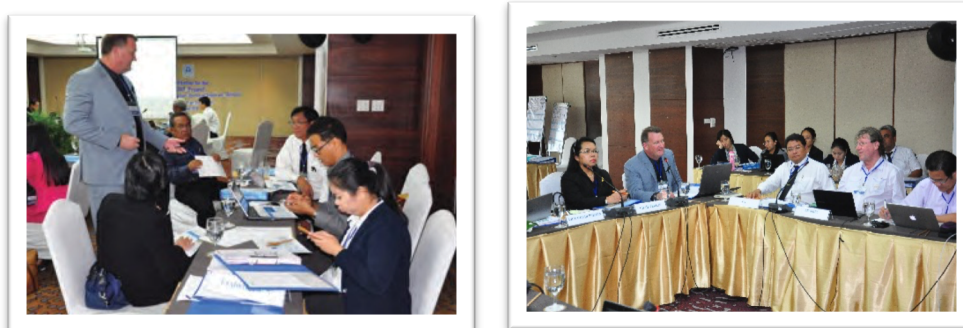
b) improvement of the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries *refugia* management in the South China Sea, *i.e.* development of working document for regional level review on key threats from fishing and the environment to fish stock and critical habitat linkages at the priority sites in the participating countries; existing regulations and by-laws in the areas of the ten (10) sites where the project is presently working, compiled and reviewed with feedback provided to national teams to aid in the formulation of recommendations on policy and legal reforms to support promotion of responsible fishing at times and at locations critical to fish stock and critical habitat linkages; workshops with local stakeholders and officials on policy and legal aspects of *refugia* (terminology, procedures, recommended reforms) in the participating countries that allowed discussions viewed through a more realistic lens to reflect

the local stakeholders' needs, expectations, and concerns about socio-economic impacts of management; questionnaire survey templates prepared to: (a) compile and update information and data on the distribution of habitats, known spawning areas, locations of *refugia*, MPAs, fisheries management areas, and critical habitats for endangered species; (b) produce detailed site characterizations for the 14 priority fisheries *refugia* sites for incorporation into national and regional datasets, and preparation of detailed Terms of Reference for the development and application of a modeling system linking oceanographic, biochemical, and fish early life history information to improve regional understanding of fish early life history and links to critical habitats and discussion with regional universities, and internationally-recognized institutions with expertise in this field;

c) information management and dissemination in support of national and regional-level implementation of the fisheries *refugia* concept in the South China Sea, *i.e.* the [www.fisheries-refugia.org](http://www.fisheries-refugia.org) web portal established and populated with newly developed short films, and journal articles written by regional project staff, all supported by various social media platforms including YouTube and Facebook, and a six-part short film social media campaign prepared and disseminated in December 2017; and

d) national cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea were enhanced through the signing of Letters of Agreement with four out of the six participating countries, training of national teams in project management and governance arrangements and following up on the progress of establishing agreements in ten out of 14 sites including the detailed terms of reference for site-based management boards.

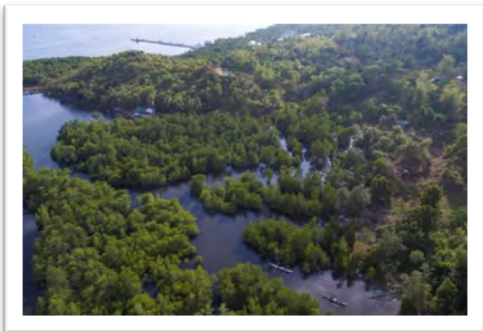
During the year 2018, The PCU had undertaken a series of country visit to supporting national lead agency for the project in undertaking quarterly and annual project work planning, budgeting and reporting. The support mission was started from National Fisheries Research and Development Institute, Philippine, Fisheries Administration Cambodia, Department of Fisheries of Thailand, and Department of Fisheries of Malaysia, respectively. Also, The PCU's staffs participated SEAFDEC regional meetings with aimed to strength the project cooperation and coordination with other SEAFDEC Donors such as; the Experts Consultation Workshop on Guidance to Monitoring and Evaluation of Gender Equality and Social Well-being, and the participation to the 2<sup>nd</sup> Sub-Regional Technical Meeting on Effective Fisheries Management between Cambodia and Thailand. The summarize of the activities done by the PCU during November 2016 to August 2018 were shown in Table 1.



*Fisheries Refugia Project Inception Meeting in Bangkok, Thailand on 1-3 November 2016*



*Site Level Inception Workshop and Baseline Data Collection in Bolinao, Pangasinan, Philippines on 23-25 March 2017*



*Site Level Inception Workshop and Baseline Data Collection in Coron, Palawan, Philippines on 23-25 March 2017*



*Site Level Inception Workshop and Baseline Data Collection in Masinloc, Zambales, Philippines on 23-25 March 2017*



*A Support Mission by Project Coordinating Unit in Cambodia, 18-20 July 2018(Left), A Support Mission by Project Coordinating Unit in Philippine, 20-22 June 2018(Right)*

Table1: The activity carried-out by the PCU during November 2016 to June 2018

Activity	Period	Objective	Results/outputs
1. Organized the Regional Inception Workshop on Fisheries <i>Refugia</i>	1-3 November 2016	To organize the regional workshop to launch the project	Total 30 participants attended the workshop
2. Developed the project website	October 2016	To develop a prototype project website	Project website was completed with URL address: <a href="https://fisheries-refugia.org/">https://fisheries-refugia.org/</a>
3. Developed the Short film and animations for the project	December 2016	To produce an inception phase short film and animation for the project	A short film of the project was launched on the project website, Facebook fan page, and YouTube channel of the project.
4. Attended to the 8 <sup>th</sup> Annual Large Marine Ecosystem and Coastal Partners Meeting, IOC/UNESCO Headquarters	6-9 December 2016	To strengthen the cooperation of the project.	Promotion of the Fisheries <i>Refugia</i> Project to another LMEs
5. Attended to the Fisheries <i>Refugia</i> Management Committee Meeting, Coron, Philippines	18-22 April 2017	To attend the site-based committee meeting	Observation and Technical support to national activities
6. Technical support for Cambodia	30 January – 3 February 2017	To support the national lead agency for project work planning and budgeting	Observation and Technical support to national activities
7. Technical support for Philippines	5-8 February 2017	To support the national lead agency for project work planning and budgeting	Observation and Technical support to national activities
8. Technical support for Vietnam	13-16 February 2017	To support the national lead agency for project initiating phase	Observation and Technical support to national activities
9. Attended to the 6th Meeting of the GoT Meeting	28 February – 3 March 2017	To strengthen the cooperation with alignment project implementing by other donors.	Introduction of the Fisheries <i>Refugia</i> Project to the GoT project
10. Technical support for Malaysia	6-8 March 2017	To support the national lead agency for project work planning and budgeting	Observation and Technical support to national activities
11. Technical support for Philippines	18-28 February 2017	To support the national lead agency for project work planning and stakeholder consultation meeting	Observation and Technical support to national activities
12. Attended to the 49th Meeting of SEAFDEC Council	2-8 April 2017	To strengthen the cooperation of the project.	Report the progress of Fisheries <i>Refugia</i> project to SEAFDEC Council
13. Technical support for Cambodia	4-6 May 2017	To support the national lead agency for project work planning and budgeting	Observation and Technical support to national activities
14. Participation to the UN conference	5-9 June 2017	To strengthen the cooperation of the project.	Promotion of the Fisheries <i>Refugia</i> Project to other agencies. Discussion with UN Environment for future

			cooperation
15. Technical support for Cambodia	2-6 July 2017	To support the national lead agency for project work planning and budgeting	Observation and Technical support to national activities
16. Organized the Capacity Building for Stakeholder Consultation Workshop	1-3 August 2017	To building a capacity of the national project staff on arrangement of stakeholder Consultation Workshop	2 representatives from Cambodia, 3 from Thailand, and 3 from Philippine had trained
17. Technical support for Thailand	7 September 2017	To support the national lead agency for project work planning	Observation and Technical support to national activities
18. Attended to Sustainable Agro Business Forum 26-27 Sep	26-27 September 2017	To strengthen the cooperation for the project.	Observation and sharing of information on Fisheries <i>Refugia</i>
19. Technical support for Cambodia	14-17 October 2017	To support the national lead agency for project work planning, budgeting, and reporting	Observation and Technical support to national activities
20. Attended to the Building International Partnership to Enhance Science Based Ecosystem Approaches and the 19 <sup>th</sup> Annual Large Marine and Coastal Partners Meeting	27 November – 1 December 2017	To strengthen the cooperation of the project.	Observation and sharing of information on Fisheries <i>Refugia</i>
21. Attended to the inauguration ceremony of FR information center on Tanjung Leman, Malaysia	19-20 November 2017	To attend for inauguration ceremony of FR information center on Tanjung Leman	Observation on the achievement on establishment of the Fisheries <i>Refugia</i> institution at selected site
22. Filming of footage at Kep province, Cambodia	14- 20 December 2017	To support the communication and social media of the project.	Fisheries <i>Refugia</i> film
23. Consultation visit to NFRDI, Philippine	20-22 June 2018	To support the national lead agency on project reporting and budgeting	Observation and Technical support to national activities
24. Consultation visit to FiA, Cambodia	18-20 July 2018	To support the national lead agency on project reporting and budgeting	Observation and Technical support to national activities
25. Consultation visit to DoF, Malaysia	18-20 July 2018	To support the national lead agency on project reporting and budgeting	Observation and Technical support to national activities
26. Attended to the Experts Consultation Workshop on Guidance to Monitoring and Evaluation of Gender Equality and Social Well-being	8-10 August 2018	To strengthen the cooperation with alignment project implementing by other donors.	The list of indicators for gender mainstreaming to support the implementation of the project
27. Attended to the 2 <sup>nd</sup> Sub-Regional Technical Meeting on Effective Fisheries Management between Cambodia and Thailand	29-30 August 2018	To strengthen the cooperation with alignment project implementing by other donors.	Support workplan for management of transboundary species between Thailand and Cambodia.

## **ANNEX 7 (a)**

**THE PROGRESS OF WORK AT THE NATIONAL LEVEL DURING JAN 2017 - JUN 2018**

### **CAMBODIA**



## **National Progress Report in Cambodia**

**LENG SY VANN**

**Deputy Director of Department of Fisheries Conservation  
Fisheries Administration of Cambodia**

**Supported by Fisheries *Refugia* SEAFDEC-UNEP/GEF**

**11-13 September 2018**

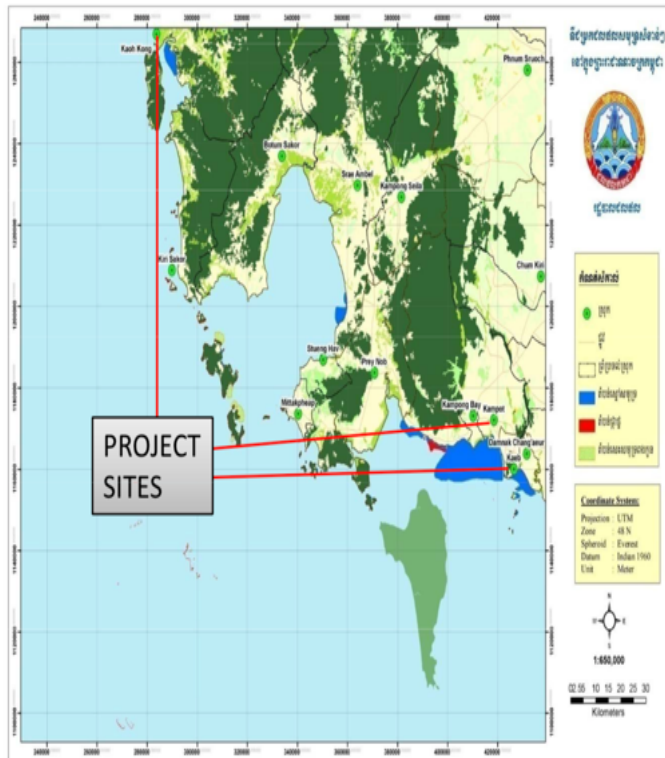
**Centara Chaan Talay Resort & Villa, Trat Province, Thailand**

## **Content of Presentation**

1. General Aspect of Fisheries *Refugia* Project in Cambodia
2. Management and Coordination Structure
3. Results of Project Activities from June 2017 to June 2018
4. Next Workplan for October to December 2018

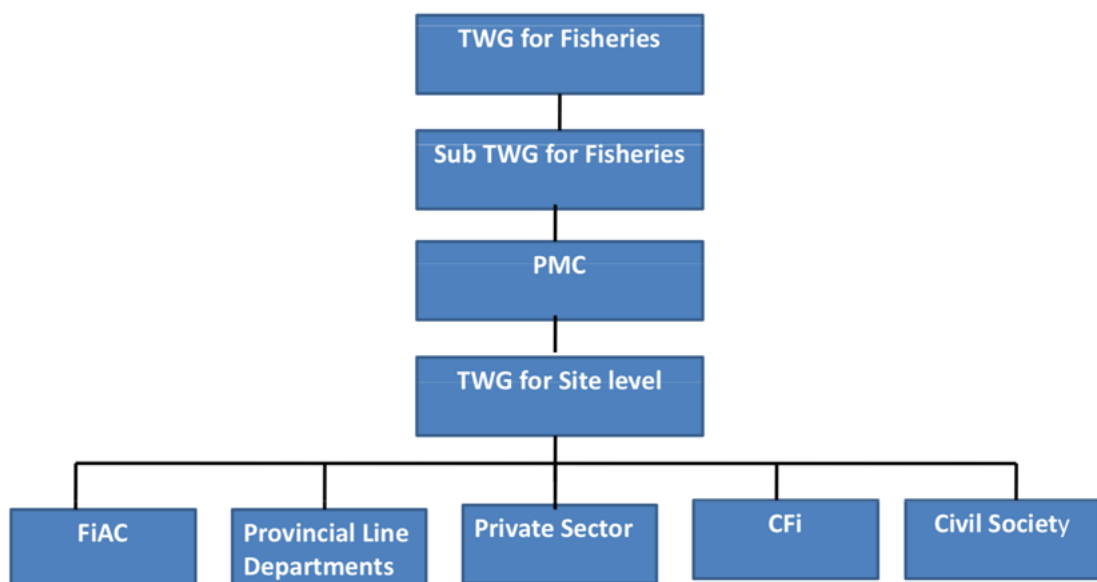


## GENERAL ASPECT OF THE PROJECT



- Fisheries *Refugia* Project in Cambodia has started to operate its activities since June 2017 unit June 2018
- Three sites are selected for fisheries *refugia* development, including Kep, Kampot, and Koh Kong provinces.
- These sites are rich of biodiversity, are spawning habitats of fish species, and are also critical habitats.

## MANAGEMENT AND CORDINATION STRUCTURE



Activities	Kep province	Kampot	Koh Kong
Site selection and consultation	Done	Done	Done
Stakeholder consultation workshop	Done	Not yet	Done
Mapping	Done	Draft	Draft
Site level management board establishment	Draft	Not yet	Draft
MFMA Proclamation issued by MAFF's Minister	Done	Not yet	Not yet



Meeting and consultation with PDOA and FiAC in Kampot



Meeting and consultation with Deputy Governor of Kampot



Meeting and consultation with community fisheries and FiAC in Kampot



Meeting and consultation with FiAC in Koh Kong



Stakeholder consultation workshop in Kep



Stakeholder consultation workshop in Koh Kong

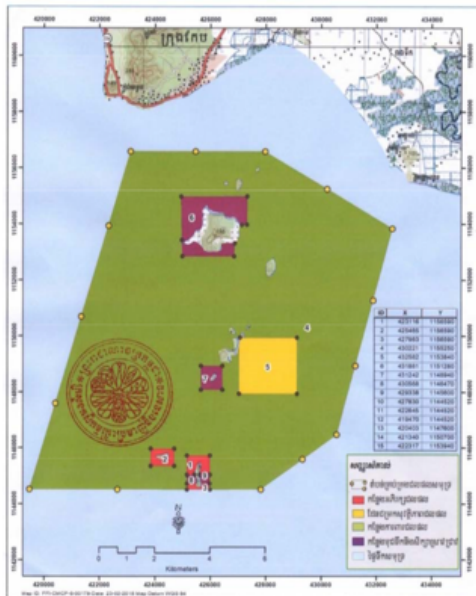


Stakeholder consultation workshop in Kep



Stakeholder consultation workshop in Koh Kong

ផែនទីតំបន់ត្រួតពិនិត្យធនធានត្រីឆ្មារក្រហម និងត្រីឆ្មារខ្មៅនៅតំបន់កោះព្រះសីហនុ ខេត្តកែប

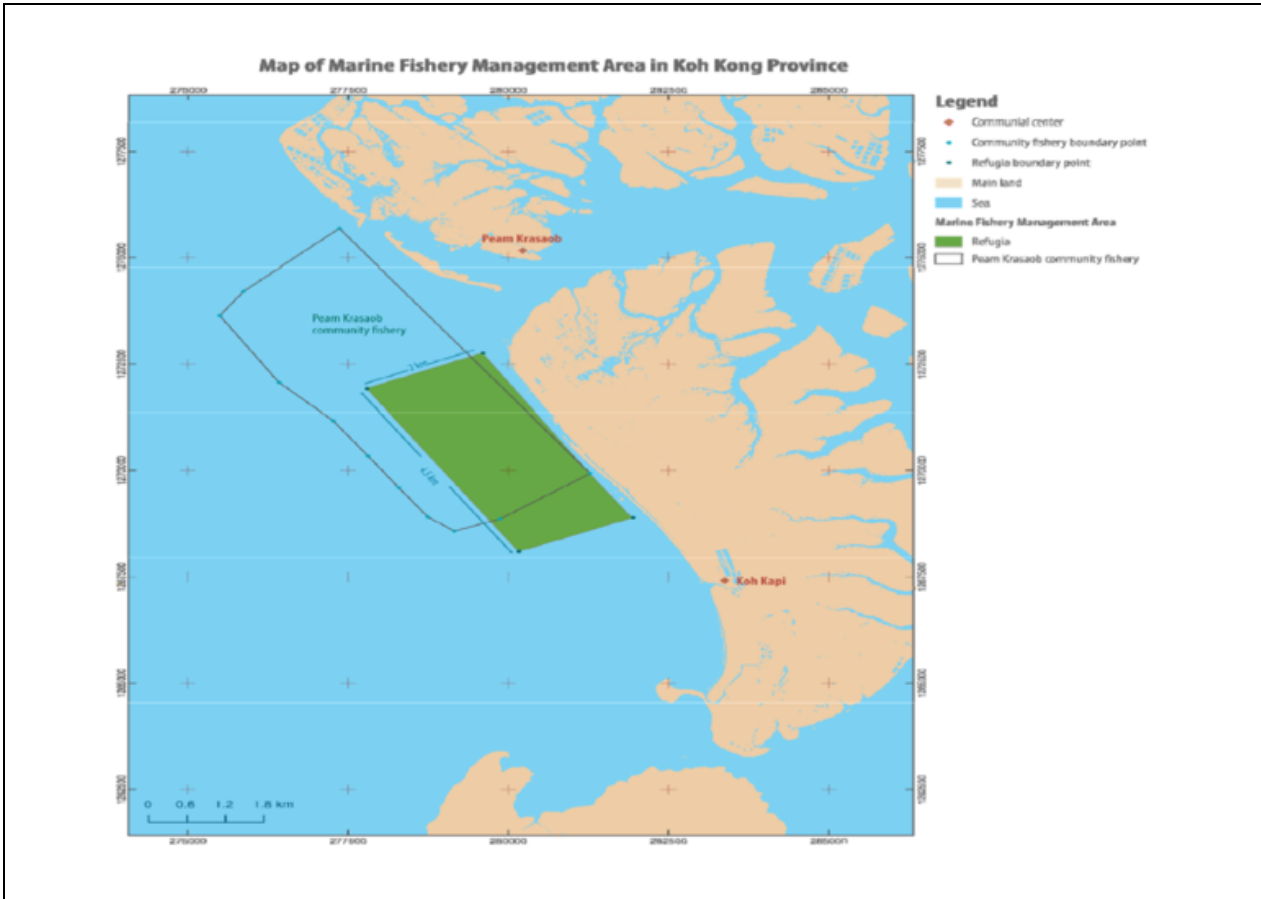


MFMA Map in Kep approved by MAFF's Ministers  
Fisheries Refugia for blue swimming crab and Anchovy  
cover 417 ha

ផែនទីតំបន់ត្រួតពិនិត្យធនធានត្រីឆ្មារ



Draft MFMA Map in Kampot  
Grouper Fisheries Refugia cover 868 ha



Meeting with TWG chaired by Deputy Governor of Kep



Taking Photos together for TWG meeting chaired by the Governor of Kep



Meeting with TWG chaired by the Governor of Kep



Meeting with TWG chaired by the Governor of Kep



Meeting with FIA's TWG on draft proclamation of MFMA in FIA meeting room

Meeting with FIA's TWG on draft proclamation of MFMA in FIA meeting room



### **NEXT WORKPLAN FOR OCTOBER TO DECEMBER 2018**

- To conduct a literature review of three sites;
- To conduct stakeholder consultation workshop in Kampot province;
- To organize site level management board meeting in Kampot, Kep, and Koh Kong provinces;
- To make a management plan for fisheries refugia in Kep province; and
- To conduct the training of fish maturity (Mackerel species) in Koh Kong province and (blue swimming crab) in Kep province.
- To conduct a baseline survey including assessment of environment, social, and biological impacts at three sites

## **ANNEX 7(B)**

**THE PROGRESS OF WORK AT THE NATIONAL LEVEL DURING JAN 2017 - JUN 2018**

### **MALAYSIA**



**SEAFDEC/UN ENVIRONMENT/GEF Fisheries Refugia Project  
Progress Report**

**By**

**Department of Fisheries Malaysia**

A Report Prepared for the Regional Scientific and Technical Committee Meeting for the SEAFDEC/UN Environment/GEF Project on Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand, 11-13 September 2018, Trat Province, Thailand

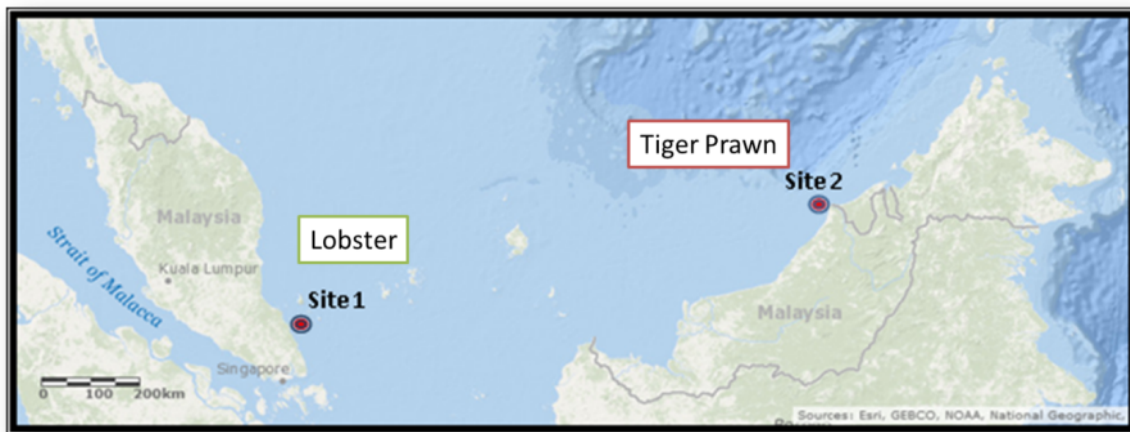
**Prepared:**

**20<sup>th</sup> September 2018**

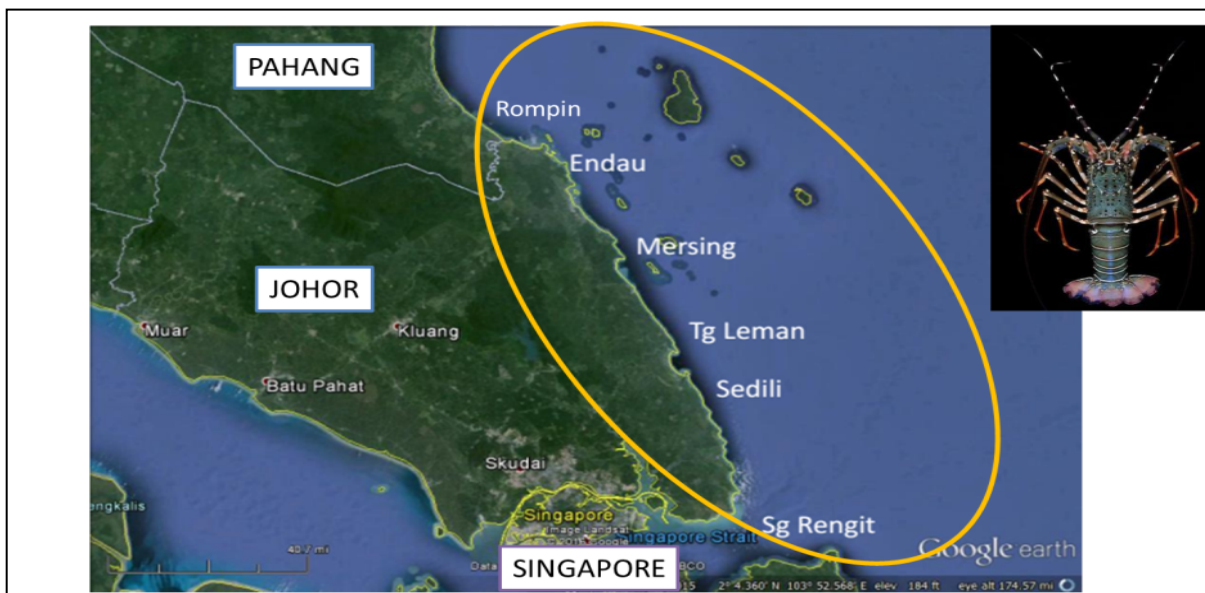
## Introduction to Fishery Refugia in Malaysia

There are two proposed fishery refugia sites in Malaysia, namely the Lobster (*Panulirus* spp.) Refugia in Tanjung Leman, Johor and the Tiger Prawn (*Penaeus monodon*) in Kuala Baram, Miri, Sarawak (Figure 1). For the lobster refugia in Tanjung Leman, the actual site has not been determined yet as scientific data gathering is still ongoing and the Department of Fisheries Malaysia will only announce the refugia area once the spawning site of the spiny lobster has been determined. The main fishing area for spiny lobsters spans from southern Pahang to the tip of east Johor (Sungai Rengit). Landing data of spiny lobsters caught by fishermen has been collected in some jetties such as Endau, Tanjung Leman and Sedili (Figure 2).

As for the tiger prawn refugia, the proposed site is located at the river mouth of Kuala Baram in Miri, Sarawak and the refugia area has been roughly determined by researchers studying the prawn population there (Figure 3). The proposed site for the tiger prawn refugia is located near a mangrove swamp with a river mouth and nearby the border of Brunei Darussalam. The offshore area sloop into deep water as characteristic of a continental sloop area.

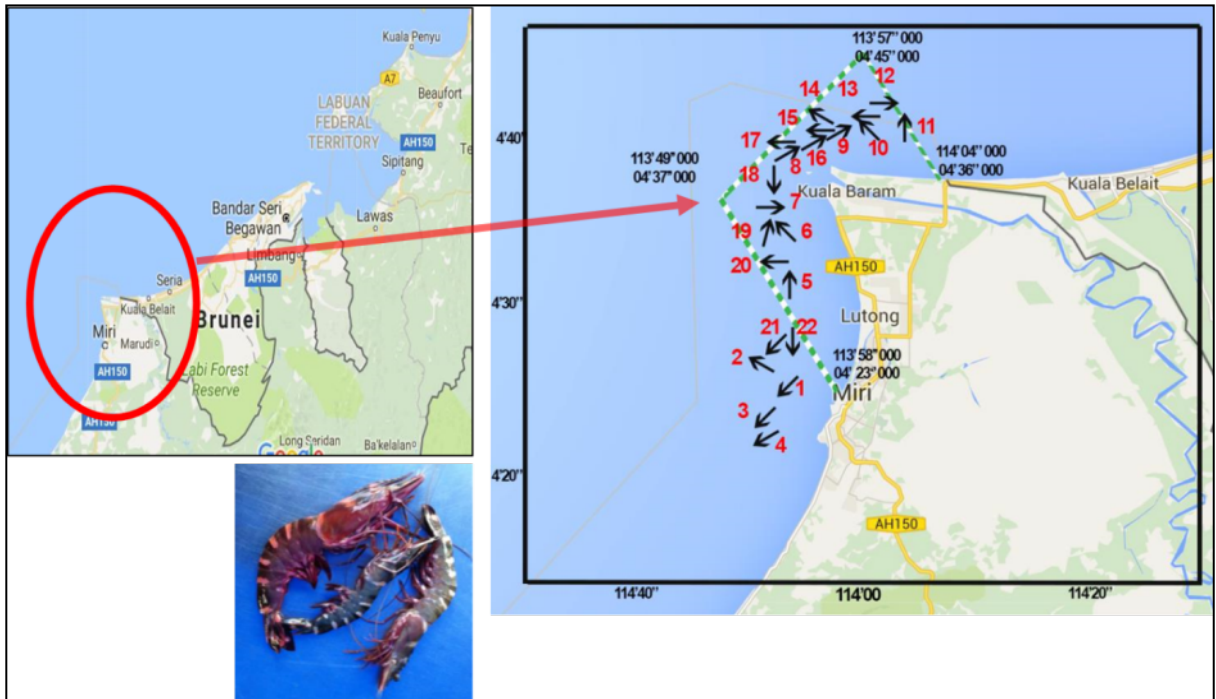


**Figure 1:** The locations of the proposed Lobster Refugia at Tanjung Leman, Johor (Site 1) and Tiger Prawn Refugia at Kuala Baram, Sarawak (Site 2)



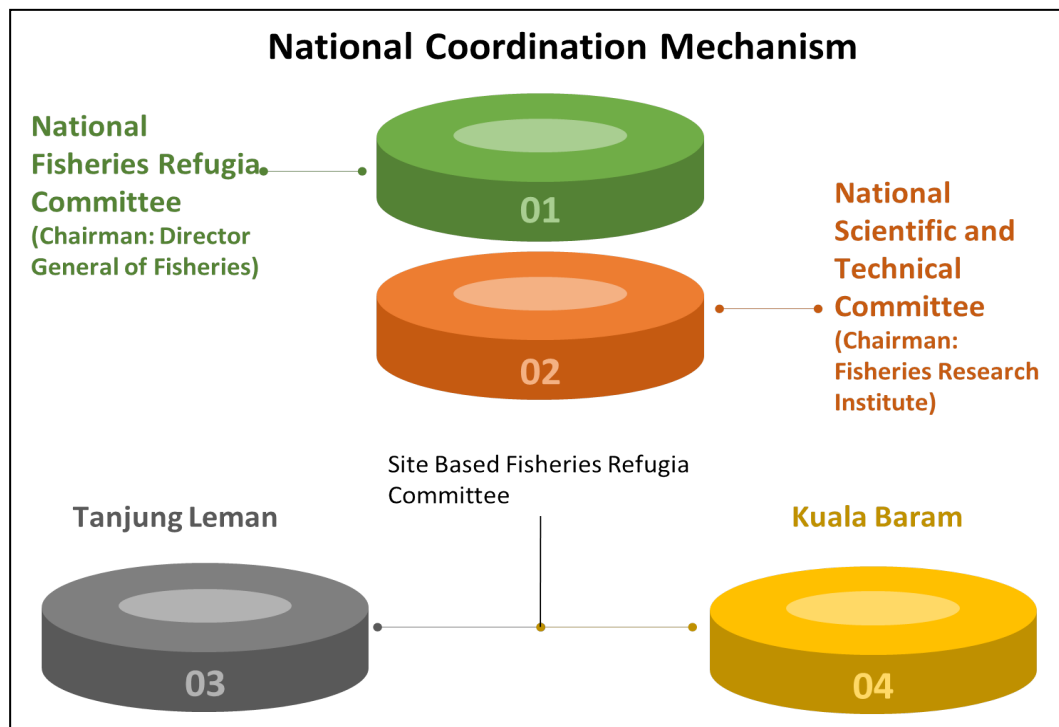
**Figure 2:** The spiny lobster fishery area at South Pahang-East Johor waters





**Figure 3:** The proposed tiger prawn refugia area at Kuala Baram, Miri, Sarawak

The national coordination mechanism follows closely the suggested layout by the Regional Refugia Project Steering Committee where there are 3 levels of coordination, namely the National Fisheries Refugia Committee, the National Scientific and Technical Committee and two site-based Fisheries Refugia Committees at Tanjung Leman and Kuala Baram (Figure 4). The Chairman for the National Fisheries Refugia Committee is the Director General of Fisheries Malaysia while the Chairman for the National Scientific and Technical Committee is the Director of the Fisheries Research Institute (DOFM).



**Figure 4:** The national coordination mechanism for the execution of the SEAFDEC/ UNEP/GEF Fisheries Refugia Project in Malaysia

## Work Progress for the year 2017-2018

The activities for the year 2017-2018 is listed out in the following Table 1. These activities were based on the work plan as described in Annex 2 of the National Project Document for Malaysia. Some of the activities were carried out using National Fund while others were implemented using the fund provided by SEAFDEC/UN Environment/GEF (Figure 6 & 7).

**Table 1:** The activities implemented in the Refugia Project in Malaysia for the period from year 2017 to 2018

Planned Activities(s)	Anticipated Deliverable/ Timeline	Status
1.1.1 Literature review and data collection	Data profile Agreed physical document	Ongoing compilation of information. Books price exceed stipulated budget
1.1.1 Workshop on past lobster survey data on lobster resource in Johor waters and Tiger Prawn Survey in Sarawak waters	Lobster and tiger prawn fishing area and density map Survey report	A workshop was held on the 29-31 May 2018 for the Lobster project.
1.1.1 Analysis of larvae samples from East Johor	Lobster larvae distribution and density	Completed
1.1.3 Site based survey and reconnaissance for socio-economic study	1 recon survey	Survey conducted for Lobster Refugia (March – August 2018)
1.1.3 Daily collection of lobster and tiger prawns landing data from selected sites:  Site 1: Sedili Site 2: Pengerang Site 3: Mersing Site 4: Rompin Site 5: Kuala Baram	Lobster and tiger prawns landing trend and basic biological information (species, length, weight, egg presence)	Lobster Refugia: Data collection work have started since May 2018 and three (3) field workers were hired to collect lobster landing data from Sedili, Tn. Leman and Endau.
3.2.3 BENCHMARK AND ANNUALLY TRACK COMMUNITY ACCEPTANCE OF REFUGIA APPROACH AS A MARINE SPATIAL PLANNING TOOL	-	Information extracted from community consultation sessions and socio-economic survey
3.3.1 ESTABLISH 1 INFORMATION CENTER FOR REFUGIA SITE	To provide technical information and management information for refugia to local community	A Fisheries Refugia Information Center is established at Tanjung Leman Jetty Complex using National Fund.
4.1.1 DEVELOP AND AGREE ToR, MEMBERSHIP & OPERATIONAL RULES FOR NATIONAL FISHERIES REFUGIA COMMITTEE	Meeting report including participant list	A NFRC meeting was held on 21 <sup>st</sup> September 2017
4.1.2 Establish and convene quarterly meetings of the National Fisheries Refugia Committee (NFRC)	Meeting report including participant list	A NFRC meeting was held on 21 <sup>st</sup> September 2017
4.1.3 NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders	Meeting report including participant list	A NFRC meeting was held on 21 <sup>st</sup> September 2017

4.2.1 Establish and convene 6 monthly meetings of the National Technical Working Group	Meeting report including participant list	The second NSTC meeting was held on 4 <sup>th</sup> May 2018
4.2.2 Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3	Compilation of data	The second NSTC meeting was held on 4 <sup>th</sup> May 2018
4.3.1 Review governance arrangements at each site to identify required ToR and membership of site-based management boards, including links to other local planning bodies	Meeting report including participant list	Site-base Refugia Committee meetings were held for Johor, Pahang and Sarawak
4.3.2 Establish and convene quarterly meetings of site-based management boards	Meeting report including participant list	
4.3.3 Preparation of quarterly work plans and progress and financial reports on activities at each site	quarterly work plans and progress and financial reports	A Project Manager has been appointed on 3 <sup>rd</sup> September 2018.



**Figure 5:** The first National Fisheries Refugia Committee (NFRC) Meeting was held in Department of Fisheries HQ, Putrajaya on the 21<sup>st</sup> September 2017



Figure 6: The second National Scientific and Technical Committee (NSTC) Meeting was held in Langkawi on the 4<sup>th</sup> May 2018



Figure 7: A Lobster Refugia Data Analysis Workshop was held in Ipoh, Perak from the 29<sup>th</sup> to 31<sup>st</sup> May 2018

## Financial Report

The sources of funds for the implementation and running of the activities associated with the Fisheries Refugia Project in Malaysia were derived from two main sources, namely the national fund (development and operational expenditures from the 11<sup>th</sup> Malaysia Plan) and the SEAFDEC-UN Environment-GEF fund (Table 2). For the year 2017, a total of RM146,000.00 or USD35,235.91 of the national fund (development) were spent on implementing various activities associated with the Fisheries Refugia Project in Malaysia. This sum did not take into account the operational expenditure (which would include the salaries and allowances of the Department of Fisheries Malaysia staff) during the implementation of such activities.

The fund from SEAFDEC-UN Environment-GEF was only received in the year 2018 and the first allocation of USD27,230.00 was transferred to SEAFDEC/MFRDMD account in March 2018. With the available fund, the activities for the first quarter of the year 1 work plan were implemented. The details of the expenditure can be referred to in Table 3. The balance from the SEAFDEC-UN Environment-GEF fund until July 2018 was USD17,291.

**Table 2:** Source of funds for the running of the Fisheries Refugia Project in Malaysia for the year 2017-2018

Source of Fund	Year	Amount (USD)
National (Development Fund)	2017	35,235.91
National (Development Fund)	2018	82,056.23
SEAFDEC-UN Environment-GEF (1 <sup>st</sup> Quarter)	2018	27,230.00

Note:

Development Fund derived from 11<sup>th</sup> Malaysia Plan (which did not include Operational Expenditure)  
Q1 – 1st remittance from regional SEAFDEC-UN Environment-GEF funding

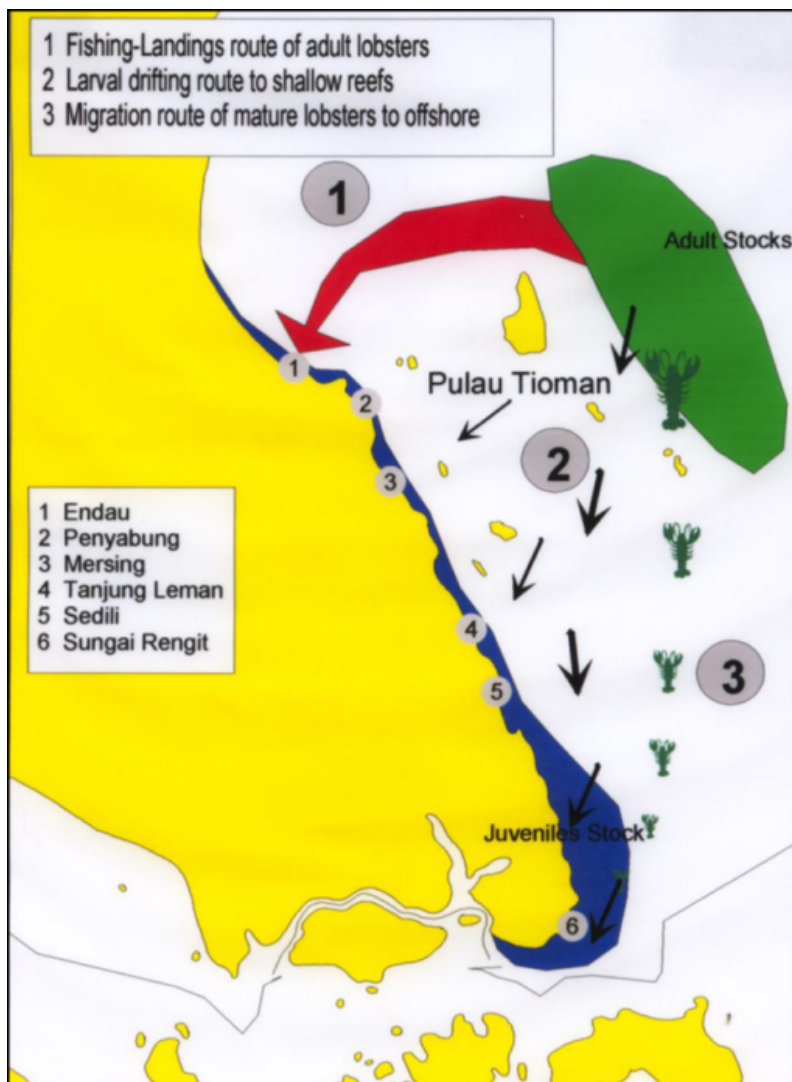
**Table 3:** Project statement of allocation, expenditure and balance from January 2018 to July 2018 (SEAFDEC-UN Environment-GEF fund)

South China Sea Fisheries Refugia Initiative Project Statement of allocation, Expenditure and balance from January 2018 to July 2018				
Code	Description	Budget allocation (USD)	Actual Expense (USD)	Balance (USD)
<b>10 PROJECT PERSONNEL COMPONENT</b>				
1100	Project Personnel			
1101	Appointment of project manager	2,750	0	2,750
1199	Sub total	2,750	0	2,750
1200	Consultants	0	0	0
1201	Literature review and data collection	240	0	240
1202	Analysis of larvae sample from East Johor	960	935	25
1299	Sub total	1,200	935	265
1600	Travel on official bussiness (above staff)	0	0	0
1601	Site based survey and reconnaissance for socio-economic study	1,440	946	494
1608	Daily collection of lobster & tiger prawns landing data			
	Sedili			
	Pengerang			
	Mersing			
	Rompin			
	Kuala Baram	9,984	2,158	7,826
1699	Sub total	11,424	3,104	8,320
	COMPONENT TOTAL	15,374	4,039	11,335
<b>20 SUB-CONTRACT COMPONENT</b>				
	COMPONENT TOTAL	0	0	0
<b>30 TRAINING COMPONENT</b>				
3200	Group training			
3201	Workshop on past lobster survey data on lobster resources in johor waters & Tiger prawns survey in sarawak waters	2,400	1,277	1,123
3202	Consultation workshop with the traditional gears fishermen in Rompin	0	0	0
3203	National Fisheries Refugia Committee Meeting	2,400	623	1,777
3204	1 meeting in Johor,Pahang and Sarawak	2,256	519	1,737
3299	Sub total	7,056	2,420	4,636
	COMPONENT TOTAL	7,056	2,420	4,636
<b>40 EQUIPMENT &amp; PREMISES COMPONENT</b>				
4300	Premises	0	0	0
4301	Establish 1 information center for refugia site	4,800	3,480	1,320
4399	Sub total	4,800	3,480	1,320
	COMPONENT TOTAL	4,800	3,480	1,320
<b>50 MISCELLANEOUS COMPONENT</b>				
	COMPONENT TOTAL	0	0	0
<b>TOTAL</b>		<b>27,230</b>	<b>9,939</b>	<b>17,291</b>

**Scientific Report: Lobster Refugia in Tanjung Leman, Johor**

The scientific studies to support the formation of the Lobster Refugia in Tanjung Leman, Johor focused mainly on four main activities which were the collection of lobster landing data from jetties, lobster eggs and maturation observation from the landing jetties, lobster resource and larvae surveys in the fishing ground at East Johor. The lobster fishery in Southern Pahang-East Johor is represented by three main gears namely lobster traps, drift nets (with the mesh size of 4-5 inches) and bottom trawlers. The scientific studies will cover all types of spiny lobsters available in the area (*Panulirus polyphagus*, *P. versicolor*, *P. ornatus*, *P. homarus* and *P. longipes*) and includes the slipper lobster (*Thenus orientalis*) fishery as well. However, more focus is given to *P. polyphagus* or mud spiny lobster since it is the main spiny lobster species caught in the area. Thus, the subsequent formation of lobster refugia in the area will be based on the biology and life cycle of the *P. polyphagus* lobster.

There were past studies concerning the life cycle of *P. polyphagus* in the East Johor area (refer to Alias *et al.*, 2000) but the migration route has not been clearly identified yet. Records from elsewhere indicated that the spiny lobster will undertake a mass migration to their spawning ground before releasing their eggs into deeper sea (Figure 8).



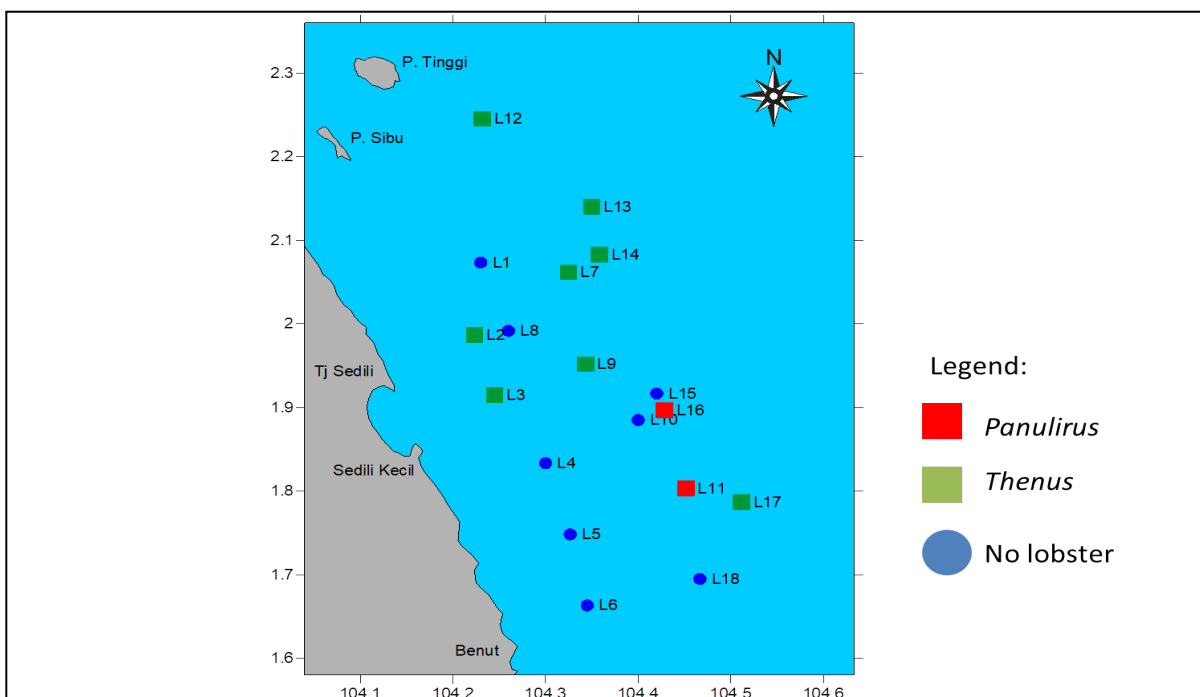
**Figure 8:** Spiny lobster migration pattern in the East Johor area (Taken from Alias *et al.*, 2000)

Currently, some biological information concerning the mud spiny lobster (*P. polyphagus*) has been extracted from other studies and it is known that female lobsters begin to bear eggs when they reach size of 400g and total length of 200mm (Alias *et al.* 2000). The number of eggs (fecundity) each adult female lobster bears ranged from 72 000 – 945 000 depending on the size of the adult (Kagwade, 1988). The size at first maturity for the male lobster ranges from 51-55 mm Carapace Length (CL) while for the female lobster would range from 51-60 mm CL (Kizhakudan & Patel, 2010). The size at first maturity for the lobster in East Johor area in the previous study by Alias *et al.* (2000) was about 80 mm CL.

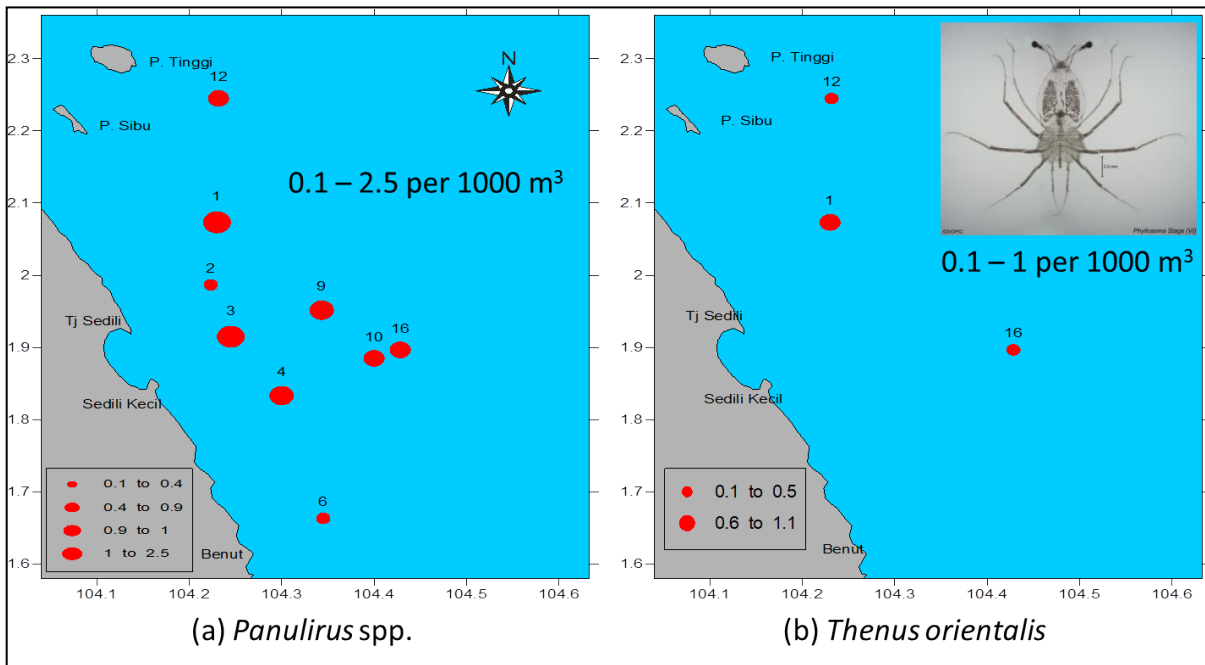
A study on lobster egg maturity in the hatchery condition conducted by a team of local university researchers from University Malaysia Terengganu indicated that the period of egg bearing from the early stage to hatching would take about 11 days and is affected by the temperature of the seawater (Ikhwanuddin *et al.*, 2014). From the previous landing data collected, it is observed that egg-bearing lobsters are usually found during the months of July-September and this coincide with a previous study by Alias *et al.* (2000), which state that the peak breeding season is in August. However, further information is needed to determine the spawning location and breeding period.

The Fisheries Research Institute has conducted a lobster resource and larvae survey in the East Johor waters from the 21<sup>st</sup> to 25<sup>th</sup> August 2017. The survey was funded using National Fund and samplings were carried out using KK Senangin II vessel. The resource survey manages to capture some egg bearing adult lobsters and the distribution of the lobsters was mapped out (Figure 9).

The density of phyllosoma for the *Panulirus* spp ranged between 0.1/1000 m<sup>3</sup> to 2.5 /1000 m<sup>3</sup> and occurred at 9 stations (Figure 10). Station 1 recorded the highest density (2.5/1000 m<sup>3</sup>) followed by Station 1 (1 /1000 m<sup>3</sup>), Station 9 and Station4 at 0.9 /1000 m<sup>3</sup> each. Other stations contributed below than 0.5/1000 m<sup>3</sup>. Most of the phyllosoma were found at stations near the coastline. The phyllosoma of *Thenus orientalis* occurred only at 3 sampling stations which were Station 1 (1/1000 m<sup>3</sup>) followed by Station 12 (0.4 /1000 m<sup>3</sup>) and Station 16 (0.1 /1000 m<sup>3</sup>). The lobster resource and larvae survey is being planned for the year 2018 and will cover the study area in the vicinity of Tioman Island, Pahang.

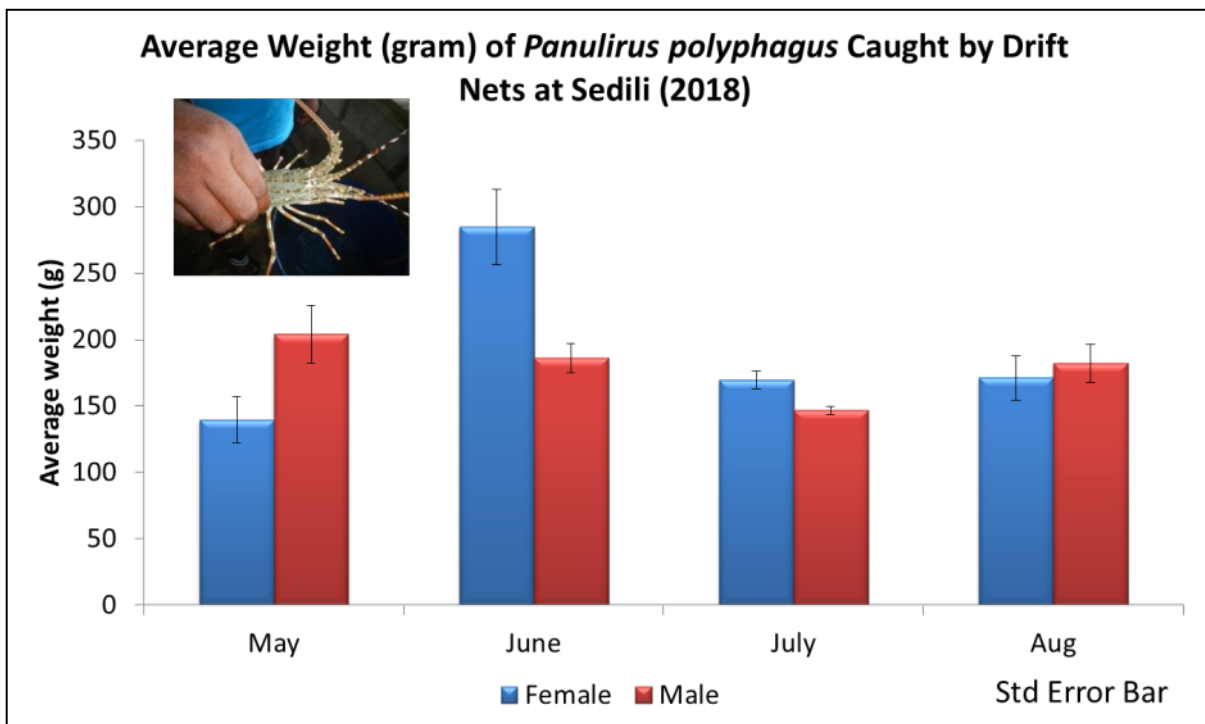


**Figure 9:** The distribution patterns of the mud spiny lobster (*Panulirus polyphagus*) and slipper lobster (*Thenus orientalis*) in the survey conducted in East Johor from 21-25 August 2017



**Figure 10:** The density (no./ 1000 m<sup>3</sup>) and distribution of phyllosoma for (a) *Panulirus* spp. and (b) *Thenus orientalis* in the survey conducted in East Johor from 21-25 August 2017

The landing data collected from one of the lobster jetty (Sedili) indicated that juvenile sized lobsters are being caught by most fishermen in the area (Figure 11). These small sized lobsters are usually caught by drift net fishermen plying the coastal area. However, the landing of juvenile lobsters is unavoidable since the biology of the mud spiny lobster dictates that the young lobsters do tend to aggregate near to the shallow coastline.



**Figure 11:** The average size (weight) of mud spiny lobster landed in Sedili by drift net fishermen in the year 2018. Daily data collection is still ongoing for at least one year cycle.



A baseline socio-economic survey of fishermen covering eight fishing areas in Pahang-Johor was undertaken during March to August 2018. A total of 138 respondents took part in this survey. The preliminary findings showed that 88.19% of respondents agreed with the establishment of refugia as proposed by DoF, 85.29% of respondents agreed not to conduct fishing operation of lobster during its breeding season after the establishment of refugia and a further 97.06% of respondents agreed that the Department of Fisheries should discuss with the fishers and fishers' community regarding the proposal of the establishment of lobster refugia in the beginning (Figure 12).



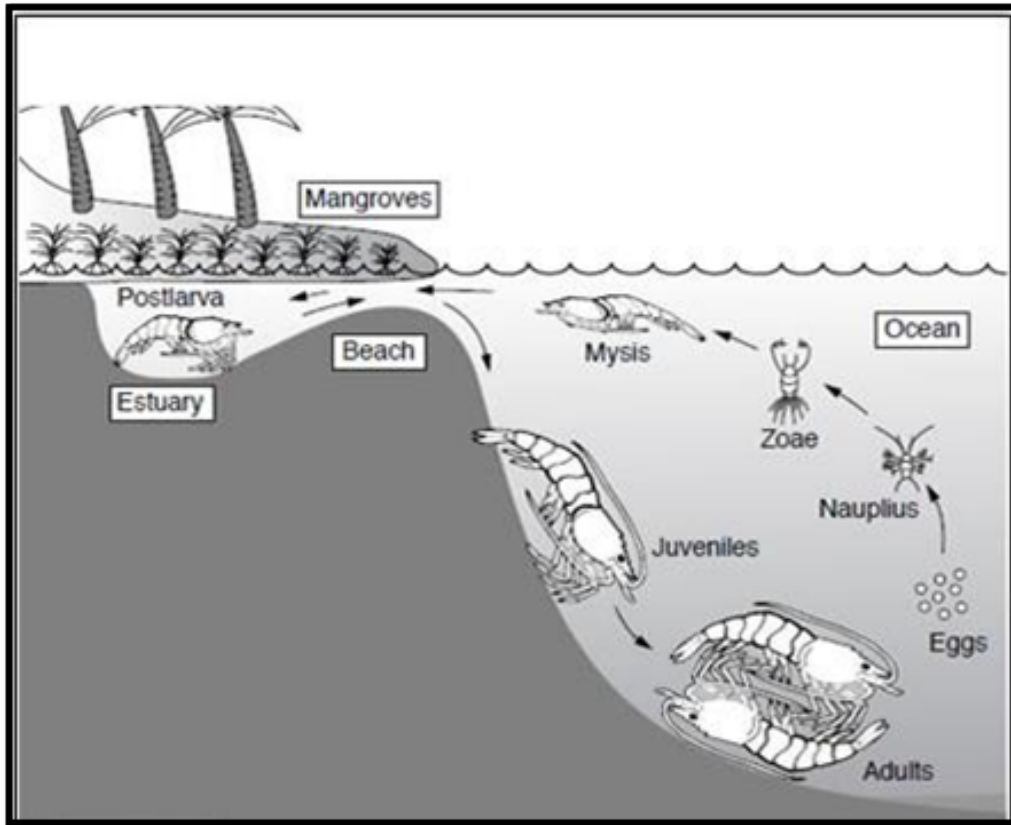
**Figure 12:** A baseline socio-economic survey of fishers covering eight fishing areas in Pahang-Johor was undertaken during March to August 2018 and a total of 138 respondents took part in this survey

### Scientific Report: Tiger Prawn Refugia in Kuala Baram, Sarawak

The scientific studies to support the formation of the Tiger Prawn Refugia in Kuala Baram, Miri, Sarawak focused mainly on three main activities which were tiger prawn (*Penaeus monodon*) landing data collection, maturation stage observation and identification of nursery areas for juvenile prawn in the Baram River area. Kuala Baram is located at the mouth of the Baram River in Miri and has a sizeable mangrove habitat essential for the tiger prawn life cycle. The scientific study for this year focused mainly on the juvenile stage tiger prawn resources and sampling were conducted periodically using rented fishermen boat and gear.

The adult tiger prawn copulates and spawn in the deep water off Kuala Baram before the larvae make its way back to the mangrove habitat and post larvae and juveniles (Figure 13). During the life cycle of the tiger prawn, there are various threats that may affect the population and the formation of a tiger prawn refugia will greatly aid in the preservation of the prawn stock (Table 4).

The studies concerning the biology and resource assessment of tiger prawn in Kuala Baram have been conducted since 1998 mainly by Fisheries Research Institute Bintawa and can be used in the formation of the Tiger Prawn Refugia in Kuala Baram (refer to papers by Hadil and Faazaz, 1998; Hadil and Gambang, 2001; Hadil, 2004; Hadil, 2012).

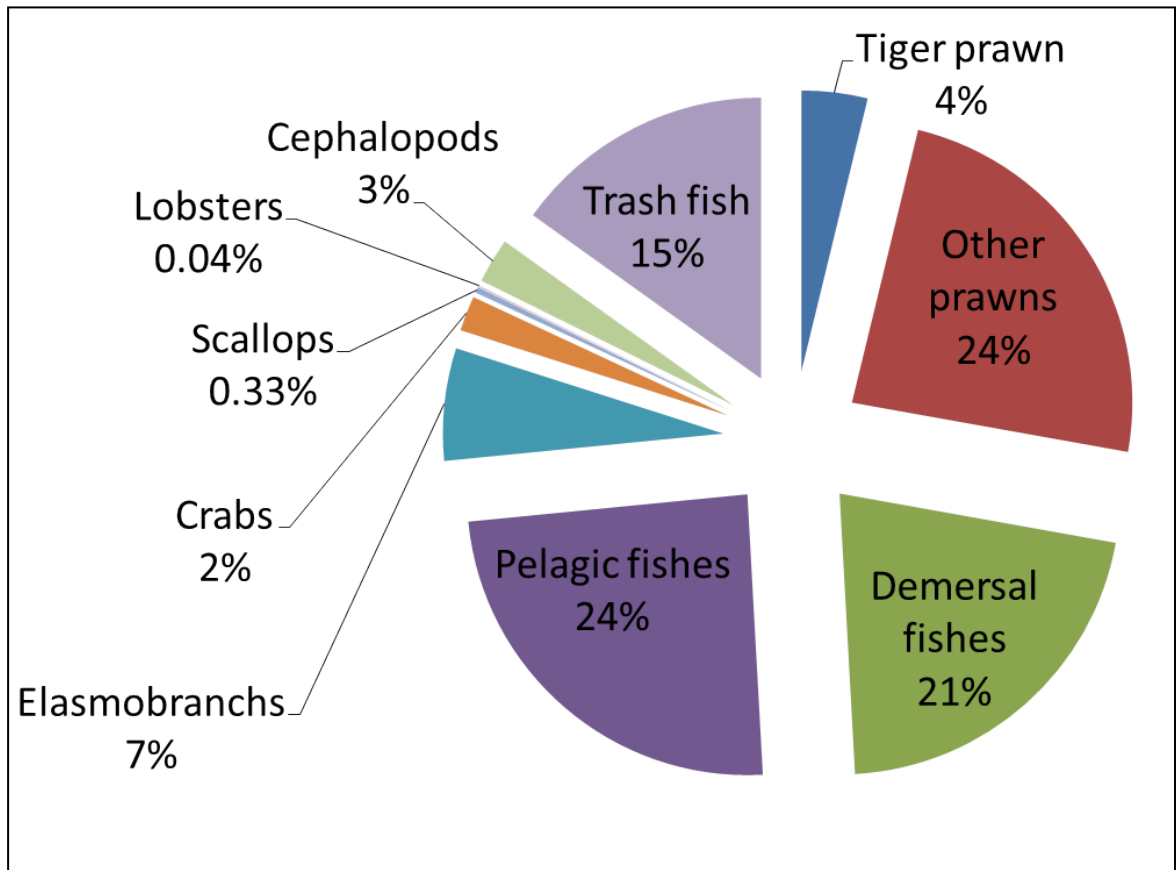


**Figure 13:** Diagram showing the life cycle of the tiger prawn which require the mangrove habitat as a nursery for juvenile prawns

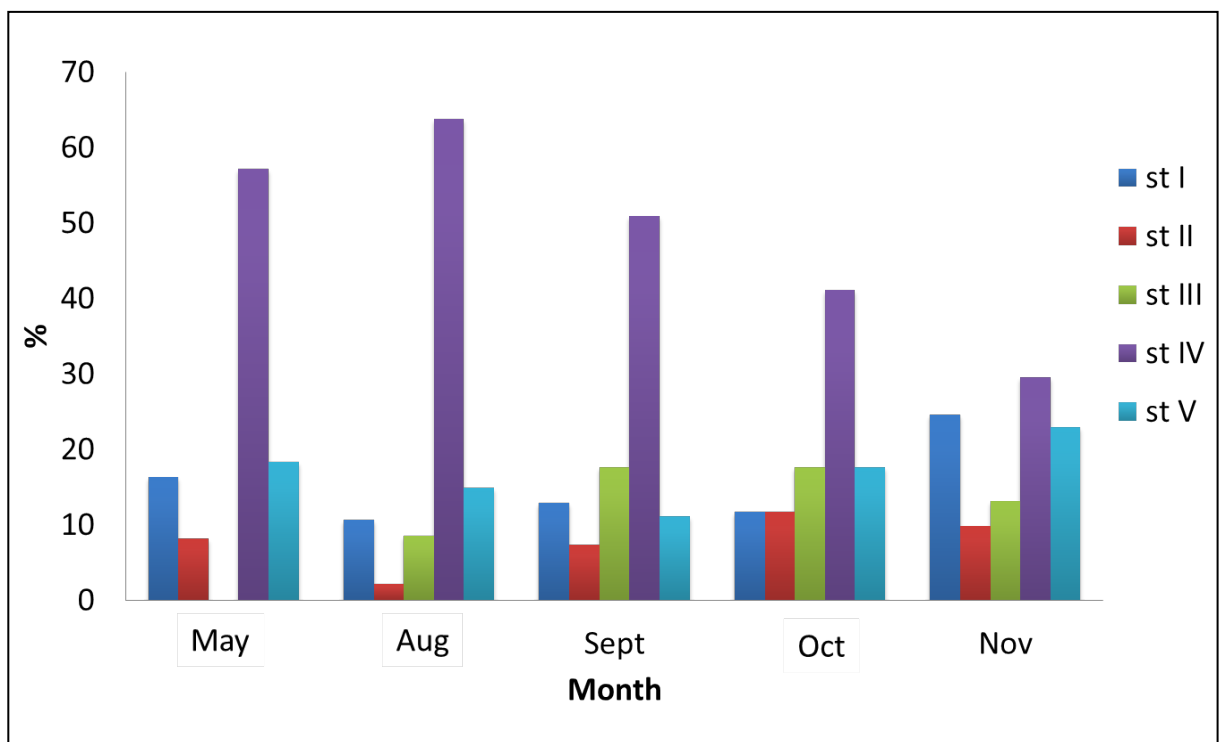
**Table 4:** The life history phase, known habitat and possible threat analysis for the tiger prawn in Kuala Baram, Sarawak

Life history phase	Known habitat/ critical area	Threat
Early-life history	Ocean water up to 130m (muddy/sandy/rocky)	Filtering, predator (whale, manta-ray)
Juvenile	Seagrass/ mangrove/ estuary	deforestation
Pre-recruit	Seagrass – salty water (25-30ppt)	Shrimp push net & bag net
Adult	Deepwater (20-50m)	Trawl net
Spawning	Oceanic water	Trawl net

The results from the current study on catch composition of trawlers in Kuala Baram indicated that the tiger prawn constituted only four percent of the total catch (Figure 14). The maturity level of tiger prawn gonad from Stage I to Stage V (in percentage) according to month in Kuala Baram is shown in Figure 15.



**Figure 14:** Catch composition of trawlers in Kuala Baram, Sarawak.  
Tiger prawn constituted only 4% of the total catch

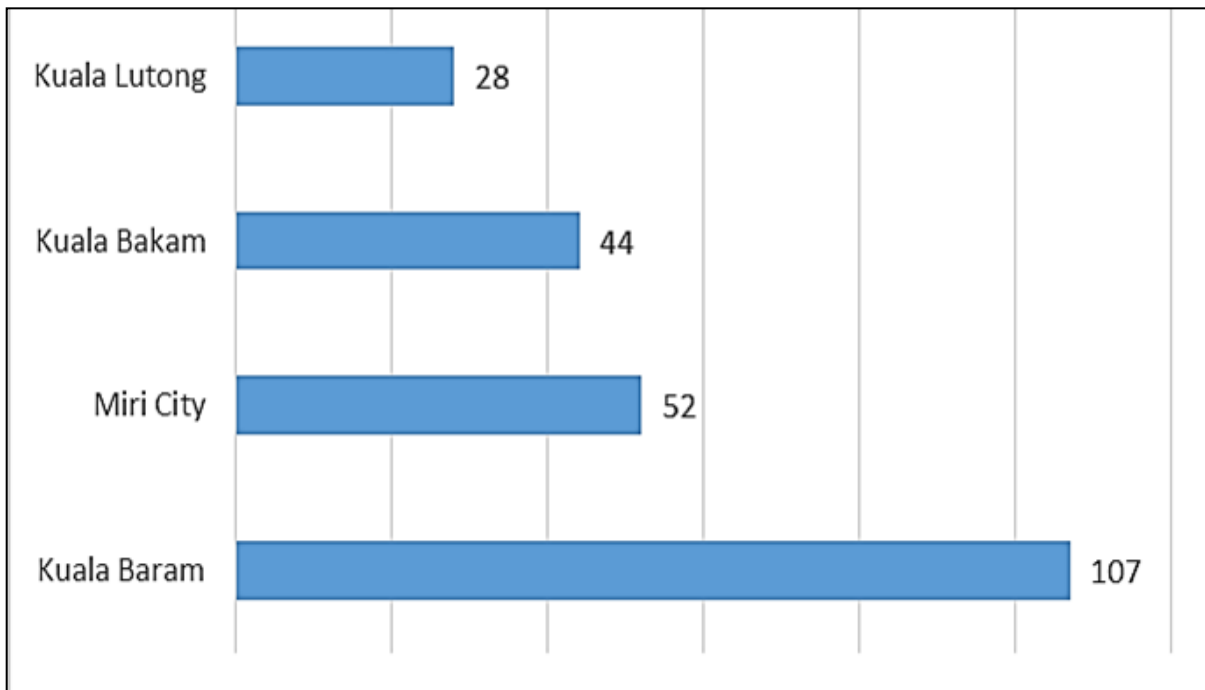


**Figure 15:** Maturity level (%) of tiger prawn gonad (Stage I - V) according to month at Kuala Baram, Sarawak



**Figure 16:** The boat used for the juvenile survey (left) and a typical catch composition of mixed species of fish and prawn from the survey (right)

A socio-economic survey of fishermen covering four areas in Miri was carried out in the year 2016 by a local university in Sarawak (UiTM) and was assisted by the Sarawak State Fisheries Office (JPLS). A total of 231 respondents took part in this survey (Figure 17). The report was prepared and submitted to the Sarawak State Fisheries Office (JPLS) for reference.



**Figure 17:** A socio-economic survey of fishermen covering four areas in Miri and 231 respondents was carried out in the year 2016 by a local university in Sarawak (UiTM) and was assisted by the Sarawak State Fisheries Office (JPLS)

**Stakeholder Consultations**

A series of stakeholder consultations were conducted at the two refugia sites in Tanjung Leman, Johor and Kuala Baram, Sarawak. For the Lobster Refugia, stakeholder consultations were conducted at both Johor and Pahang states areas. The details of the stakeholder consultation can be referred in Table 5. The lists of attendance can be referred to in Appendix 1-3.

**Table 5:** List of stakeholder consultation sessions conducted in Malaysia for the Fisheries Refugia Project for year 2017-2018

No.	Type of stakeholder consultation	Location	No. of Participants	Date
1.	Fishermen Consultation Session	Miri, Sarawak	55	18 <sup>th</sup> July 2017
2.	Fishermen (Artisanal) Consultation Session	Sedili, Johor	130	20 <sup>th</sup> Aug 2017
3.	Local Agencies and Fishermen Consultation Session	Kuala Rompin, Pahang	41	10 <sup>th</sup> Oct 2017
4.	Fishermen (Trawlers) Consultation Session	Endau, Johor	30	30 <sup>th</sup> July 2018
5.	Fishermen (Trawlers) Consultation Session	Sedili, Johor	18	31 <sup>st</sup> July 2018
6.	Fishermen Consultation Session	Kuala Rompin, Pahang	75	29 <sup>th</sup> Aug 2018



**Figure 19:** Fishermen Consultation Session at Miri, Sarawak on the 19<sup>th</sup> July 2017. The event received good coverage from the local newspapers



Figure 20: Fishermen (Artisanal) Consultation Session at Sedili, Johor on the 20<sup>th</sup> Aug 2017



Figure 21: Local Agencies Consultation Session at Kuala Rompin, Pahang on the 10<sup>th</sup> Oct 2017



**Figure 22:** Fishermen (Trawlers) Consultation Session at Endau, Johor on the 30<sup>th</sup> July 2018



**Figure 23:** Fishermen (Trawlers) Consultation Session at Sedili, Johor on the 31<sup>st</sup> July 2018



**Figure 24:** Fishermen Consultation Session at Kuala Rompin, Pahang on the 29<sup>th</sup> Aug 2018

## Other Activities

### Fisheries Refugia Information Center, Tanjung Leman

The Department of Fisheries Malaysia has set up a Fisheries Refugia Information Center at Tanjung Leman Ferry Jetty to facilitate the dissemination of information about the Fisheries Refugia Project in Malaysia. The setup of the information center was funded using national fund and in collaboration with Johor Corporation. The Refugia Information Center was officiated by the Director General of Fisheries Malaysia on the 20<sup>th</sup> of November 2017. The officiating ceremony was also attended by local fishermen and representatives from the SEAFDEC-UN Environment-GEF, Dr. Kom Silapajarn and Dr. Christopher Patterson (Figure 25).



**Figure 25:** The Refugia Information Center at Tanjung Leman Ferry Jetty was officiated by the Director General of Fisheries Malaysia on the 20<sup>th</sup> of November 2017



### Refugia Technical Support Mission Visit (25-26<sup>th</sup> July 2018)

A Refugia Technical Support Mission visit was conducted by the new Project Director of Fisheries Refugia Project, Dr. Somboon Siriraksophon and assisted by Mr. Weerasak Yingyuad on the 25-26<sup>th</sup> July 2018. They held a discussion on project matters at the Department of Fisheries Malaysia Headquarter in Putrajaya on the 25<sup>th</sup> of July before visiting the proposed Lobster Refugia site at Tanjung Leman, Johor on the 26<sup>th</sup> of July 2018 (Figure 26).



**Figure 26:** A Refugia Technical Support Mission visit was conducted by the Project Coordinating Unit (PCU) to Malaysia on the 25-26<sup>th</sup> July 2018

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## Appendices

### Appendix 1

#### Fishermen Consultation Session, Miri, Sarawak on the 18<sup>th</sup> July 2017

*List of attendance:*

1. MR. BELAYONG ANAK NYUAK  
SARAWAK STATE FISHERIES DIRECTOR
2. MS. HAZIJAH BT YUSUP  
SARAWAK ECONOMIC PLANNING UNIT
3. MS. HARYATI BT ABDUL WAHAB  
RESOURCE MANAGEMENT DIVISION  
DEPARTMENT OF FISHERIES MALAYSIA
4. MR. AWGKU MANSOR BIN PENERAN ZAINUDDIN  
FISHERIES DEVELOPMENT AUTHORITY OF MALAYSIA (LKIM), MIRI
5. MR. PADA AK BIJO  
FISHERIES DEVELOPMENT AUTHORITY OF MALAYSIA (LKIM), KUCHING
6. MR. SIMON SANDI  
SARAWAK FORESTRY DEPARTMENT
7. MR. SIMEON DEWAL MAIL  
DEPARTMENT OF SURVEY AND MAPPING MALAYSIA, SARAWAK
8. MS. ROSE EDWARD TARANG  
MIRI RESIDENT OFFICE
9. MS. MARIANA ANAK JOSEPH  
MIRI RESIDENT OFFICE
10. MR. HADIL BIN RAZALI  
FISHERIES RESEARCH INSTITUTE  
BINTAWA, SARAWAK
11. MR. MOHD SYAFIQ BIN SAZALI  
MALAYSIAN MARITIME ENFORCEMENT AGENCY (MMEA), MIRI
12. MS. SAMANTHA KWAN  
SARAWAK FORESTRY CORPORATION, MIRI
13. MR. RAZALI BIN JUNID  
DEPARTMENT OF AGRICULTURE SARAWAK
14. MR. NIKI SABA  
DEPARTMENT OF AGRICULTURE SARAWAK
15. MR. HASBI BIN SUNI  
MARIN POLICE MIRI
16. MR. AHMAD TARMIZI JAAFAR  
PETRONAS MIRI
17. MR. BOHARI BIN HAJI LENG  
DEPARTMENT OF FISHERIES SARAWAK
18. MR. ROSLAN BIN TILI  
DEPARTMENT OF FISHERIES SARAWAK
19. MR. FAIROL TAJUDDIN BIN SUHALI  
DEPARTMENT OF FISHERIES SARAWAK
20. R. BUNIAM BIN KIPRAWI  
DEPARTMENT OF FISHERIES SARAWAK
21. MR. DOLHADI BIN LIHI  
SECRETARIAT
22. PUAN MAYA MARINI KALI  
SECRETARIAT
23. MR. KENNEDY EDWARD SIBON

- SECRETARIAT  
24. MR. YUNUS BIN HAMID  
SECRETARIAT  
25. MR. WONG SIONG WU  
SECRETARIAT  
26. MR. SIMON AK JULIUS NANTA  
SECRETARIAT

### **Fishermen**

1. MR. BUANG BIN LAMAT  
SUPER LEADER KPG. PULAU MELAYU, MIRI
2. MR. FREDERICK SINYOR ANAK BIJU  
SUPER LEADER KPG. PANGKALAN LUTONG/BT. SATU, MIRI
3. MR. FAUZI BIN MOB  
SUPER LEADER KPG. KUALA BARAM, MIRI
4. MR. OKONG BIN SULIP  
SUPER LEADER KPG. KUALA BAKAM, MIRI
5. MR. AZMI BIN BAKAR  
SUPER LEADER KPG. KUALA BAKAM, MIRI
6. MR. KAMIL BIN LUKMAN
7. MR. BOLHASSAN BIN MOHAMMAD
8. MR. ABDUL GAFAR BIN LAMAT
9. MR. MATASAN BIN MOHAMAD
10. MR. JULIS ANAK EDWIN
11. MR. ABDULLAH BIN PUTIT
12. MR. AYAK BIN DRAHMAN
13. MR. MOHD ROZAIMIE BIN IBRAHIM
14. MR. ABU SUKOR BIN AYUP
15. MR. ALI BIN TAIP
16. MR. ISMAWI BIN FAUZI
17. MR. ABU BIN HJ. MOB
18. MR. SULAIMAN BIN HJ. MOB
19. MR. MOHAMED RAWI BIN JON
20. MR. SAHARI BIN YUSOP
21. MR. ABG SAILI BIN ABG ALI
22. MR. JAPAR OSMAN BIN SANGIT
23. MR. JOSHUA ALBERT
24. MR. SIBRE BIN ARIF
25. MR. ZAHARI BIN ABDULLAH

### **Local Press Corp.**

1. MR. JONG WAN JOON - SIN CHEW DAILY
2. MR. MOHD ABDULLAH - BORNEO POST
3. MR. JAMES BOON - SEE HUA DAILY
4. MS. ROSEMARIA BUMA - UTUSAN BORNEO

## Appendix 2

### Local Agencies and Fishermen Consultation Session, Kuala Rompin, 10<sup>th</sup> October 2017

#### *List of attendance:*

1. MR. ANUAR BIN SAFIA  
DEPARTMENT OF MARINE PARK MALAYSIA
2. MR. MUHAMMAD IZZAT SYAFIQ BIN RAMELI,  
TDA
3. MS. INTAN NADIA BIN ISMAIL  
ROMPIN FISHERMEN ASSOCIATION
4. MS. FARIDAH BINTI AHMAD  
MARINE POLICE ROMPIN
5. MR. MOHD RAZLIN BIN ABDUL MAMAT (DSP)  
MARINE POLICE ROMPIN
6. MS. NURMUNIYATI BINTI MUKHTAR  
PAHANG STATE ECONOMIC PLANNING UNIT
7. MR. WAN MOHAMAD BIN WAN TAIB  
ROMPIN DISTRICT FISHERIES OFFICE
8. MR. SHARUM BIN YUSOF  
FISHERIES RESEARCH INSTITUTE KG. ACHEH
9. MR. MOHD AZRI BIN ISMAIL  
MARINE DEPARTMENT MALAYSIA
10. MR. MUHAMAD AFIQ BIN AB RAHMAN  
MALAYSIAN MARITIME ENFORCEMENT AGENCY (MMEA)
11. MR. MASRI BIN BIDIN  
ROMPIN DISTRICT FISHERIES OFFICE
12. MR. ADY DHAMIRI BIN MOHD HANIF  
PEKAN DISTRICT FISHERIES OFFICE
13. MR. MOHD SABRI BIN OSMAN  
PEKAN DISTRICT FISHERIES OFFICE
14. MR. HAMDAN BIN MOHD SAHAL  
ROMPIN COMMUNITY LEADER (PENGHULU)
15. MR. MOHD AZMI BIN MOHD SAH  
PEKAN DISTRICT FISHERIES OFFICE
16. MR. MOHAMAD BIN SULAIMAN  
PEKAN DISTRICT FISHERIES OFFICE
17. MR. MUSA BIN ARIFIN  
ROMPIN DISTRICT FISHERIES OFFICE
18. MR. ZAINAL ABIDIN BIN HUSSEIN  
PONTIAN COMMUNITY LEADER (PENGHULU)
19. MR. MOHD ZULKIFLI BIN MUDA  
ENDAU COMMUNITY LEADER (PENGHULU)
20. MR. AMIR FIRDAUS BIN MOHD NASIR  
PADANG LALANG FISHERIES ENFORCEMENT UNIT
21. MR. MOHD ROZAMAN BIN MAMAT  
KUANTAN DISTRICT FISHERIES OFFICE
22. MR. MOHAMAD BIN MOHD YUNAN  
PADANG LALANG FISHERIES ENFORCEMENT UNIT
23. MR. ZAINU ASRI BIN IBRAHIM  
DEPARTMENT OF FISHERIES PAHANG
24. MR. MAT SAH BIN DAWI  
TIOMAN COMMUNITY LEADER (PENGHULU)

25. MR. MOHD NIZAM BIN UDA  
DEPARTMENT OF FISHERIES PAHANG
26. MR. MOHD SHAHRIL BIN IBRAHIM  
DEPARTMENT OF FISHERIES PAHANG
27. MR. ABDUL WAFIY BIN ZULKIFLE  
DEPARTMENT OF FISHERIES PAHANG
28. MS. NOORAEIN BINTI HASSAN  
DEPARTMENT OF FISHERIES PAHANG
29. MS. ZALEHA BINTI ALI  
DEPARTMENT OF FISHERIES PAHANG
30. MS. ASLYHAWATI BINTI YOOCUB  
DEPARTMENT OF FISHERIES PAHANG
31. MS. NORARZIAH BINTI ABDULLAH @ AZIZ  
DEPARTMENT OF FISHERIES PAHANG

**Fishermen**

32. MR. MANSOR BIN MUSA
33. MR. IBRAHIM BIN SUWA
34. MR. SUBERI BIN SULONG
35. MR. SULAIMAN BIN RAMLI
36. MR. ROSLI BIN ABDULLAH
37. MR. AHAMAD RADZUAN
38. MR. YAP KIM WEE
39. MR. LOH CHUN YONG
40. MR. SHAHRUL NIZAM BIN MD RASHID
41. MR. HENG YOU LAU

### Appendix 3

#### Fishermen Consultation Session, Kuala Rompin, 29<sup>th</sup> August 2018

*List of attendance:*

1. MR. CHE WAN QHAZALI BIN C. WAN MOHAMMAD  
FISHERIES DEVELOPMENT AUTHORITY OF MALAYSIA (LKIM), ROMPIN
2. MR. MD YUSUF BIN ABDULLAH  
FISHERIES DEVELOPMENT AUTHORITY OF MALAYSIA (LKIM), ROMPIN
3. MS. SARMEZA BINTI SAK'ADEE  
FISHERIES RESEARCH INSTITUTE KG. ACHEH
4. MR. MOHD KHADRI BIN ISMAIL  
ENDAU COMMUNITY LEADER (PENGHULU)
5. MR. MOHAMED BIN ARFAT  
PONTIAN COMMUNITY LEADER (PENGHULU)
6. MR. MUSA BIN ARIFFIN  
ROMPIN DISTRICT FISHERIES OFFICE
7. MR. MASRI BIN BIDIN  
ROMPIN DISTRICT FISHERIES OFFICE
8. MR. WAN MOHAMAD BIN WAN TAIB  
ROMPIN DISTRICT FISHERIES OFFICE
9. MR. FAIZAN BIN ASLAN  
DEPARTMENT OF FISHERIES PAHANG
10. MS. NOORAEIN BINTI HASSAN  
DEPARTMENT OF FISHERIES PAHANG
11. MR. AHMAD FAI'DZI BIN KASTOLANY  
DEPARTMENT OF FISHERIES PAHANG
12. MS. ROZITA HANI BINTI SAFRI  
FISHERIES RESEARCH INSTITUTE BATU MAUNG
13. MS. ROSNANI BINTI MOHAMAD  
ROMPIN DISTRICT FISHERIES OFFICE
14. MS. NIRMAALADEVE A/P SUBRAMANIAM  
DEPARTMENT OF FISHERIES PAHANG
15. MS. ASLYHAWATI BINTI YOOCUB  
DEPARTMENT OF FISHERIES PAHANG
16. MR. MOHAMAD HAFIZ MUSHIDI BIN SHAKORI  
DEPARTMENT OF FISHERIES PAHANG
17. MR. MOHAMAD ZAHIRUDDIN BIN ALWEI  
ROMPIN DISTRICT FISHERIES OFFICE
18. MR. MEAN ZAAMIE BIN MEN  
ROMPIN DISTRICT FISHERIES OFFICE
19. MR. MOHAMAD ZAHIR BIN ABDUL RAHMAN  
ROMPIN DISTRICT FISHERIES OFFICE
20. MR. RYON SIOW  
FISHERIES RESEARCH INSTITUTE KG. ACHEH
21. Ms. Norhanida Binti Daud  
Fisheries Research institute Batu Maung
22. MR. ANWAR BIN SAFIA  
DEPARTMENT OF MARINE PARK MALAYSIA
23. MR. MOHD SHAFIQ BIN MAHMOOD  
ROMPIN DISTRICT OFFICE
24. Mr. Muhd Rozaidi Bin Abdul Karim  
ROMPIN DISTRICT OFFICE

**Fishermen**

25. MR. ABU SEMAN BIN MAT
26. MR. OTHMAN BIN JAAFAR
27. MR. YUSOFF BIN ZAKARIA
28. MR. MOHD NIZAM BIN ABD RAZAK
29. MR. MOHD KALID B. MAT REJAB
30. MR. MOHD ZAMRI B. MAT MORAT
31. MR. ANG KWEE KIANG
32. MR. MAT ANI BIN HITAM
33. MR. MOHD FADZIL BIN MOKHTAR
34. MR. ARIS ISKANDAR BIN MUSTAFA
35. MR. IBRAHIM BIN SULOH
36. MR. MOHD ZAINUDIN BIN ABDULLAH
37. MR. AHMAD BIN ZAIDI
38. MR. AHMAD BIN MAT
39. MR. AHDOL RAZAK BIN AWANG
40. MR. YUSUF BIN SHAFIE
41. MR. SAIFOL AZAHAR BIN ZAMID
42. MR. MOHAMED BIN HARON
43. MR. ABDUL WAHID BIN MUSHAFAR
44. MR. SUAZMAN BIN ARIFFIN
45. MR. MOHD KAMAL BIN HASSAN
46. MR. YAHAYA BIN YIP
47. MR. MOHD ZAMRI BIN MORAT
48. MR. MOHAMAD FAIZAL BIN MAT ANI
49. MR. MOHD FAHROL RAZI BIN ABDULLAH
50. MR. EZREEN BIN ROMLI
51. MR. ROMLI BIN AHMAD
52. MR. AZIZ BIN HASAN
53. MR. ROSLI BIN ABDULLAH
54. MR. AHMAD RADZMAN BIN YUSOF
55. MR. MOHD JAMALUDDIN BIN ISMAIL
56. MR. MOHAMED BUSTAMIN BIN CHE TENGAH
57. MR. MOHD BIN MUDA
58. MR. FAUZIMAS BIN OTHMAN
59. MR. ISMAIL BIN HASHIM
60. MR. MOHD RIDZUAN BIN CHE MEE
61. MR. MOHD RAZALI BIN ABD RAZAK
62. MR. MD JELANI BIN JUSOH
63. MR. MANSOR BIN MUSA
64. MR. YUSOF BIN IBRAHIM
65. MR. ABDUL RASHID BIN MOHD DAUD
66. MR. MOHD AMIN @MOHD MUSAM BIN SHAARI
67. MR. MUSTAFA BIN MOKHTAR
68. MR. HASSAN BIN BAKAR
69. MR. ROSIE BIN YAMAN
70. MS. FATMAH BINTI ISHAK
71. MR. JOHARI BIN SHARI
72. MR. MUSTAFFA BIN YUSOF
73. MR. NASIR BIN MUHAMAD
74. MR. JAHARI BIN MAT NOR
75. Mr. Mustafar Bin Hassan



## **ANNEX 7 (C)**

**THE PROGRESS OF WORK AT THE NATIONAL LEVEL DURING JAN 2017 - JUN 2018**

## **PHILLIPPINES**



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

National Fisheries Research and Development Institute

**PHILIPPINES**

**(January 2017-June 2018 Report of Activities-Philippines)**

## 1. Philippine Fisheries Refugia Sites Profiles:

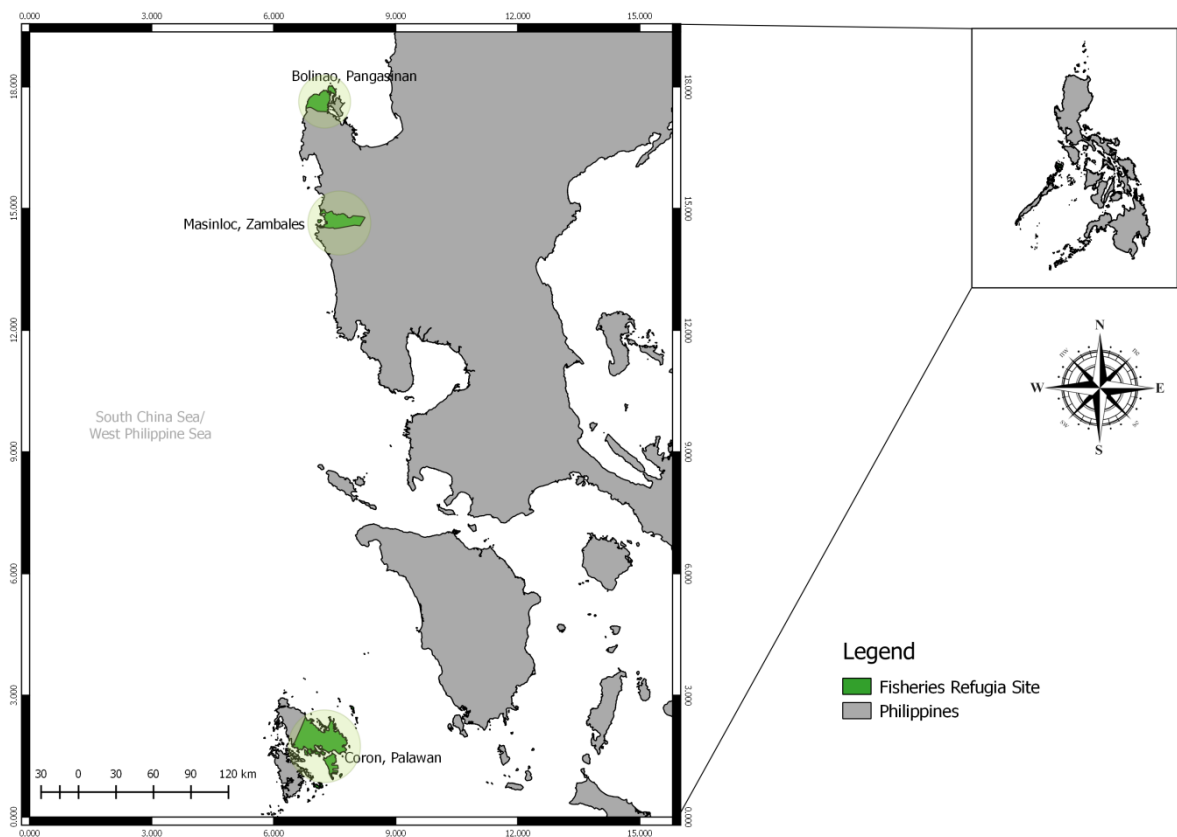


FIGURE 1. MAP OF THE PHILIPPINES WITH EMPHASIS TO THE 3 TARGET FISHERIES REFUGIA SITES

### 1.1 BOLINAO, PANGASINAN

Bolinao is a first class municipality in the province of Pangasinan, Philippines (Fig.1). Based on the census of 2015, it has a population of 82,084 (Census Population 2015) and has land area of 23,320 hectares. Municipality of Bolinao, is located along the northwest coast of Luzon, Philippines, and one of seventeen towns bordering the Lingayen Gulf. Bolinao is bordered by West Philippine Sea (South China Sea) on the north and west; and on the east by the Caquiputan Channel, which also divides the municipality from the island municipality of Anda, Pangasinan; and on the south by the municipality of Bani, Pangasinan. (McManus et al 2007). Bureau of Fisheries and Aquatic Resources (BFAR) data showed that there are 4,941 and a total of 1,424 fisherfolks and boat registered respectively (Table 1). Major gears operating in the area are purse seine, hook and line, multiple hook and line, single line and scoop net among others.

### 1.2 MASINLOC, ZAMBALES

Masinloc is a first class municipality in the province of Zambales (Fig. 1). According to the 2015 census, it has a population of 47,719 people. Masinloc is a coastal town situated between the Zambales mountain in the east and West Philippine Sea (South China Sea) on the west and it is politically divided into 13 barangays. The town is divided into two parts by the Masinloc River. The barangays of Bani, Taltal and Baloganon are industrial sites and situated in the northern part while the other barangays except the island of San Salvador are situated on the southern part. BFAR data recorded a total of 3,927 and 301 registered fisherfolks and boats respectively (Table 1). Major gears operating in the area are purse seine, drift gill net, hook and line, gill net among others.

### 1.3 CORON, PALAWAN

Coron is a first-class municipality in the province of Palawan (Fig. 1), comprising the eastern half of Busuanga Island, all of Coron Island and about 50 other minor islets stretching as far as Tara Island in

the northeast and Canipo Island in the south. All these islands are part of the Calamian Archipelago in Northern Palawan that separates the West Philippine Sea (South China Sea) from the Sulu Sea. Coron is administratively divided in to 23 barangays. According to the 2015 census, it has a population of 51,803 people and a land area of 689.1 km <sup>2</sup>. Coron Island is the third-largest island in the Calamian Islands in northern Palawan. Currently tourism is the top industry in Coron and is a location of beaches, dive sites, and other natural tourist spots. BFAR data documented a total of 3897 and 599 registered fisherfolks and boats respectively (Table 1). Major gears operating in the area are bagnet, hook and line, multiple hook and line, spear gun and bottom gill net among others.

Project Site	BOAT Registration (BoatR)	Fisherfolk Registration (FishR)
Bolinao, Pangasinan	1424	4941
Masinloc, Zambales	301	3927
Coron, Palawan	599	3897

Source: BFAR Table 1. 2017 Data of registered boats and fisherfolks.

## 2. Inception Workshop/Meeting Held In 3 Fisheries Refugia Sites

### 2.1 BOLINAO, PANGASINAN

Site Level Inception Workshop/Meeting was held on March 23-25, 2017 at the Sanguniang Bayan Hall and participated in by LGU, BFAR Regional Office i, Philippines coast guard and fisheries stakeholders (Peoples organization, Bantay Dagat). Prior to the meeting, the group led by Mr. Chris Paterson (Proj. Director), Weerasak Yingyuad (Proj. Technical Coordinator), Noel C. Barut (Regional Consultant) Valeriano M. Borja (Scientific and Technical Focal Point), and Desiderio Ayanan, Jr paid courtesy visit to Mayor Arnold Celeste (Bolinao). We informed Mayor Celeste about the fisheries refugia project and gave a brief background, we also informed that Bolinao, Pangasinan is one of the chosen sites for the establishment of fisheries refugia. during the workshop, Mr. Paterson conducted series of lectures on important topics/subjects such as overview of fisheries refugia project its goals and objectives, project management framework, including provisional terms of reference for the site level management boards among others.

Mr. Barut also presented a brief background on the phase I of the fisheries refugia project entitled reversing environmental degradation trend in the South China Sea and Gulf of Thailand. Mr. Weerasak Yingyuad, Project Technical Coordinator presented the application of aerial survey technology in baselines setting and monitoring, he also presented outputs (video & photos) of aerial survey in Bolinao. it was very productive workshop/meeting and the local government unit (LGU) of Bolinao is very supportive of the fisheries refugia project. The LGU of Bolinao, Pangasinan were very grateful that their municipality was chosen as one the fishery refugia site.

The group also visited both landing sites for municipal and commercial in Poblacion and Luciente I, Bolinao respectively. Mr Weerasak operated the drone and took aerial photos/videos (Appendix A) of Bolinao town proper and its coastal areas.

### 2.2 MASINLOC, ZAMBALES

The site level inception workshop in Masinloc, Zambales was held at Masinloc Town Hall Convention Center on March 26-28, 2017. The workshop/meeting was participated by 33 participants coming from LGU, BFAR Regional Office III-PFO, Philippines Coast Guard, Maritime Police, fisheries stakeholders (Peoples organization, Bantay Dagat). A welcome message was delivered by the Mr. Elmar Pulido, municipal agriculturist of Masinloc. Mr. Chris Paterson discussed the activities for the orientation seminar followed by a quick introduction of participants Mr. Paterson also presented the background to the strategic action program for the south china sea and the development of the fisheries refugia initiative, overview of the objectives of the fisheries refugia, and the project management framework including provisional terms of reference for the site level management boards.

A workshop on the identification of municipal programs and projects relating to sustainable development & inventory of sectoral policies, operational workplan, and rules and regulations was also conducted using the matrix distributed to the participants.

Mr. Weerasak Yingyuad, Project Technical Coordinator presented the application of aerial survey technology using drone in baselines setting and monitoring, he also presented outputs (video & photos) of aerial survey in Masinloc. The group visited likewise the Matalvis Landing Center and observed commercial fishing vessel in the area as well as small boats used in municipal waters. then the group continued to another landing site at Masinloc Poblacion and surveyed the municipal fish landing center, we also inspected the boats distributed by the BFAR to the local fishermen of Masinloc.

### 2.3 CORON, PALAWAN

Site Level Inception Workshop in Coron, Palawan was held in Darayonan Lodge on March 18-21, 2017 and participated in by 20 participants from different agencies in Coron. Before the inception meeting, the Fisheries Refugia Management Team led by Project Director Chris Paterson paid courtesy visit to Coron Municipal Mayor Jerry Barracoso and Sangguniang Bayan Members of Coron, Palawan and discussed to them about the establishment of Fisheries Refugia project. We also informed the LGU of Coron, their municipality was chosen as one of the sites for the establishment of Fisheries Refugia. Mayor Barrasco and the Sangguniang Bayan Members of Coron informed us that they will support the project and they are very fortunate that one of the Fisheries Refugia site will be established in Coron.

In the course of inception workshop, Mr. Christopher Paterson presented the background to the Strategic Action Programmes for the South China Sea and the development of the fisheries refugia initiative, overview of the objectives of the fisheries refugia, and the project management framework including provisional terms of reference for the site level management boards. Mr. Paterson presented to the participants the four years workplan of the project. Mr. Barut also reported a brief background on the phase I of the Fisheries Refugia Project entitled Reversing Environmental Degradation Trend in The South China Sea and Gulf of Thailand.

The group visited the landing site in the Poblacion near the Coron Public Market and observed fish landing in the area and inspected the fish species landed and sold in the market. Then we also proceeded to Brgy. Bintuan and visited fisheries landing sites in the area. Mr. Weerasak also flown a drone and took photos/videos of Coron town and landing sites in Brgy. Bintuan.

On April 19-21, 2017, Initial meeting was conducted for the creation of Fisheries Refugia Site Management Board. It was held in Darayonan Lodge Coron, Palawan and participated by 18 participants from different agencies in Coron. During the meeting we presented the initial list of members for the Fisheries Refugia Management Committee that has been agreed initially during the Orientation Workshop of Refugia Project last March 21, 2017 at Coron, Palawan. The participants reviewed the membership of FRMC. The group discussed the list of members and agreed on how the RFMC can be put into a resolution or an Executive Order to be signed by the Municipal Mayor. The group finally agreed that an executive order will be used for the RFMC.

In the meeting we also presented the Provisional Terms of Reference of the FRMC for review of the members. the following are the updated and agreed terms of reference of RFMC of Coron site. the group also discussed and identify target species and area for fisheries refugia management, we also presented the fish species in Calamianes known critical for spawning & nursery identified during the 1st Phase of the South China Sea Project.

### 3. Hiring and Training of Fisheries Enumerator at 3 Fisheries Refugia Sites

The National Fisheries Research and Development Institute (NFRDI) hired 2 enumerators per Fisheries Refugia site to collect actual data on landed catch at various fish landing sites. The training for enumerators in Masinloc, Zambales and Coron, Palawan was held on site, while the enumerators of Bolinao, Pangasinan were ask come to NFRDI office for training. Training lectures includes how to compute total catch (by species, area and type of gear), how to calculate catch and effort (by area and type of gear) how to measure length-frequencies, biological data (e.g. maturity stages, length/weight relationship) and in determination of fishing gear and fishing operation among others. A quarterly monitoring of the enumerators data collections were made by the NFRDI Project Team to ensure the

proper data collection in the fish landing area. Data Collected by the enumerators were submitted to NFRDI monthly and encoded to the NSAP Database System.

#### **4. Stakeholder Consultation Meeting at Fisheries Refugia Sites.**

##### **4.1 BOLINAO, PANGASINAN**

The stakeholder meeting was held at El Pescador Resort Hotel & Participated in by 25 participants from different agencies/LGUs of Bolinao. The group presented the initial list of agencies for the Fisheries Refugia Site Management Committee (RSTC) that has been agreed initially during the previous Inception Workshop of Refugia Project. The participants revised the membership of RSMC. The group discussed the list of members and agreed on how the RFMC can be put into a Executive Order to be signed by the Municipal Mayor. The group finally agreed that an executive order will be used for the RFMC. During the meeting we also presented the provisional terms of reference of the FRMC for review of the Members.

After the presentation and review of Term of Reference for the Refugia Site Management Committee, we informed the participants that we will be sending letter to the different agencies listed in the membership of the Committee to nominate member as well as alternate member to be included in the Draft Executive Order to be reviewed and signed by the Municipal Mayor. We also informed them that a formal meeting will be conducted once the Executive Order was signed by the Mayor.

On August 02, 2017, the Refugia Site Management Committee of Bolinao, Pangasinan was finally signed by Hon. Mayor Arnold D. Celeste.

##### **4.2 CORON, PALAWAN**

The stakeholder consultation meeting in Coron, Palawan was held in Darayonan Lodge on June 27 to 29, 2017 and participated in by the representatives from LGU, BFAR-PFO, Philippines Coast Guard, Maritime Police, PCSD, Academe, & representative from fisherfolk. An opening program was conducted with a prayer followed by the singing of National Anthem. The welcome message was delivered by Mr. Rey Templonuevo, Officer-in-Charge of the Provincial Fisheries Office of Northern Palawan. After the welcome message, participants were requested to introduced themselves and followed by a Group Photo opportunity of participants attended the workshop.

Mr. Valeriano Borja, the National Scientific & Technical Focal Point for the Fisheries Refugia in the Philippines, discussed the Rationale and Mechanics of the Meeting. He emphasized that questions, reactions, and even recommendations are welcomed after every presentation and even in the course of the presentations. Mr. Barut, the Technical Adviser to the Philippines of the Fisheries Refugia Project presented a brief overview and background of the fisheries refugia project. He also presented and explain the principles of Ecosystem Approach to fisheries. Mr. Barut further discussed the project goals and objectives of the Fisheries Refugia.

After the presentation of goals and objectives, a review on the existing data on fisheries in Coron, Palawan was presented and verified by the participants, a short workshop after the presentation was also conducted to update the existing information available. The data on the Calamianes known critical spawning & nursery areas was also presented. This data can be used as one of the references in choosing fish species & in establishing fishes refugia in Coron.

A workshop ended on identification of target species and threats for the establishments of fishes refugia was also conducted in the afternoon session, identification was group into three areas, mangrove, corals & seagrass.

##### **4.3 MASINLOC, ZAMBLALES**

So far, no stakeholder consultation meeting was completed in Masinloc, Zambales due to some technical hitches during the project implementation on the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2017. Stakeholders consultation meeting will be accomplished this coming 4<sup>th</sup> quarter of 2018.

#### **5. Baseline Fisheries Data Collection**

During the 1<sup>st</sup> and 2<sup>nd</sup> quarter of 2017, various baseline data were collected in 3 target Fisheries Refugia sites e.g. number of fisherfolks and boat registered (table 1), fish catch data by species, gears and area. We also gathered data on number of Marine Protected Area (MPA) and Fish Sanctuary (FS) in the Fisheries Refugia sites, numbers of fisheries related ordinances/laws and number of peoples/fisherfolks organization among others.

Data on landed catch in masinloc was obtained from BFAR Regional Office no. 3, these data were collected by the National Stock Assessment Program in the area. It was observed that data collected on landed fish catch in Poblacion, Masinloc (Table 2) was mainly caught by Handline Fishing, *Thunnus albacares* dominated the total catch from 2012-2016 with a total landed catch of around 130 metric tons, followed by *katsuwonus pelamis* with 64 metric tons, and 16.74 metric tons for *coryphaena hippurus*. A total of 14 species was observed during 2012-2016 and majority if the species observed was large pelagic. Data collected in Balogo Matalvis, Masinloc, Zambales was caught by Purse Seine fisheries. Landed catch of the purse seine was caught outside municipal waters. *Kasuwonus pelamis* and *Thunnus albacares* dominated the catch with 2732.16 MT and 2684.85 MT, respectively. Small Pelagic species were also observed to dominate the landed catch with 350.41 MT for *Decapterus macrosoma* and 143.87 metric tons for *Decapterus macarellus*. A total of 11 species was observed during 2012-2016 and majority if the species observed were large pelagic and small pelagic.

Table 2. Species and catch in metric tons landed in Poblacion, Masinloc, Zambales from 2012-2016

List of species and catch (MT) landed in Poblacion , Masinloc (2012 – 2016)								
Landing site	Gear	ScientificName	2012	2013	2014	2015	2016	Grand Total
Poblacion	Handline	<i>Abalistes stellaris</i>	0.13	0.49	0.93	1.94	0.87	4.37
		<i>Auxis rochei</i>			0.94	4.37	1.48	6.79
		<i>Auxis thazard</i>			3.21	2.43	1.98	7.62
		<i>Coryphaena equiselis</i>					0.10	0.10
		<i>Coryphaena hippurus</i>	2.70	3.25	3.96	3.45	3.37	16.74
		<i>Decapterus macrosoma</i>	0.03		0.06			0.09
		<i>Elagatis bipinnulata</i>	0.27	0.23	0.02			0.52
		<i>Euthynnus affinis</i>			0.52	0.09		0.62
		<i>Gempylus serpens</i>	0.06					0.06
		<i>Katsuwonus pelamis</i>	9.49	10.28	13.53	16.42	14.40	64.11
		<i>Scomberomorus commerson</i>			0.04		0.92	0.96
		<i>Selar crumenophthalmus</i>	0.04					0.04
		<i>Thunnus albacares</i>	26.16	27.60	29.91	24.39	22.70	130.77
		<i>Thunnus obesus</i>	0.80	0.42	2.63	2.24	0.50	6.60
Grand Total			39.69	42.28	55.74	55.33	46.32	239.37

Source: BFAR Region 3

Table 3. Species and catch in metric tons landed in Balogo, Matalvis , Masinloc, Zambales from 2012-2016

List of species and catch (MT) landed in Balogo _Matalvis , Masinloc (2012 – 2016)								
landing site	Gear	ScientificName	2012	2013	2014	2015	2016	Grand Total
Balogo_Matalvis	Purse seine	<i>Abalistes stellaris</i>		1.74		0.22		1.96
		<i>Auxis rochei</i>			2.85	8.18	19.37	30.40
		<i>Auxis thazard</i>		0.39	10.80	11.40	21.22	43.81
		<i>Decapterus macarellus</i>			77.73	89.33	183.35	350.41
		<i>Decapterus macrosoma</i>	34.36	88.34	21.17			143.87
		<i>Elagatis bipinnulata</i>			1.79			1.79
		<i>Euthynnus affinis</i>	3.28	10.64	12.89	7.02	17.23	51.06
		<i>Katsuwonus pelamis</i>	495.98	588.81	541.41	556.79	549.17	2,732.16
		<i>Sarda orientalis</i>	0.64	2.56	0.42			3.62
		<i>Thunnus albacares</i>	488.12	581.72	522.65	542.13	549.88	2,684.50
		<i>Thunnus obesus</i>	15.28	24.02	6.94	4.19	2.30	52.74
Grand Total			1,037.66	1,298.21	1,198.65	1,219.27	1,342.52	6,096.31

Source: BFAR Region 3

Fisheries data was also collected in Bolinao, Pangasinan. 2016 data on landed catch per fishing gear (Table 4) was obtained from NSAP data of the BFAR Regional Office 1. There are 3 existing fisheries landing sites in Bolinao, Pangasinan were NSAP collects landed catch per fishing gear, it was observed that Purse seine fisheries obtained the highest total catch around 125.7 MT landed in Luciente, Bolinao, followed by Hook & Line fisheries in Arosan, Bolinao with 107.5 MT, and in Balingasay, Multiple hook & line with 24.7 metric tons, handline fisheries amounting 38.27 MT and scoop net fisheries with 6.4 metric tons. A total of 302.75 metric tons of fish was landed in Bolinao, Pangasinan in the year 2016.

Table 4 . 2016 data on Catch per Fishing Gear recorded in Bolinao ,Pangasinan

Landing Center	Fishing Gear	Total
Luciente, Bolinao, Pangasinan	Purse Seine	125,745.00
Arosan, Bolinao, Pangasinan	Hook and Line	107,537.00
Balingasay, Bolinao, Pangasinan	Multiple Handline	24,744.65
	Single Handline	38,277.87
	Scoop Net	6,450.09
<b>TOTAL</b>		<b>302,754.61</b>

Source: BFAR Region 1

## 6. Initial Results for the Fisheries Data Collection in Coron, Palawan

### 1) Production Estimates

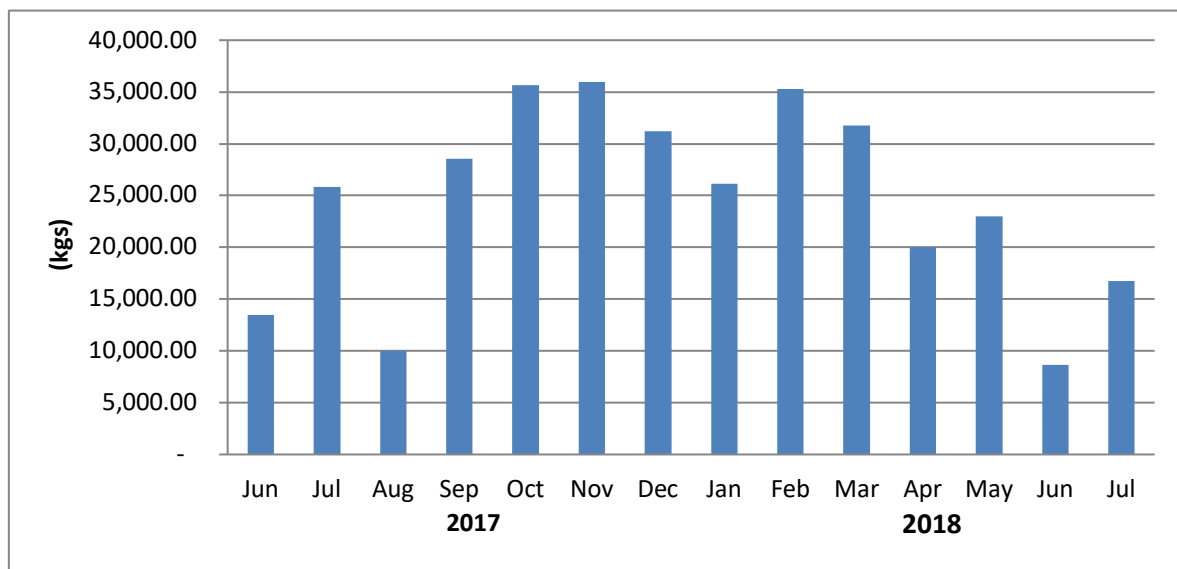


Figure 2. Production trend in Coron, Palawan from July 2017 to July 2018

In Figure 2, it was observed that the peak of production in 2017 were during the months of October, November and in February 2018 with the estimate of around 36 metric tons. Almost 70 percent of the production in the month of October was contributed by Bagnet Fisheries. It was also observe that during the month of June in 2017 and 2018, the production was in its lowest maybe because of the typhoons during these months, Fisherfolks were expected not to fish during typhoon season.

In the initial Fisheries data collection in Coron, Palawan from June to December of 2017, It was observed that in the total landed catch of 64.7 metric tons, almost 56% was contributed by Bagnet Fisheries with a catch of 36.079 MT (Fig. 3), hook and line fisheries with 9.43 MT and 15% of the total landed catch, Multiple hook and line about 6 % of total landed catch, Bottom set gillnet, Bottom gillnet, drive-in gillnet and troll line with 3% share each from the total landed catch, and 2 percent of the catch from bottom set long line.



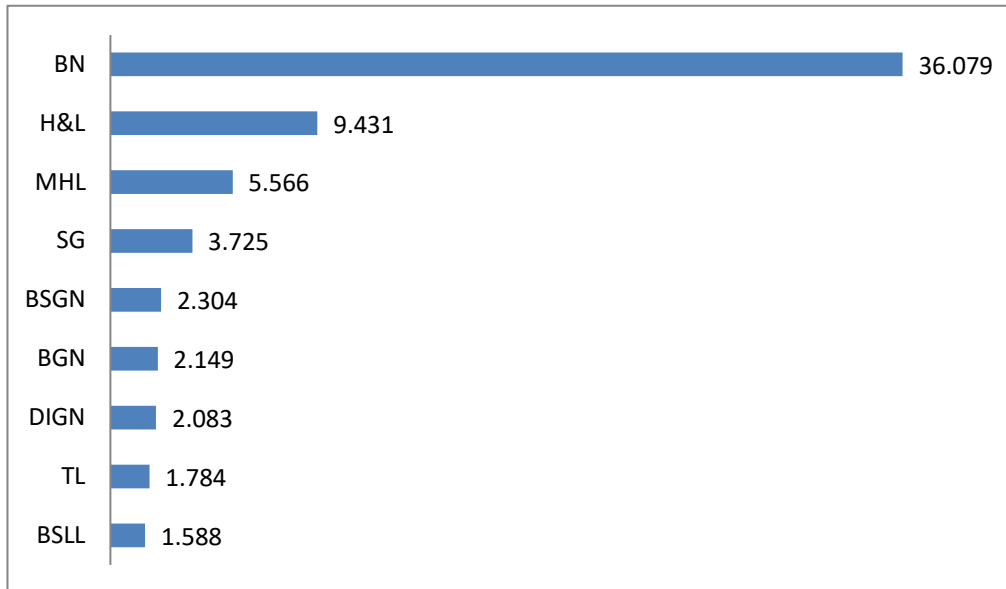


Figure 3. Catch per Gear, Coron, Palawan (Jun-Dec 2017)

## 2) Species Composition

### Bagnet

A total of 7 species was recorded from June to December of 2017 from Bagnet Fisheries (Fig. 4), out of 7 species recorded, *Spratelloides gracilis* dominated the catch with 6.48 MT which is about 42% of the total Bagnet landed catch, followed by 38% of *Dipterygonotus balteatus* around 5.81 MT, family Clupeidae about 2.52 MT which contributed about 15% of catch from Bagnet Fisheries, 5 percent of the catch was contributed by *Sardinella melanura*, minimal catch of *Encrasicholina punctifer*, *spratelloides lewisi* & *Engraulidae* was also observed.

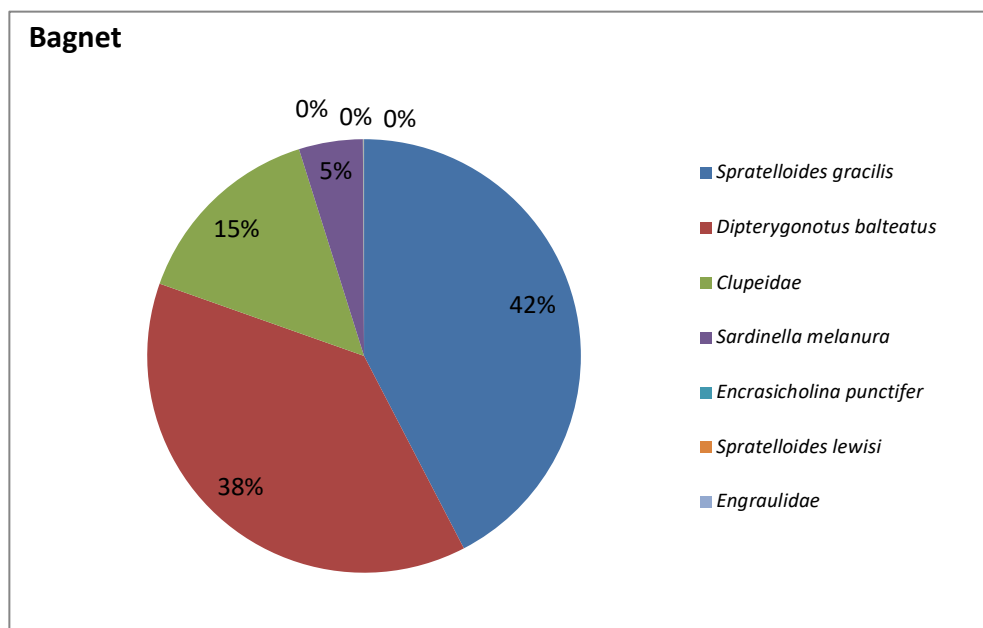


Figure 4. Bagnet species catch composition, Coron, Palawan (Jun-Dec 2017)

### Hook and line

A total of 60 species was recorded from June to December of 2017 from Hook and line Fisheries. A total landed catch of 58 metric tons was also recorded; It was observed that family Caesionidae

dominated the catch. Five species of from family caesionidae were observed with 45 percent catch from *Caesio cuning* around 26 MT, 22 % of *Pterocaesio pisang* around 12.59 MT, *Pterocaesio marri* with 6.92 metric tons of catch, 6.38 MT of *Caesio teres*, and 360 kgs from *Caesio caerulaurea*. The remaining species contributed minimal catch of 1 percent (Fig. 5).

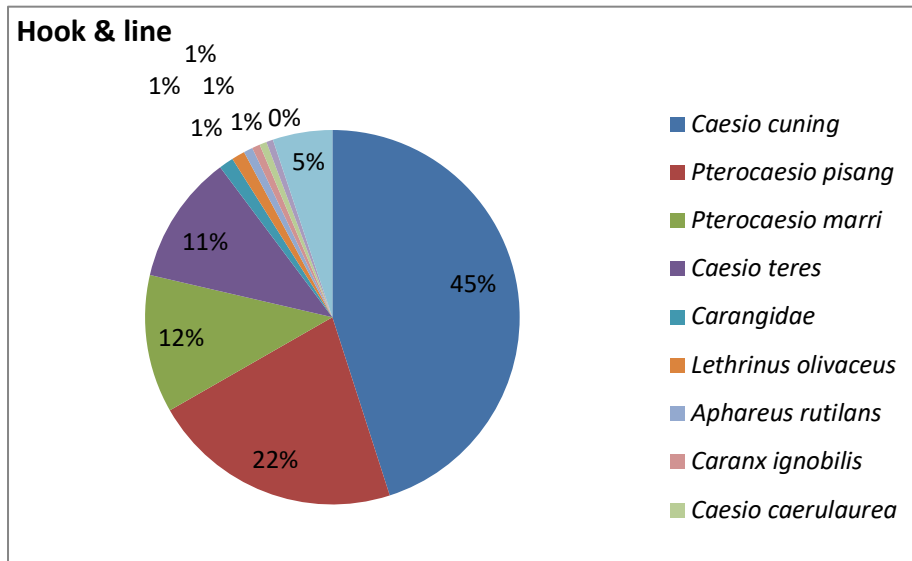


Figure 5. Hook & line species catch composition, Coron, Palawan (Jun-Dec 2017)

*Multiple hook & line*

A total 65 species was recorded from June to December of 2017 from multiple hook and line Fisheries. A total landed catch of 23.71 metric tons was also recorded; it was also observed that family *Caesionidae* dominated the total catch of multiple hook and line. Almost 54 % of the catch was contributed by family *Caesionidae*, with 7.3 MT from *Caesio cuning* around 31% of the total catch, 2.98 MT from *Pterocaesio marri*, and 2.38 MT from *Caesio caerrulaurea*. Minimal catch from family Lutjanidae and Lethrinidae was also observed (Fig. 6)

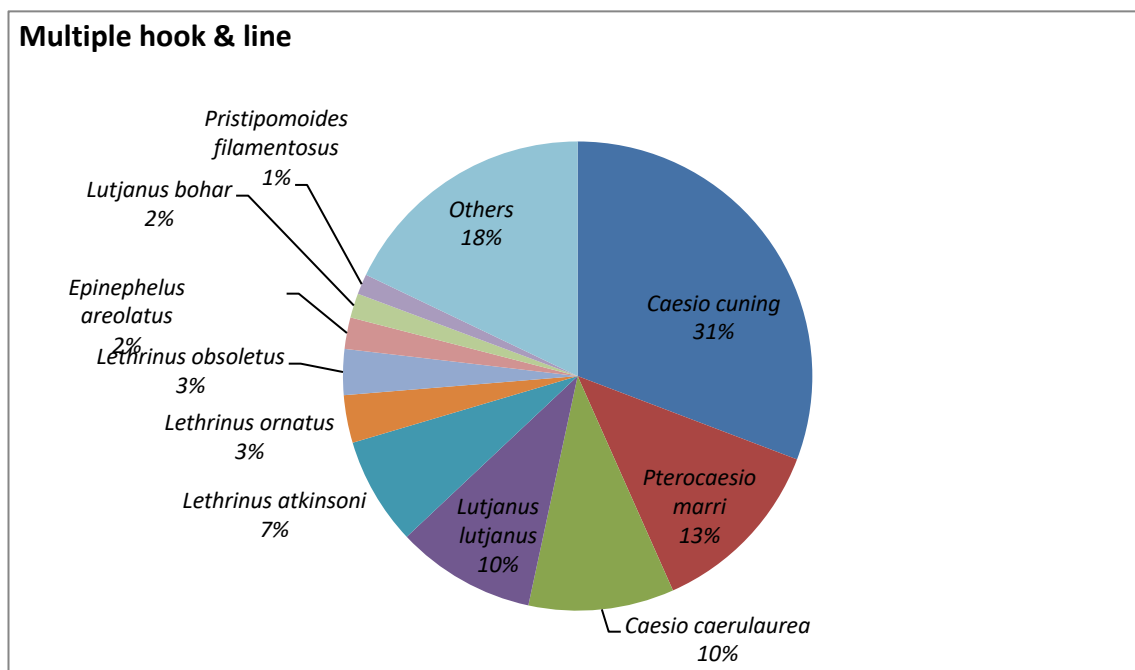


Figure 6. Multiple Hook & line species catch composition, Coron, Palawan (Jun-Dec 2017)

*Speargun*

A total 71 species was recorded from June to December of 2017 from Speargun Fisheries. A total landed catch of 25.61 metric tons was also recorded; *Caesio cuning* dominated the catch with 24.84 MT (Fig. 7)

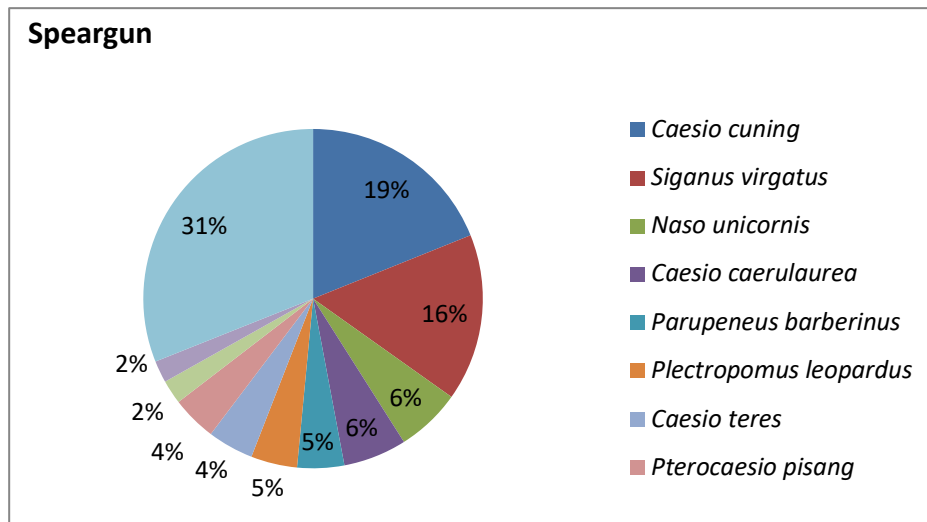


Figure 7. Speargun species catch composition, Coron, Palawan (Jun-Dec 2017)

*Troll line*

A total 7 species mainly pelagic species was recorded from June to December of 2017 from troll line fisheries. A total landed catch of 8.04 metric tons was also recorded; 43 percent of the catch was big eye tuna (*Thunnus obesus*) with the catch of 3.43 MT, followed by 27 % of *Auxis thazard* with 1.72 MT of catch, and around 19 percent of *Euthynnus affinis* with 1.72 MT of catch. Skipjack tuna was also observed with 4.20 MT of catch. Longtail tuna, Spanish Mackerel and dolphin fish among others contributed the lowest catch.

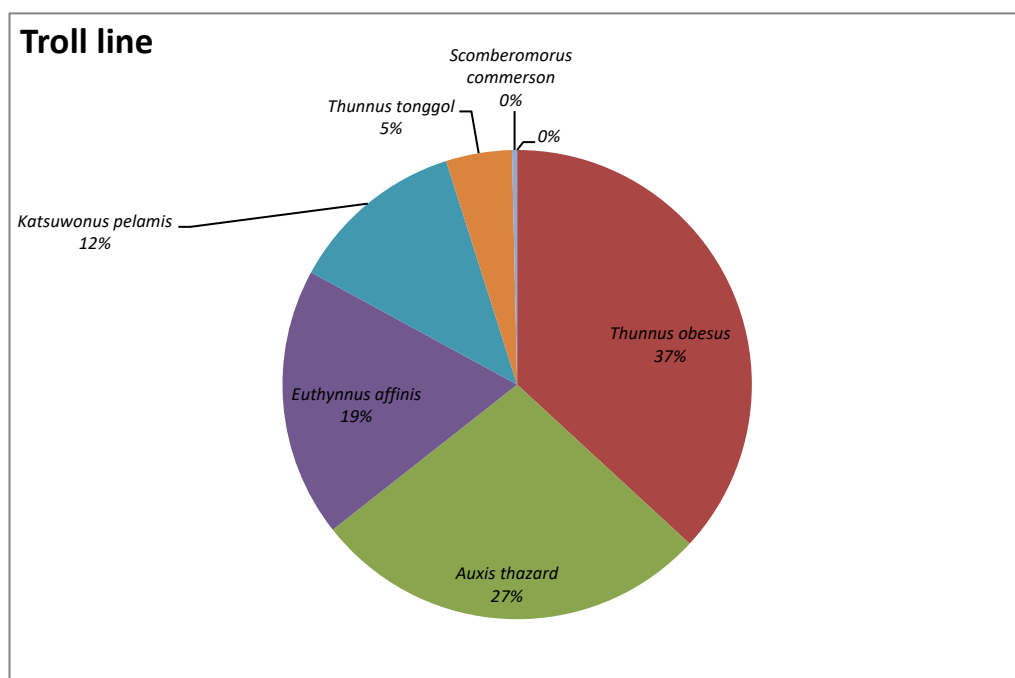


Figure 8. Troll line species catch composition, Coron, Palawan (Jun-Dec 2017)

### 3) Seasonality

#### Handline

Seasonality of catch per species caught using handline was also recorded from June to December 2018. Highest catch of *Caesio cuning* was observed during the months of August and September, highest catch of *Pterocaesio pisang* was also observed during month of September. *Caesio Teres* was observed to be caught during November (Fig. 9)

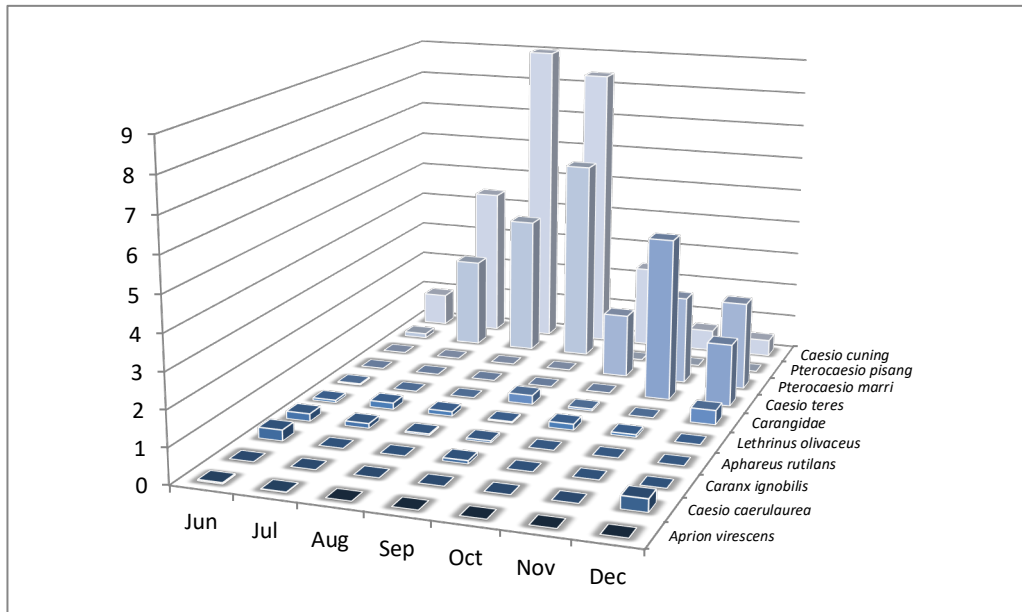


Figure 9. Seasonality of catch per species caught by Handline Fisheries in Coron, Palawan (Jun-Dec 2017)

#### Speargun

Highest catch of *Caesio cuning* for Speargun fishing was observed during the month of July, highest catch of *Siganus virgatus* was also observed during month of July. *Naso unicornis* was observed to be caught during December (Fig. 10).

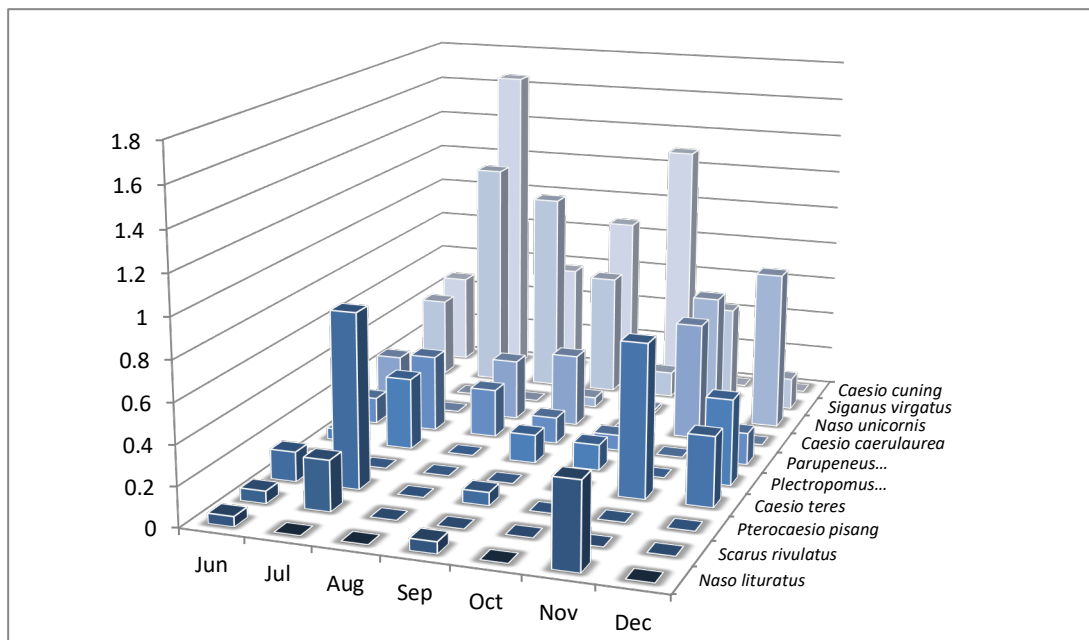


Figure 10. Seasonality of catch per species caught by Speargun Fisheries in Coron, Palawan (Jun-Dec 2017)

*Bagnet*

Seasonal catch of *Spratelloides gracilis* from Bagnet fisheries was observed during the months of September and December. *Dipterygonotus balteatus* was only observed during months of December (Fig. 11)

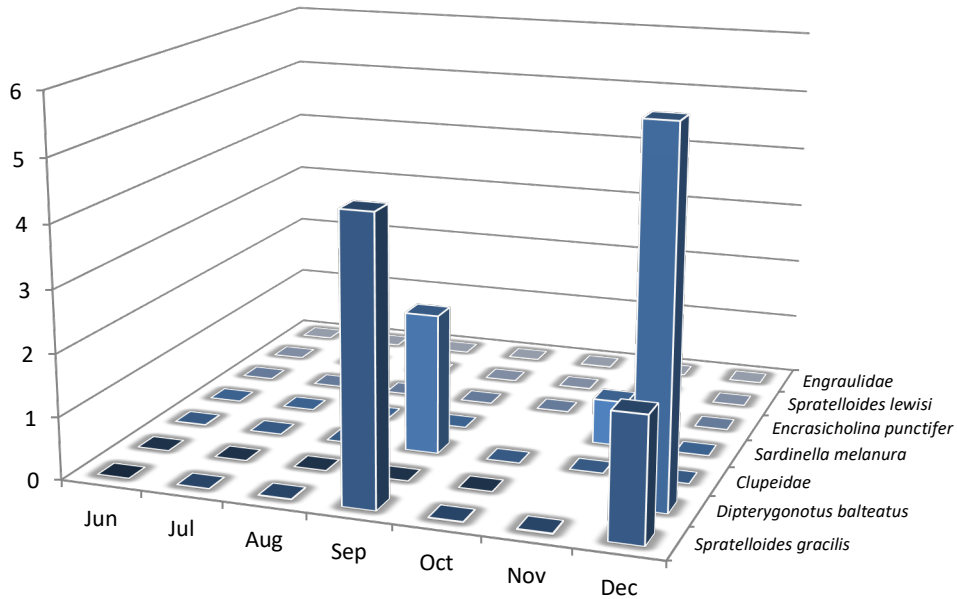


Figure 11. Seasonality of catch per species caught by Bagnet Fisheries in Coron, Palawan (Jun-Dec 2017)

**4) Catch Per Unit Effort (CPUE)**

Highest CPUE recorded was the operation of bagnet with an average of 685 kg/day, followed by the use of troll line with 64 kg/day and drive-in gillnet with 40 kg/day. Lowest CPUE in recorded was the use of bottom set gillnet with 19 kgs/day (table 5).

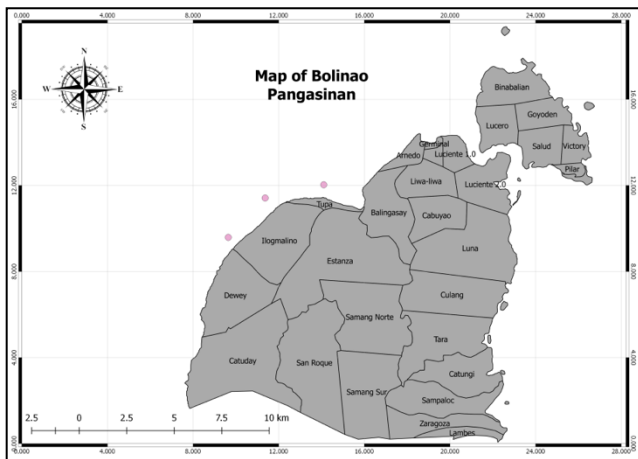
Gear	Average kg/day
Bagnet	685
Troll line	64
Drive-in gillnet	40
Hook and line	38
Multiple hook & line	37
Bottom gillnet	31
Bottom set long line	25
Speargun	22
Bottom set gillnet	19

Table 5. CPUE by Gear in Coron, Palawan (June-December 2017)

**7. Ichthyoplankton Survey / Initial Survey on the Collection of fish eggs and larvae in 3 Fisheries Refugia site**

Preliminary investigation on collection of ichthyoplankton at 3 refugia sites were completed and below is the initial results on the fish eggs and larvae on the abundance and distribution in 3 target Fisheries Refugia sites (Bolinao Bay, Masinloc Bay, and Coron Bay)

**Bolinao Bay**



STATION	COORDINATES
1	N - 16.34483° E - 119.7922°
2	N - 16.36334° E - 119.8096°
3	N - 16.36956° E - 119.8373°

Figure 13. Map of Bolinao, Pangasinan with sampling stations during the conduct of Ichthyoplankton Survey.

In Bolinao Bay (Fig. 13), we collected a total of 81 fish eggs and 16 fish larvae represented by 7 families (Fig.14). The most dominant families were Carangidae and Siganidae with 25% each of the total composition, followed by Leiognathidae with 19%. Other families identified in no particular order were Engraulidae, Istiophoridae, Nemipteridae, and Scombridae (Fig. 19).

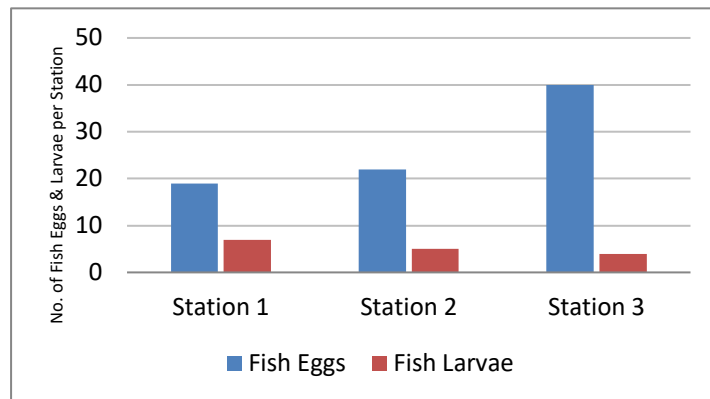
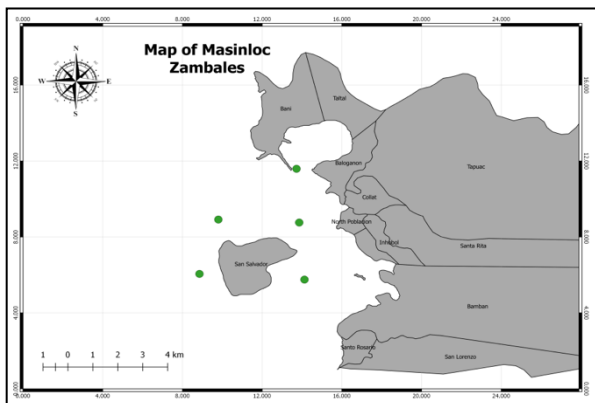


Figure 14. Distribution of Fish Eggs and Larvae in Bolinao Bay

**Masinloc Bay**



STATION	COORDINATES	DEPTH
1	N - 15.53511° E - 119.9318°	27.5m
2	N - 15.51393° E - 119.9337°	25.9m
3	N - 15.51608° E - 119.8958°	39.2m
4	N - 15.53664° E - 119.9026°	44m
5	N - 11.97602° E - 119.9308	15.8

Figure 15 . Map of Masinloc, Zambales with sampling stations during the conduct of Ichthyoplankton Survey.

For Masinloc Bay (fig. 15), we gathered a total of 67 fish eggs and 74 fish larvae represented by 22 families (Fig 16). The total composition was dominated by Lutjanidae with 20% share, followed by Nemipteridae with 14% and Carangidae with 10%. Other families that complete the top ten were Mullidae, Serranidae, Acanthuridae, Labridae, Leiognathidae, Sillaginidae, and Sphyraenidae (Fig. 20).

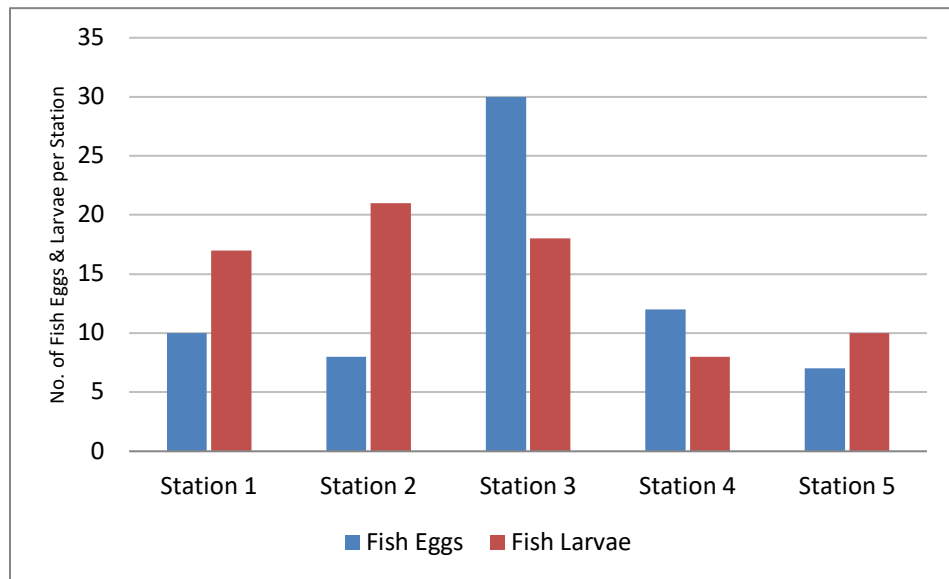
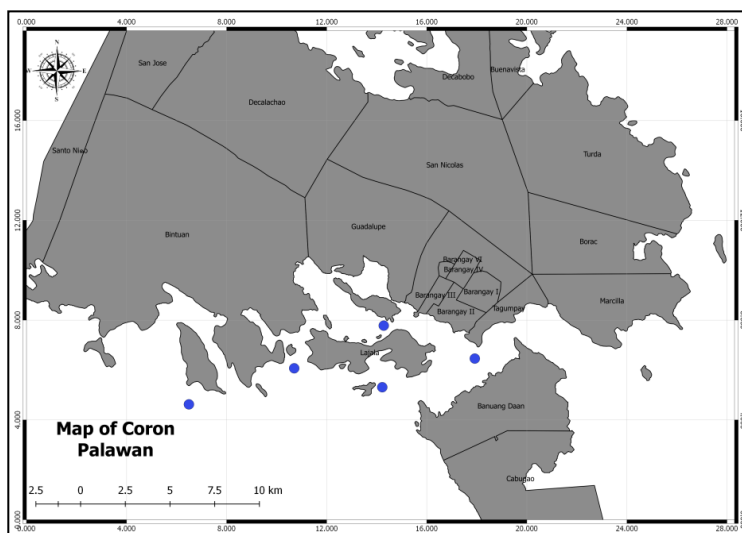


Figure 16. Distribution of Fish Eggs and Larvae in Masinloc Bay

**Coron Bay**



STATION	COORDINATES	DEPTH
1	N - 11.99404° E - 120.17343°	12m
2	N - 11.97071° E - 120.12460°	35m
3	N - 11.95098° E - 120.06718°	53.2m
4	N - 11.96035° E - 120.17262°	54.9m
5	N - 11.97602°	43.2m

Figure 17 . Map of Coron Palawan with sampling stations coordinates during the conduct of Ichthyoplankton Survey.

Coron Bay (Fig, 17.) on the other hand tallied a total of 127 fish eggs and 105 fish larvae composed of 19 families (Fig. 19). Carangidae was the most dominant fish family with 22% of the total composition followed by Lutjanidae with 13% and Caesionidae 9%. Other families occur and ranked Scaridae. Families with less than 2% share in the total composition were grouped as others (Fig. 21).

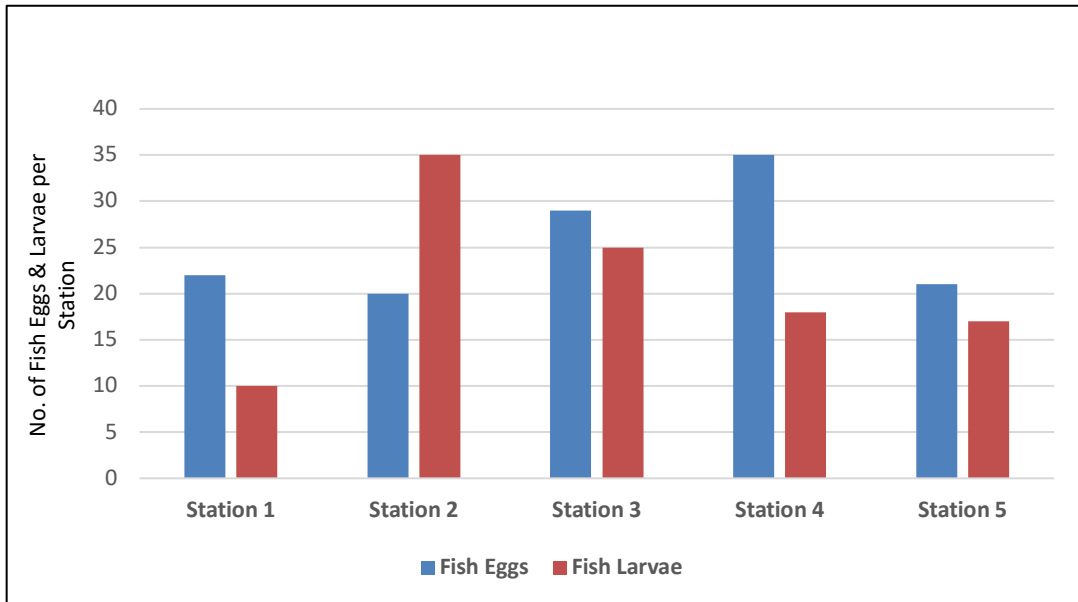


Figure 18. Distribution of Fish Eggs and Larvae in Coron Bay

### Discussion

Of the three target refugia site, Coron Bay got the highest density being observed with 116 individual/100m<sup>3</sup> for fish larvae and 140 individual/100m<sup>3</sup> for fish eggs while Bolinao Bay got the least density observed with 17 individual/100m<sup>3</sup> for fish larvae and 88 individual/100m<sup>3</sup> for fish eggs. In terms of diversity, Masinloc Bay has the most numbers of families being identified with 22 families followed by Coron Bay with 19. Overall, Carangidae (jacks and pompanos) dominates the total composition of the three refugia sites with 34 individuals followed shortly by Lutjanidae (snappers) with 19 and Acanthuridae (surgeonfishes and unicornfishes) with 15.

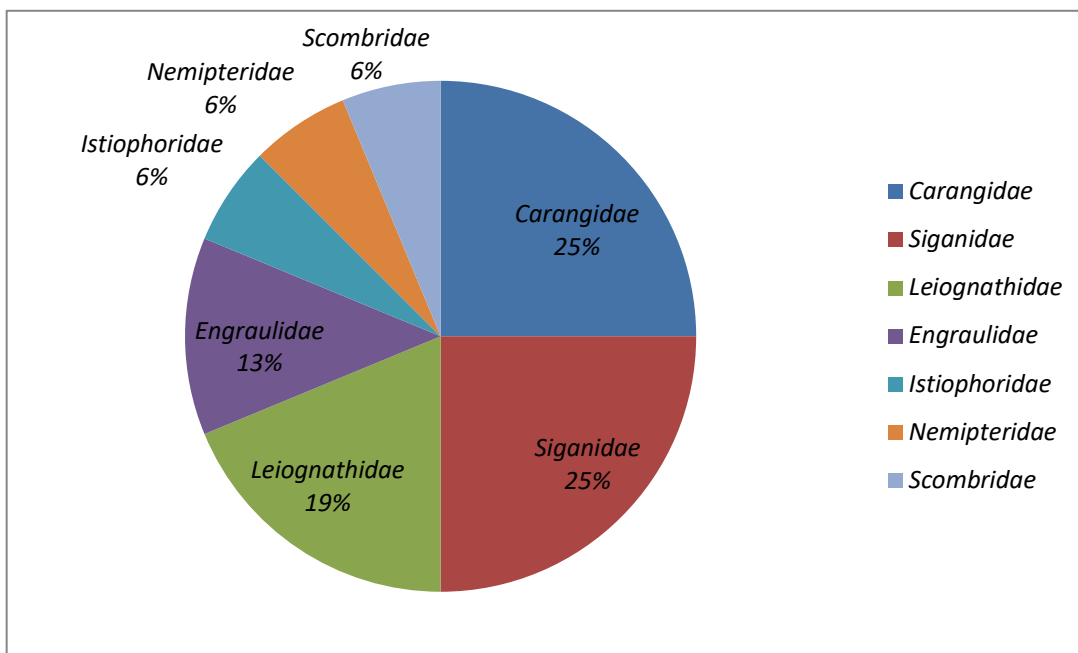


Figure 19. Fish Family Composition in Bolinao Bay



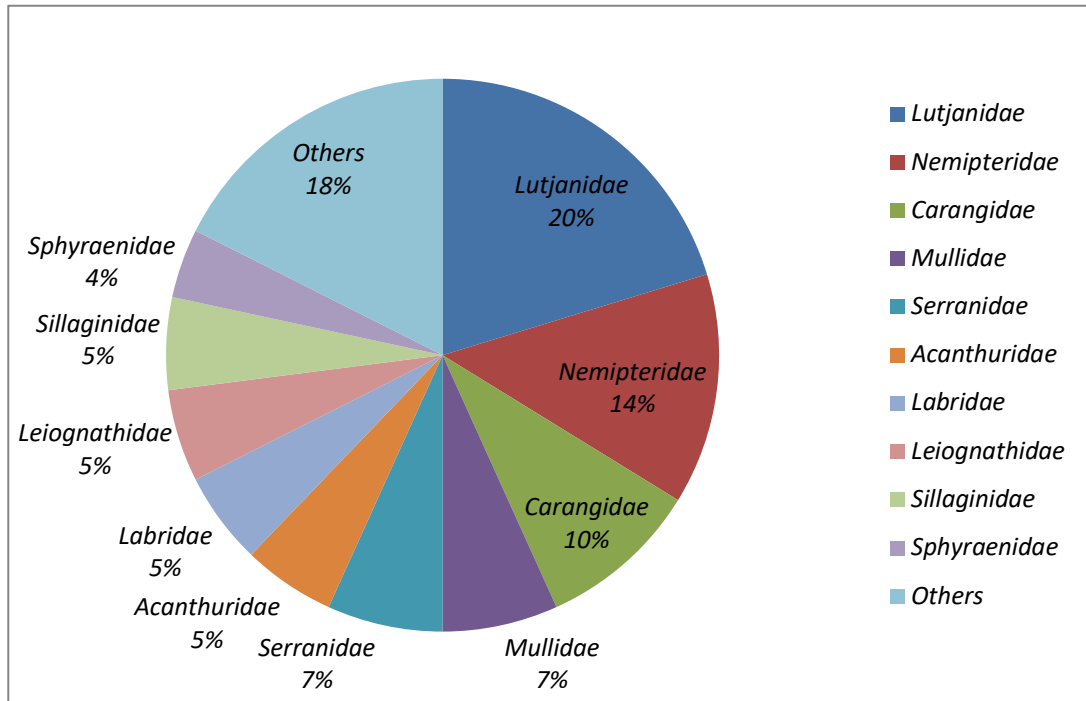


Figure 20. Fish Family Composition in Masinloc Bay

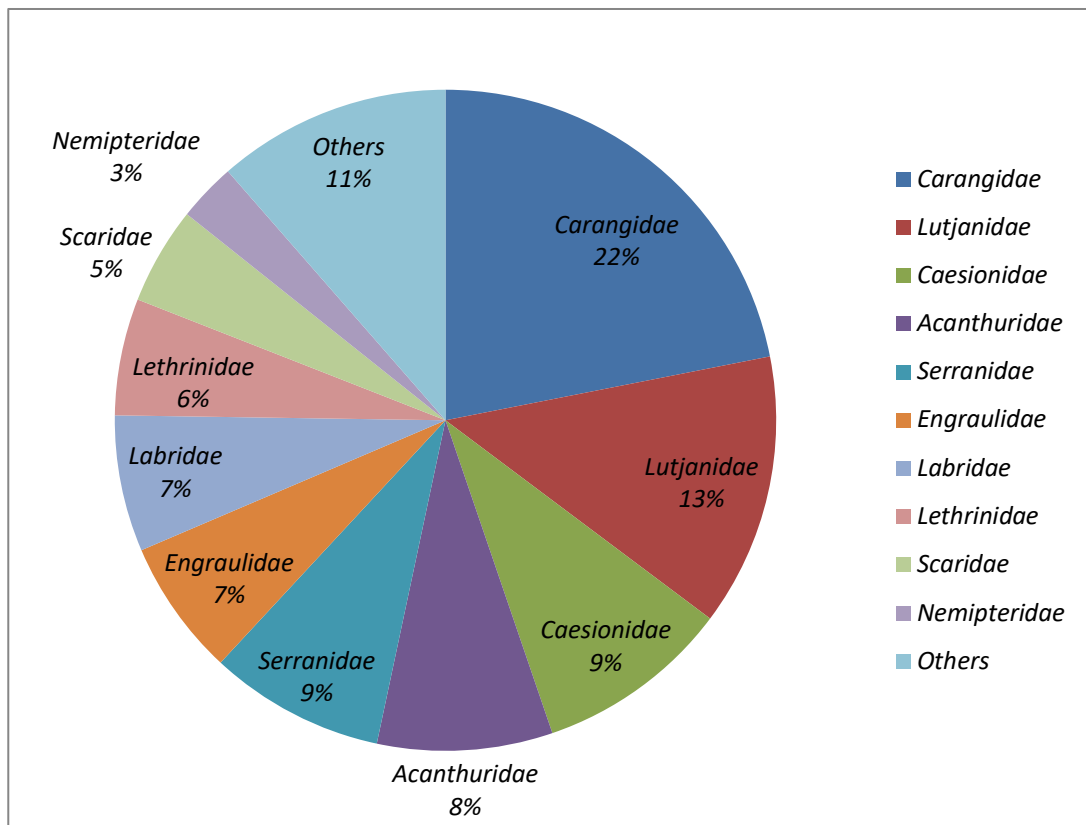


Figure 21. Fish Family Composition in Coron Bay

**8. Financial Report**

**Budgetary Allotment for the Fisheries Refugia project from 2017 to 2018 (Q3)**

	<b>UNDP/GEF/SEAFDEC (USD)</b>	<b>NFRDI Counterpart (PhP)</b>
2017 Quarter 1	\$ 4,275.00	PhP 58,570.50
2017 Quarter 2	\$ 5,470.45	PhP 300,003.10
2017 Quarter 3	-	PhP 686,854.50
2017 Quarter 4	-	PhP 602,899.39
2018 Quarter 1	-	PhP 443,970.86
2018 Quarter 2	-	PhP 617,753.32
2018 Quarter 3	\$21,760.18	PhP 559,956.28
<b>Total</b>	<b>\$ 31,505.63</b>	<b>PhP 3,270,007.95</b>

**9. Future activities:**

Fisheries Refugia Stakeholders Consultation Workshop for 3 Refugia Sites, continue fisheries data collection on landed catch for 3 refugia sites, site monitoring for site level activities, Establishment of Refugia Site Management Board in Coron, Palawan & Masinloc, Zambales and continue ichthyoplankton survey for 3 Refugia Sites.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

**Appendix -Documentation**



Aerial photograph taken during the visit to Balingasay and Arosan fish landing site in Bolinao, Pangasinan



Aerial photograph taken during the visit to Matalvis fish port, Masinloc Zambales



Aerial photograph taken during the visit to Bintuan Landing Site and Poblacion, Coron, Palawan

**Photos taken during the Site Level Inception Meeting and Courtesy visit to  
Municipality of Bolinao, Pangasinan**



**Photos taken during the Site Level Inception Meeting and Courtesy visit to  
Municipality of Masinloc, Zambales**



**Photos taken during the Site Level Inception Meeting and Courtesy visit to  
Municipality of Coron, Palawan**



Photo taken during the Actual Data Collections

BOLINAO, Pangasinan



Masinloc, Zambales



Poblacion, Coron, Palawan





Photo taken during the **Ichthyoplankton Survey**



Actual survey at Masinloc Bay, Masinloc Zambales



Actual survey at Bolinao Bay, Bolinao, Pangasinan



Actual survey at Coron Bay, Coron, Palawan

## **ANNEX 7 (D)**

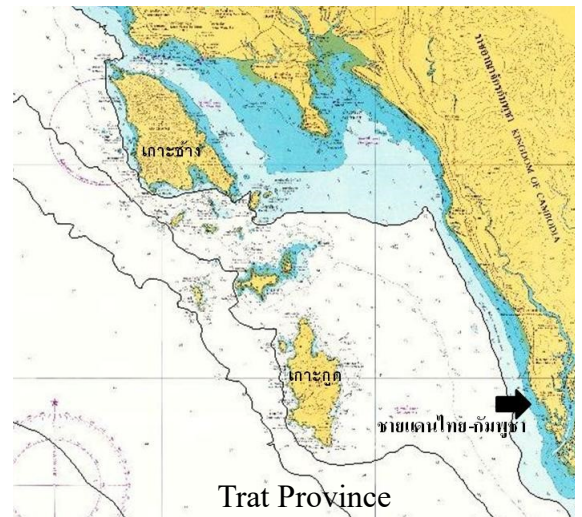
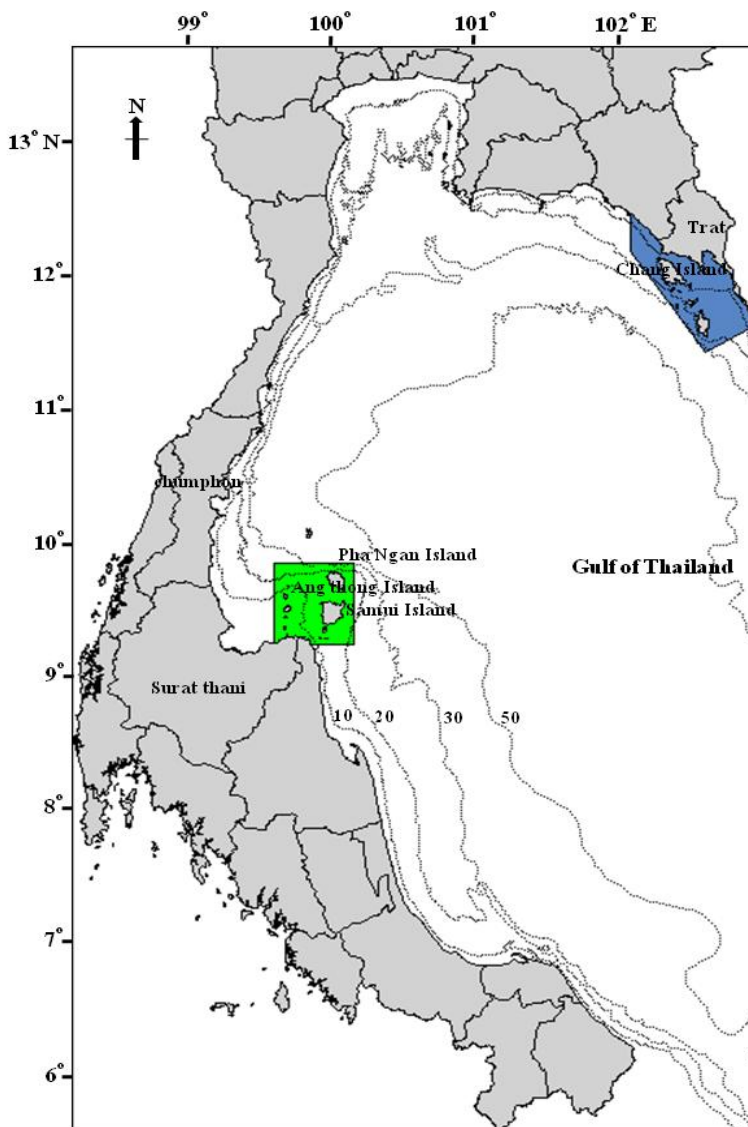
**THE PROGRESS OF WORK AT THE NATIONAL LEVEL DURING JAN 2017 - JUN 2018**

### **THAILAND**



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

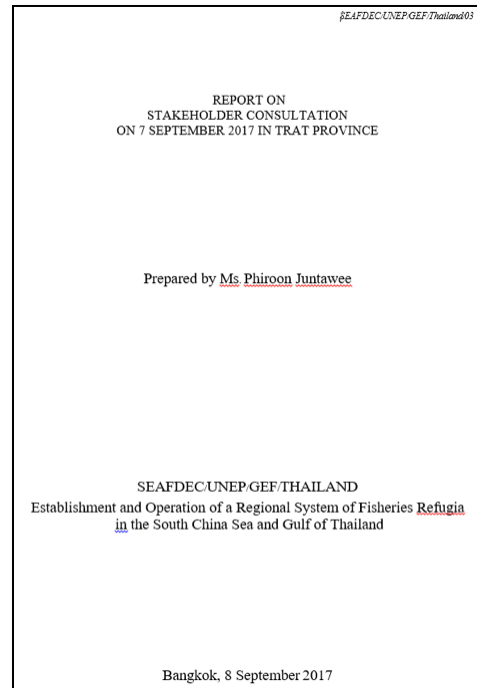
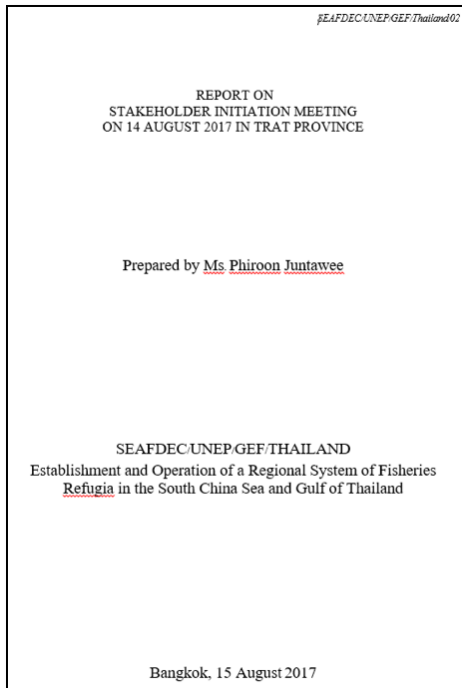
### PROJECT ACTIVITIES OF THAILAND MAY 2017 – AUG 2018



Samui Island, Surat Thani Province

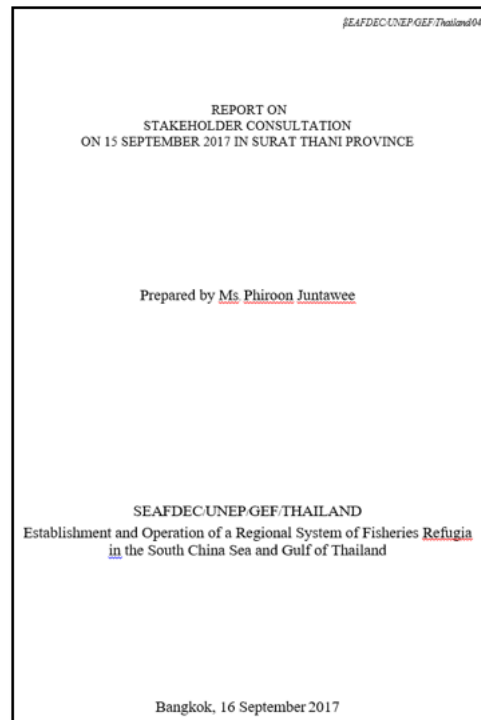
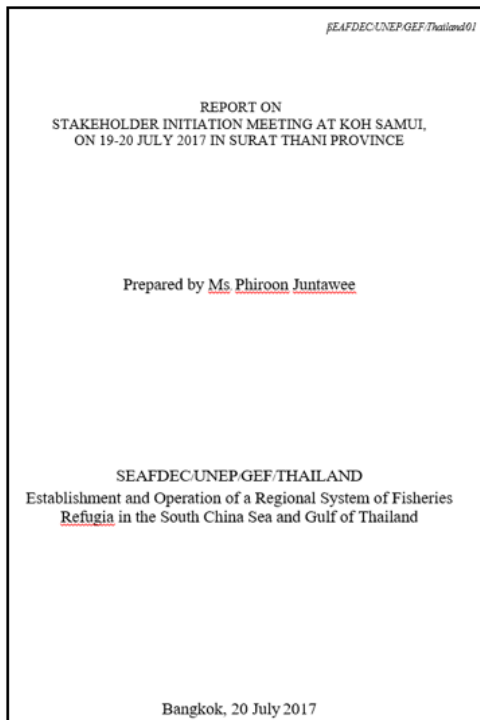
### ACTIVITY 1

Two preliminary surveys on fisheries resources and fishing communities in Trat Province



### ACTIVITY 2A

Two preliminary surveys on fisheries resources and fishing communities  
in Samui Island, Surat Thani Province



**ACTIVITY 2B**

Surveys on fisheries resources and fishing communities  
in Samui Island, Surat Thani Province





ACTIVITY 5

Issuing Notification of Surat Thani Province on appointment of committee members for Site-Based Fisheries Refugia Management Board in Samui Island, Surat Thani Province



คำสั่งจังหวัดสุราษฎร์ธานี  
ที่ ๒๖๒๒ / ๒๕๖๑

เรื่อง แต่งตั้งคณะกรรมการพิจารณาพื้นที่หลบภัยสัตว์น้ำ  
เพื่อการประมงที่ยั่งยืนของประเทศไทยในระดับพื้นที่เกาะสมุย จังหวัดสุราษฎร์ธานี ภายใต้โครงการ  
Establishment and Operation of a Regional System  
of Fisheries Refugia in South China Sea and Gulf of Thailand

ตามที่กรมประมงมีโครงการความร่วมมือกับศูนย์พัฒนาการประมงแห่งเอเชียตะวันออกเฉียงใต้ (SEAFDEC) ในโครงการ Establishment and Operation of a Regional System of Fisheries Refugia in South China Sea and Gulf of Thailand ซึ่งได้รับการสนับสนุนงบประมาณจากกองทุนสิ่งแวดล้อมโลก (GEF) เพื่อการพัฒนาการบริหารจัดการแหล่งอาศัยของสัตว์ทะเล ซึ่งถูกคุกคามทำลายในพื้นที่ทะเลเขตนีติและอ่าวไทย และสร้างควมยั่งยืนต่อการประมงและชุมชนประมงในระดับภูมิภาค มี ๖ ประเทศที่เข้าร่วม คือ สาธารณรัฐอินโดนีเซีย ราชอาณาจักรกัมพูชา มาเลเซีย สาธารณรัฐฟิลิปปินส์ สาธารณรัฐสิงคโปร์เวียดนาม และไทย โดยกรมประมงได้ลงนามบันทึกความร่วมมือแล้ว นั้น

ทั้งนี้ ภายใต้บันทึกความร่วมมือโครงการดังกล่าวกำหนดให้มีการจัดตั้งคณะกรรมการพิจารณาพื้นที่หลบภัยสัตว์น้ำเพื่อการประมงที่ยั่งยืนของประเทศไทยระดับพื้นที่เกาะสมุย จังหวัดสุราษฎร์ธานี ดังนี้ เพื่อให้การขับเคลื่อนโครงการความร่วมมือดังกล่าวให้ประสบความสำเร็จ จึงแต่งตั้งคณะกรรมการพิจารณาพื้นที่หลบภัยสัตว์น้ำเพื่อการประมงที่ยั่งยืนของประเทศไทยระดับพื้นที่ ดังนี้

คณะกรรมการพิจารณาพื้นที่หลบภัยสัตว์น้ำเพื่อการประมงที่ยั่งยืนของประเทศไทยระดับพื้นที่เกาะสมุย จังหวัดสุราษฎร์ธานี (The site based management boards)

๑. ประธานจังหวัดสุราษฎร์ธานี	ประธานกรรมการ
๒. ผู้อำนวยการสำนักงานทรัพยากรธรรมชาติและสิ่งแวดล้อมจังหวัดสุราษฎร์ธานี	กรรมการ
๓. นายอำเภอเกาะสมุย	กรรมการ
๔. นายกสมาคมธุรกิจการท่องเที่ยวเกาะสมุย	กรรมการ
๕. ประธานสภาเกษตรกร	กรรมการ
๖. หัวหน้าศูนย์งานอนุรักษ์ชายฝั่ง	กรรมการ
๗. ผู้อำนวยการสำนักงานบริหารจัดการทรัพยากรทางทะเลและชายฝั่ง หรือผู้แทน	กรรมการ
๘. เจ้าพนักงานอาสาสมัคร	กรรมการ
๙. หัวหน้าหน่วยป้องกันและปราบปรามทางทะเลและชายฝั่ง สุราษฎร์ธานี	กรรมการ
๑๐. ผู้นำชุมชน หมู่ที่ ๑ ตำบลมะเจ็ด (ชุมชนอิสลาม)	กรรมการ
๑๑. ผู้นำชุมชน หมู่ที่ ๔ ตำบลมะเจ็ด	กรรมการ
๑๒. ผู้นำชุมชน หมู่ที่ ๒ หมู่ที่ ๓ และหมู่ที่ ๖ ตำบลบ่อตด	กรรมการ

๑๓. หัวหน้า...

(๒)

๑๓. หัวหน้าสำนักงานศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๑๔. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๑๕. ผู้อำนวยการกองส่งเสริมประมงสัตว์น้ำ	กรรมการ
๑๖. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๑๗. นายกสมาคมเกษตรกร	กรรมการ
๑๘. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๑๙. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๐. ผู้อำนวยการศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๑. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๒. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๓. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๔. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๕. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๖. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๗. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๘. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๒๙. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๓๐. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๓๑. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๓๒. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๓๓. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๓๔. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๓๕. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๓๖. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
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๓๘. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๓๙. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ
๔๐. หัวหน้าศูนย์วิจัยและพัฒนาการเพาะเลี้ยงสัตว์น้ำ	กรรมการ

โดยให้คณะกรรมการที่ได้รับแต่งตั้งแล้วนี้มีความรับผิดชอบ ดังนี้

- พิจารณาแผนงานด้านวิทยาศาสตร์และเทคโนโลยีของ SEAFDEC/UNEP/GEF
- รับ เสนอแนะ และตรวจสอบรายงานจากและทำงานที่ดำเนินการภายในพื้นที่หลบภัยสัตว์น้ำ พร้อมทั้งให้ความช่วยเหลือ ประสานงานในการทำงานร่วมกับชุดจัดการพื้นที่หลบภัยและกิจกรรมอื่นๆ ในท้องถิ่น รวมถึงการดำเนินการที่จำเป็น รับฟังความคิดเห็นจากผู้มีส่วนได้เสียในพื้นที่กิจกรรมโครงการ เช่น องค์การพัฒนาเกษตรชุมชน ภาครัฐ และเอกชน
- ประชุมแลกเปลี่ยนข้อมูล ทบทวน ตรวจสอบ และติดตามผลจากกระบวนการทำงานเพื่อให้เกิดความยั่งยืนของโครงการ และรายงานผลรายงาน

ทั้งนี้ นับแต่บัดนี้เป็นต้นไป

สั่ง ณ วันที่ ๑๑ มกราคม พ.ศ. ๒๕๖๑


(นายวิเศษ อิ่มผลเสถียรวิทยา)  
รองผู้อำนวยการจังหวัดภูเก็ต ปฏิบัติราชการแทน  
ผู้ว่าราชการจังหวัดสุราษฎร์ธานี

ACTIVITY 6

Organizing stakeholder consultation workshop in Trat Province

A) REPORT ON STAKEHOLDER CONSULTATION WORKSHOP

SEAFDEC/UNEP/GEF/Thailand05



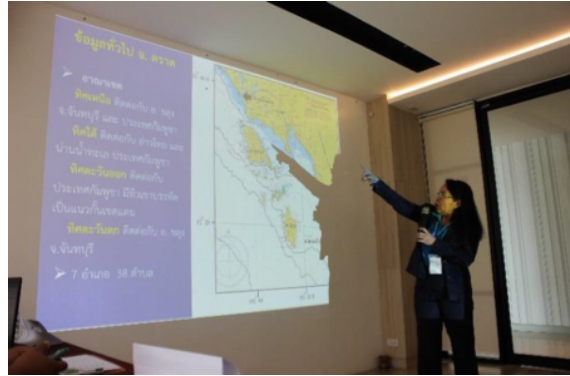
Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand

REPORT  
Stakeholder Consultation Workshop  
Trat Province, Thailand  
27 – 28 February 2018

Prepared by Ms. Ratana Munprasit

Department of Fisheries  
Bangkok, Thailand

B) Photographs taken at the Stakeholder consultation workshop in Trat Province (fishermen, local stakeholders, and NGOs) 27 February 2018



C) Photographs taken at the Stakeholder consultation workshop in Trat Province (relevant public organizations) 28 February 2018



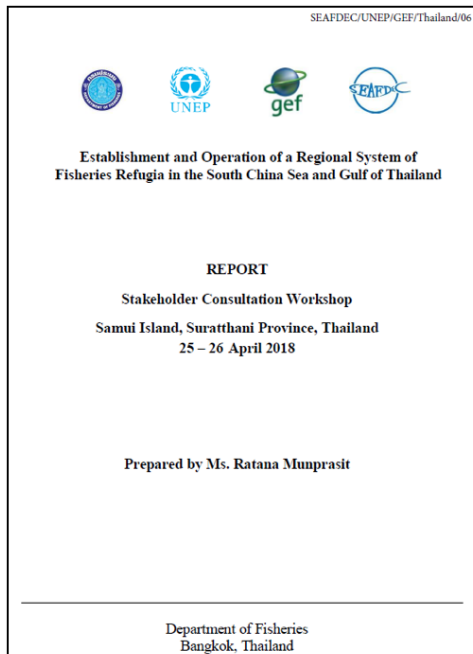


**Priority fisheries species and threats to their life cycles in Trat Province: results of discussion from stakeholder consultation workshop on 27-28 February 2018**

Species	Life-cycle stage	Threat	Immediate cause	Root cause	Management action
Blue swimming crab	Whole life cycle	<ul style="list-style-type: none"> <li>- Over fishing</li> <li>- Small mesh-size nets</li> <li>- Destructive fishing gears</li> </ul>	<ul style="list-style-type: none"> <li>- Illegal fishing</li> <li>- Invasion of foreign fishing</li> <li>- Fishing by alien workers</li> <li>- High market demand</li> <li>- Needs of small size for processing</li> </ul>	<ul style="list-style-type: none"> <li>- Increasing number of small scale fishing boats altered from the commercial ones</li> <li>- Noncooperation of some fishing group</li> <li>- Lacking in fisheries conservation awareness</li> <li>- Insufficiency of public authority</li> <li>- Overlapped functions of relevant public authorities</li> </ul>	<ul style="list-style-type: none"> <li>- Strengthening fisheries law enforcement</li> <li>- Creating awareness</li> <li>- Establishing crab bank</li> </ul>
Mantis shrimp	Whole life cycle	<ul style="list-style-type: none"> <li>- Over fishing</li> <li>- Small mesh-size nets</li> <li>- Dredges</li> <li>- Destructive fishing gears (e.g. giant trawls)</li> </ul>			<ul style="list-style-type: none"> <li>- Establishing the regulations for fishing gear restriction, i.e. only handlines can be used in &gt; 500 m offshore</li> </ul>
Indo-Pacific mackerel	Whole life cycle	<ul style="list-style-type: none"> <li>- Over fishing</li> <li>- Destructive fishing gears (e.g. giant trawls)</li> </ul>			<ul style="list-style-type: none"> <li>- Strengthening fisheries law enforcement</li> <li>- Creating conservation areas (restricted fishing gear)</li> <li>- Encouraging awareness</li> <li>- Promoting participation in fisheries management</li> <li>- Empowering the communities to create their own fisheries management</li> <li>- Promoting community regulations for fisheries management</li> <li>- Promoting fishing tourism</li> <li>- Establishing aquatic animal banks</li> <li>- Rehabilitating and establishing fisheries habitat</li> <li>- Promoting mesh size restriction</li> </ul>
Banana shrimp	Whole life cycle				
Indian Squid	Whole life cycle				
Bigfin reef squid	Whole life cycle				
Horseshoe crab	Whole life cycle				

### ACTIVITY 7

#### Organizing stakeholder consultation workshop in Samui Island, Surat Thani Province



A) REPORT OF THE STAKHOLDER CONSULTATION WORKSHOP



B) Photographs taken at the Stakeholder consultation workshop in Samui Island, Surat Thani Province (fishermen and local stakeholders) 25 April 2018



C) Stakeholder consultation workshop in Samui Island, Surat Thani Province (relevant public organizations) 26 April 2018

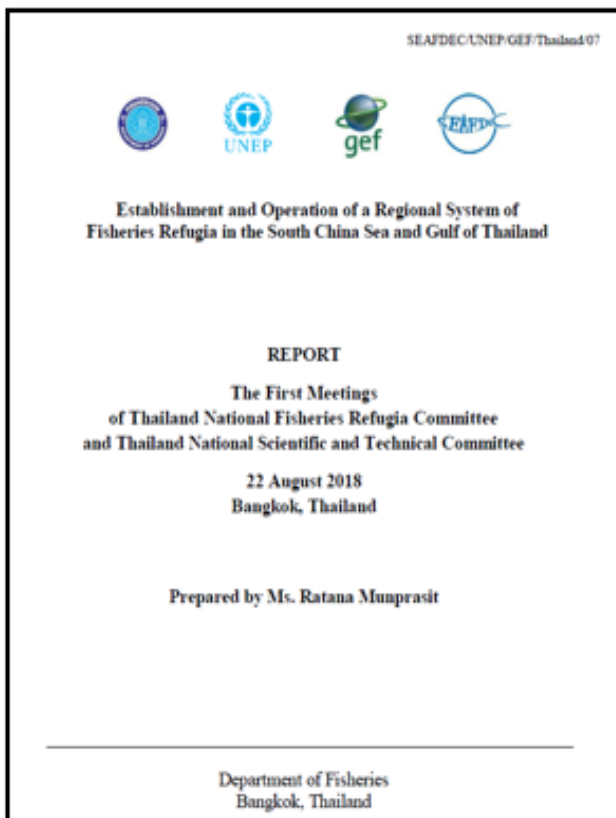
Priority fisheries species and threats to their life cycles in Samui Island, Surat Thani Province: results of discussion from stakeholder consultation workshop on 25-26 April 2018

Species	Life-cycle stage	Threat	Immediate cause	Root cause	Management action
Blue swimming crab	Whole life cycle	- Fishing of small-size crabs in seagrass bed - Small mesh-size nets	- Illegal fishing - High market demand	- Lacking in fisheries conservation awareness - Bad water quality - Climate change	- Strengthening fisheries law enforcement - Establishing crab bank - Creating conservation areas - Creating awareness
Shrimp	Whole life cycle	- Over fishing - Destructive fishing gears (trawlers, push netters)	- Illegal fishing - High market demand	- Lacking in fisheries conservation awareness	- Seed releasing - Creating fishing zones - Creating awareness
Indo-Pacific mackerel	Whole life cycle	- Over fishing - Small mesh-size nets - Commercial Fisheries	- Illegal fishing	- Bad water quality - Climate change	- Water treatment - Preparing boundary lines for commercial fishing gears - Expansion of seasonal closed area - Establishing the regulations for fishing gear restriction
Giant sea catfish ( <i>Natuna thalassina</i> )	Whole life cycle	- Over fishing - Small mesh-size nets	- High market demand		- Strengthening fisheries law enforcement
Talang queenfish ( <i>Scorpaenoides commersonianus</i> )	Whole life cycle	- Over fishing	- High market demand		- Strengthening fisheries law enforcement
Barracuda	Whole life cycle	- Commercial Fisheries	- High market demand		- Strengthening fisheries law enforcement
Spanish mackerel	Whole life cycle	- Destructive fishing gears (trawlers)	- Illegal fishing - High market demand		- Strengthening fisheries law enforcement

Species	Life-cycle stage	Threat	Immediate cause	Root cause	Management action
White pomfret	Spawning	- High fishing	- High market demand		- Creating conservation areas
Sea turtle	Whole life cycle	- Fishing - Dying by accident/plastic consumption	- Increase of sea transportation - By-catch from fishing - Garbage in the sea	- Lacking in fisheries conservation awareness	- Creating conservation awareness - Creating conservation areas - Breeding/propagation - Law enforcement
Dolphin	Whole life cycle	- Fishing - Plastic consumption	- Increase of sea transportation - By-catch from fishing - Garbage in the sea	- Lacking in fisheries conservation awareness	- Creating conservation awareness - Law enforcement
Giant clam	Whole life cycle	- Catching	- Illegal catching	- Community believes on consumption	- Creating conservation awareness - Law enforcement
Sea cucumber	Whole life cycle	- Fishing	- High market demand	- High market demand	- Creating conservation areas - Breeding/propagation

### ACTIVITY 8

Organizing the First Meetings of Thailand National Fisheries Refugia Committee and Thailand National Scientific and Technical Committee



ACTIVITY 9

Secondary data collecting of marine resources and fisheries in the selected Fisheries Refugia sites: Trat and Surat Thani Provinces

ชนิดสัตว์น้ำ (Species)	ช่วงวงจรชีวิต (Life cycle)	แหล่งที่พบ (Habitat site)	ช่วงเวลาที่พบ (Time founded)	ช่วงเวลาการศึกษา (Time studied)	แหล่งข้อมูล (Information source)	ขนาดเริ่มสืบพันธุ์ (Size at first maturity)
ปลาทู Indo-Pacific Mackerel ( <i>Rastrellieer brachisoma</i> )	ปลาเล็กถึงโตเต็มวัย(ส่วนใหญ่โตเต็มวัย) (small-adult) (mostly adult) 10.00-21.50 (16.07±1.26) cm ใหญ่ 15.5-17.0 cm (จากอวนลอยปลาทู)	ช่องเกาะข้าง-อำเภอคลองใหญ่ Chang Strait – KhlongYai District (3-13 m)	- ช่วงฤดูมรสุมตะวันออกเฉียงเหนือ - ช่วงเปลี่ยนฤดูมรสุม - North-East Monsoon	Oct 2007-Dec 2008	Siri and Srikum (2012) (1)	xx.xx cm (Munprasit, 2005)
	ปลาเล็กถึงโตเต็มวัย (ส่วนใหญ่เป็นปลาเล็ก) (small-adult) (mostly small) 9.00-21.00 (14.52±2.01) cm ส่วนใหญ่ 13.0-14.5 cm (จากโป๊ะไม้ไผ่)	อ่าวตราด และช่องเกาะข้าง Trat Bay and Chang Strait (5-8 m)	ต.ค.-มี.ค. (Oct-Mar)			
ปลาทู Indo-Pacific Mackerel ( <i>Rastrellieer brachisoma</i> )	เพศผู้ ปลาเล็กถึงวัยเจริญพันธุ์ (ส่วนใหญ่เป็นวัยเจริญพันธุ์) (small-mature) (mostly mature) 13.1-21.7 (16.4±1.1) cm ส่วนใหญ่ 13.3-21.7(16.8±0.9)cm (จากอวนลอยปลาทูและโป๊ะไม้ไผ่)	ช่องเกาะข้างอ่าวตราดและอำเภอคลองใหญ่ Chang StraitTrat Bay and KhlongYai District (2-13 m)	ตลอดทั้งปี (all the year)	Jan – Dec 2008	Khrueniam and Chareonsombat (2012) <sup>(2)</sup>	16.25 cm (การวิจัยในครั้งนี้)
	เพศเมีย ปลาเล็กถึงวัยเจริญพันธุ์ (ส่วนใหญ่เป็นวัยเจริญพันธุ์) (small-mature) (mostly mature) 13.0-21.2 (17.0±1.0) cm ส่วนใหญ่ 13.0-21.2(17.2±0.9)cm (จากอวนลอยปลาทูและโป๊ะไม้ไผ่)					15.93cm (การวิจัยในครั้งนี้)
หอยลาย Short-Necked Clam ( <i>Paphia undulata</i> Born.)	หอยตัวเล็กถึงตัวโตเต็มวัย (small-adult) 28.75-53.75 (38.61±3.22) mm. (จากคราดหอย)	ช่องเกาะข้าง-อำเภอคลองใหญ่ Chang Strait – KhlongYai District (2-15 m)	ตลอดทั้งปี (all the year)	May 2011–Apr 2012	Sinanun, Thongsila and Prasanna (2016) <sup>(3)</sup>	64 mm. (บำรุงศักดิ์ และวรรณเกียรติ, 2532)

ชนิดสัตว์น้ำ (Species)	ช่วงวงจรชีวิต (Life cycle)	แหล่งที่พบ (Habitat site)	ช่วงเวลาที่พบ (Time founded)	ช่วงเวลาที่ศึกษา (Time studied)	แหล่งข้อมูล (Information source)	ขนาดเริ่มสืบพันธุ์ (Size at first maturity)
กุ้งทราย Brown Rough Shrimp <i>(Trachypenaeus fulvus)</i>	กุ้งเล็กถึงตัวโตเต็มวัย (small-adult) 3.75-10.25(6.55±1.14) cm. (จากอวนลากแผ่นตะเ婆)	อ่าวไทยฝั่งตะวันออก Eastern Gulf of Thailand	ตลอดทั้งปี (all the year)	Jan – Dec 2009	<a href="#">Sinanun and Pankaew (2012)</a> <sup>(4)</sup>	
	กุ้งเล็กถึงตัวโตเต็มวัย (small-adult) 3.75-9.25(6.17±0.90) cm. (จากอวนรุน)	ท่าเทียบเรือในเขต จังหวัดตราดจันทบุรี และระยอง fishing ports in Trat, <a href="#">Chantaburi</a> and <a href="#">Rayong</a> province				
ปลาหู Indo-Pacific Mackerel <i>(Rastrelliger brachisoma)</i>	ปลาเล็กถึงโตเต็มวัย (small-adult) 9.75-20.25 (16.29±0.47) cm. (จากอวนลอยปลาหู)	อ่าวแหลมงอบ,เมือง ,คลองใหญ่,เกาะช้าง และอ่าวเกาะกูด <a href="#">Laem Ngop</a> , <a href="#">Muang</a> , <a href="#">Klong Yai</a> , <a href="#">Koh</a> <a href="#">Chang</a> and <a href="#">Koh</a> <a href="#">Kood</a> District (5-12 m)	ตลอดทั้งปี (all the year)	Jan – Jun 2009	<a href="#">Suksumran, Siri and Tunvilai (2013)</a> <sup>(5)</sup>	
กุ้งแช่บัวหางเขียว Banana Prawn <i>(Penaeus merguensis)</i>	กุ้งเล็กถึงตัวโตเต็มวัย (small-adult) 7.25-22.75 (14.30±0.63) cm. (จากอวนลอยกุ้งสามชั้น)	อ่าวแหลมงอบ,เมือง ,คลองใหญ่,เกาะช้าง และอ่าวเกาะกูด <a href="#">Laem Ngop</a> , <a href="#">Muang</a> , <a href="#">Klong Yai</a> , <a href="#">Koh</a> <a href="#">Chang</a> and <a href="#">Koh</a> <a href="#">Kood</a> District (2-12 m)				
ปูม้า Blue swimming crab <i>(Portunus pelagicus)</i>	ปูเล็กถึงตัวโตเต็มวัย (small-adult) 7.25-22.75 (14.30±0.63) cm. (จากอวนจมปู)	อ่าวแหลมงอบ,เมือง ,คลองใหญ่,เกาะช้าง และอ่าวเกาะกูด <a href="#">Laem Ngop</a> , <a href="#">Muang</a> , <a href="#">Klong Yai</a> , <a href="#">Koh</a> <a href="#">Chang</a> and <a href="#">Koh</a> <a href="#">Kood</a> District (4-25 m)				
	ปูเล็กถึงตัวโตเต็มวัย (small-adult) 5.25-18.25 (10.80±0.62) cm. (จากลอบปูแบบพับ)	<a href="#">Chang</a> and <a href="#">Koh</a> <a href="#">Kood</a> District (4-25 m)				

ชนิดสัตว์น้ำ (Species)	ช่วงวงจรชีวิต (Life cycle)	แหล่งที่พบ (Habitat site)	ช่วงเวลาที่พบ (Time founded)	ช่วงเวลาการศึกษา (Time studied)	แหล่งข้อมูล (Information source)	ขนาดเริ่ม สืบพันธุ์ (Size at first maturity)
หมึกหอม Big-fin Reef Squid ( <i>Sepioteuthis lessoniana</i> )	เพศผู้ หมึกเล็กถึงวัยเจริญพันธุ์ (small-mature) 7.50-30.50 (16.09±0.90) cm (จากลอบหมึก)	จังหวัดระยอง, จันทบุรี และตราด Rayong, Chantaburi and Trat, Province	ตลอดทั้งปี (all the year)	Jan-Dec 2010	Khrueniam and Kanasook (2013) <sup>(6)</sup>	
	เพศเมีย หมึกเล็กถึงวัยเจริญพันธุ์ (small-mature) 7.50-26.50 (15.65±0.87) cm (จากลอบหมึก)					
กุ้งตะกาด Jinga Shrimp ( <i>Metapenaeus affinis</i> )	กุ้งเล็กถึงตัวโตเต็มวัย (small- adult) 4.75-16.75 (10.05±2.15) cm. เล็กสุดเดือนมิถุนายน 8.37±2.33 cm. ใหญ่สุดเดือนพฤษภาคม 12.09±1.31 cm. (จากอวนลากแผ่นตะเฆ่ขนาดความ ยาวเรือต่ำกว่า 14 เมตร)	จังหวัดตราด จันทบุรี และระยอง Trat, Chantaburi and Rayong province	ตลอดทั้งปี (all the year)	Jan-Dec 2009	Sinanun, Sinanun And Klomkleaw (2012) <sup>(7)</sup>	
	กุ้งเล็กถึงตัวโตเต็มวัย (small- adult) 3.75-9.25 (9.86±1.68) cm. เล็กสุดเดือนพฤษภาคม 8.99±1.36 cm. ใหญ่สุดเดือนมิถุนายน 11.14±1.42 cm. (จากอวนรุน)					
กุ้งแช่บัว Banana Prawn ( <i>Penaeus merguensis</i> )	กุ้งเล็กถึงวัยเจริญพันธุ์ (small- mature) 6.8-23.7 (13.8±2.0) cm. (จากอวนรุน, อวนลอยกุ้งสามชั้น และอวนลากแผ่นตะเฆ่ขนาดความ ยาวเรือต่ำกว่า 14 )	บริเวณชายฝั่งทะเล ตลอดแนวตั้งแต่จังหวัด ระยอง-ตราด	ตลอดทั้งปี (all the year)	Jan-Dec 2009	Yangphonkhan and Charoensombat (2014) <sup>(8)</sup>	
กุ้งแช่บัว Banana Prawn ( <i>Penaeus merguensis</i> )	กุ้งเล็กถึงตัวโตเต็มวัย (small- adult) 5.50-21.00 (12.58±1.89) cm. (จากอวนรุน)	จังหวัดจันทบุรี และ ตราด Chantaburi and Trat Province	ตลอดทั้งปี (all the year)	Jan-Dec 2010	Suksumran and Thonesila (2015) <sup>(9)</sup>	15.25 cm. (มา โนช และวันชัย, 2535)
กุ้งตะกาด Jinga Shrimp ( <i>Metapenaeus affinis</i> )	กุ้งเล็กถึงตัวโตเต็มวัย (small- adult) 4.00-16.00 (10.15±1.65) cm. (จากอวนรุน)					11.50 cm. (อัจฉวา, 2536)

ชนิดสัตว์น้ำ (Species)	ช่วงวงจรชีวิต (Life cycle)	แหล่งที่พบ (Habitat site)	ช่วงเวลาที่พบ (Time founded)	ช่วงเวลาการศึกษา (Time studied)	แหล่งข้อมูล (Information source)	ขนาดเริ่มสืบพันธุ์ (Size at first maturity)
ปลาหู Indo-Pacific Mackerel ( <i>Rostrelliaer brachisoma</i> )	ปลาเล็กถึงโตเต็มวัย (small-adult) 9.00-17.00 (13.71±1.64) cm. (จากอวนรุน)	จังหวัดจันทบุรี และตราด Chanthaburi and Trat Province	ตลอดทั้งปี (all the year)	Jan-Dec 2010	Suksumran and Thonesila (2015) <sup>(9)</sup>	17.95 cm. (ทัศพล และคณะ, 2550)
ปลาหลังเขียว Goldstripe sardinella ( <i>Sardinella gibbosa</i> )	ปลาเล็กถึงโตเต็มวัย (small-adult) 4.00-21.00 (9.07±2.19) cm. (จากอวนรุน)					13.12 cm. (ทัศพล และพินิตา, 2547)
วงศ์ปลาจวด ( <i>Sciaenidae</i> )	ปลาเล็กถึงโตเต็มวัย (small-adult) 9.00-18.50 (12.61±1.94) cm. (จากอวนรุน)					14.00 cm. (Sasaki, 2001)
ปลาปากคม Slender Lizardfish ( <i>Saurida elongate</i> )	ปลาเล็กถึงตัวโตเต็มวัย (small-adult) 6.00-22.50 (14.60±3.01) cm. (จากอวนรุน)					31.62 cm. (สมชาย และคณะ, 2555)
หมึกกล้วย Indian Squid ( <i>Photololio duvaucelii</i> )	หมึกเล็กถึงตัวโตเต็มวัย (small-adult) 2.50-20.50 (8.02±3.54) cm. (จากอวนรุน)					8.50 cm. (Supongpan and Sinoda, 1998)
หมึกกระดอง Cuttlefish ( <i>Sepia aculeate</i> )	หมึกเล็กถึงตัวโตเต็มวัย (small-adult) 3.00-13.50 (6.42±2.39) cm. (จากอวนรุน)					5.90 cm. (Kongprom et al., 2003)
ปูน้ำ blue swimming crab ( <i>Portunus pelagicus</i> )	ปูเล็กถึงตัวโตเต็มวัย (small-adult) 6.00-12.00 (9.19±1.45) cm. (จากอวนรุน)					8.73 cm. (จินตนา, 2544)
ปูน้ำ blue swimming crab ( <i>Portunus pelagicus</i> )	ปูเล็กถึงตัวโตเต็มวัย (small-adult) 8.75-17.25 (12.62±1.40) cm. เล็กสุดเดือนตุลาคม 11.70±1.22 cm. ใหญ่สุดเดือนมีนาคม 13.90±1.14 cm. (จากลอบปูพาณิชย์)	จังหวัดระยอง จันทบุรี และตราด Rayong, Chanthaburi and Trat Provinces	ตลอดทั้งปี (all the year)	Jan-Dec 2009	Sinanun (2012) <sup>(10)</sup>	
	ปูเล็กถึงตัวโตเต็มวัย (small-adult) 4.25-18.25 (10.28±2.14) cm. เล็กสุดเดือนมีนาคม 8.58±2.27 cm. ใหญ่สุดเดือนกรกฎาคม 12.15±1.51 cm. (ลอบปูพื้นบ้าน)					
	ปูเล็กถึงตัวโตเต็มวัย (small-adult) 5.75-18.25 (10.98±1.83) cm. เล็กสุดเดือนกุมภาพันธ์ 10.10±1.65 cm. ใหญ่สุดเดือนมีนาคม 12.53±1.46 cm. (อวนจมนปู)					



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Fishing gears in Trat Province

ชนิดเครื่องมือ (Fishing gear)	แหล่งทำการประมง (Fishing ground)	ความลึกน้ำ (Depth)	ฤดูทำการประมง (Fishing season)	อัตราการจับ (Catch rate)	ขนาดที่จับได้ (Catch size)	ช่วงเวลาที่ศึกษา (Time studied)	แหล่งข้อมูล (Information source)
อวนลอยปลาทู Indo-Pacific mackerel drift gill net	ช่องเกาะช้าง-อำเภอกลองใหญ่ Chang Strait – KhlongYai District	3-13m	- ช่วงฤดูมรสุม ตะวันออกเฉียงเหนือ - ช่วงเปลี่ยนฤดูมรสุม - North-East Monsoon - Inter-Monsoon period	1.23±0.01 กก./ คืน (kg/net)(สูงสุด เดือน ธ.ค.)	10.00-21.50 (16.07±1.26) cm	Oct 2007-Dec 2008	Siri and Srikum (2012) <sup>(1)</sup>
โป๊ะไม้ไผ่ Bamboo stake trap	อ่าวตราด และช่อง เกาะช้าง Trat Bay and Chang Strait	5-8 m	ต.ค.-มี.ค. (Oct-Mar)	220.04±325.47 กก./ลูก(kg/trap) (สูงสุด เดือน ต.ค.)	9.00-21.00 (14.52±2.01) cm		Siri and Srikum (2012) <sup>(1)</sup>
อวนลอยปลาทู และโป๊ะไม้ไผ่ Indo-Pacific mackerel drift gill net and Bamboo stake trap	ช่องเกาะช้าง อ่าวตราดและอำเภอกลองใหญ่ Chang StraitTrat Bay and KhlongYai District	2-13 m	ม.ค.- ธ.ค. (Jan-Dec)		ตัวผู้ 13.1-21.7 (16.4±1.1) cm ตัวเมีย 13.0-21.2 (17.1±1.0) cm	Jan – Dec 2008	Khrueniam and Chareonsombat(2012) <sup>(2)</sup>
คราดหอย Short-necked clam dredge	ช่องเกาะช้าง Chang Strait	2-15 m.	ม.ค.- ธ.ค. (Jan-Dec)	337.2 กก./วัน (kg/day)	28.75-53.75(38.61±3.22) mm.	Jan – Dec 2013	Sinanun, Thongsila and Prasanya 2016 <sup>(3)</sup>
อวนลากแผ่นตะเภา Otter board trawler	อ่าวไทยฝั่งตะวันออก Eastern Gulf of Thailand		ม.ค.- ธ.ค. (Jan-Dec)	0.307 กก./ชม. (kg/hr.)	3.75-10.25 (6.55±1.14) cm.	Jan – Dec 2008	Sinanun and Pankaew(2012) <sup>(4)</sup>

ชนิดเครื่องมือ (Fishing gear)	แหล่งทำการประมง (Fishing ground)	ความลึกน้ำ (Depth)	ฤดูทำการประมง (Fishing season)	อัตราการจับ (Catch rate)	ขนาดที่จับได้ (Catch size)	ช่วงเวลาการศึกษา (Time studied)	แหล่งข้อมูล (Information source)
อวนลอยปลาหู Indo-Pacific mackerel gill nets	อำเภอแหลมงอบ, เมือง,คลองใหญ่,เกาะ ช้างและอำเภอเกาะกูด Laem Ngao, Muang, Klong Yai, Koh Chang and Koh Kood District	5-12 m.	ม.ค. - มิ.ย. (Jan-Jun)	0.42 กก./ความยาวอวน 100 ม.(kg/100-meter net) หรือ 7.07 กก./วัน (kg/day)	9.75-20.25 (16.29±0.47) cm.	Jan - Jun 2009	Suksumran, Siri and Tunvilai (2009) <sup>(5)</sup>
อวนลอยกุ้งสามชั้น shrimp trammel nets		2-12 m.		0.16 กก./ความยาวอวน 100 ม.(kg/100-meter net) หรือ 3.42 กก./วัน (kg/day)	7.25-22.75 (14.30±0.63) cm.		
อวนจับปู crab gill nets		4-25 m.		0.21 กก./ความยาวอวน 100 ม.(kg/100-meter net) หรือ 9.84 กก./วัน (kg/day)	7.25-17.75 (11.51±0.36) cm.		
ลอบปูแบบพับ collapsible crap traps		4-25 m.		0.26 กก./ลอบ10ลูก หรือ 13.96 กก./วัน	5.25-18.25 (10.80±0.62) cm.		
อวนลากแผ่นตะเภา ขนาดความยาวเรือ ต่ำกว่า 14 เมตร otter board trawler less than 14 m	จังหวัดตราด จันทบุรี และระยอง Trat, Chantaburi and Rayong Province	-	ม.ค.- ธ.ค. (Jan-Dec)	1.461 กก./ชม.(kg/hr)	4.75-16.75 (10.05±2.15) cm.	Jan-Dec 2009	Sinanun, Sinanun And Klomkleaw (2015) <sup>(6)</sup>
อวนรุน push net				1.820 กก./ชม. (kg/hr)	3.75-9.25 (9.86±1.68) cm.		
อวนรุน push net	ตลอดแนวชายฝั่ง บริเวณตำบลบางปิด เกาะช้างใต้ แหลมศอก ไปจนถึง อ่าวตราด - Trat Bay	3-13 m.	- ตลอดทั้งปี สูงสุด เดือนกุมภาพันธ์ - ตุลาคม	29.67 กก./วัน (kg/day)	5.50-21.00 (12.58±1.89) cm.	Jan-Dec 2010	Suksumran and Thongsila (2015) <sup>(7)</sup>
				24.42 กก./วัน (kg/day)	4.00-16.00 (10.15±1.65) cm.		

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Fisheries resources in Samui Island, Surat Thani Province

ชนิดสัตว์น้ำ (Species)	ช่วงวงจรชีวิต (Life cycle)	แหล่งที่พบ (Habitat site)	ช่วงเวลา ที่พบ (Time founded)	ช่วงเวลา ที่ศึกษา (Time studied)	แหล่งข้อมูล (Information source)	ขนาดเริ่ม สืบพันธุ์ (Size at first maturity)
ปลาสิกุลกระโดงดำ <i>Blackfin scad</i> ( <i>Alepes melanoptera</i> )	ปลาเล็กถึงโตเต็มวัย (small- adult) 8.25 – 25.25 (20.07 ± 5.15) cm. (จากอวนลากแผ่นตะเฆ่ขนาดตา อวนก้นถุง 40 มม.)	อำเภอเกาะสมุย จังหวัดสุราษฎร์ธานี KoSamuiDistrict, SuratThani Province	ตลอดทั้งปี (all the year)	Feb,Mar,May and Aug 2006	Sanitmajaro, Kongprom, Khongchai and Vibunpant <sup>(1)</sup>	
ปลาแป้น ( <i>Leiognathus splendens</i> )	ปลาเล็กถึงโตเต็มวัย (small- adult) 5.25-15.25 (9.81±0.79) cm. (จากอวนลากแผ่นตะเฆ่ขนาดตา อวนก้นถุง 40 มม.)					
	ปลาเล็กถึงโตเต็มวัย (small- adult) 5.25-11.25 (8.02±1.59) cm. (จากอวนคลุมก้นถุงขนาดตา อวน 25 มม.)					
กั้งตึกแดน Mantis shrimp	กั้งเล็กถึงโตเต็มวัย (small- adult) 4.25-22.25 (12.92±2.61) cm. (จากอวนลากแผ่นตะเฆ่ขนาดตา อวนก้นถุง 40 มม.)					
	กั้งเล็กถึงโตเต็มวัย (small- adult) 4.25-13.75 (7.91±1.68) cm. (จากอวนคลุมก้นถุงขนาดตา อวน 25 มม.)					
กั้งตะกาด <i>Jinga Shrimp</i> ( <i>Metapenaeus affinis</i> )	กั้งเล็กถึงวัยเจริญพันธุ์ (small- mature) 72.0-160.0 (116.3±0.30) cm. (จากอวนลากแผ่นตะเฆ่ขนาด เล็กและอวนลอยกึ่งสามชั้น)	เกาะสมุย – เกาะกระ Ko Samui - Ko Kra	ตลอดทั้งปี (all the year)	Jan – Dec 2009	Sritakon, Vibunpant, Chotitammo and Songnui <sup>(2)</sup>	121.8 mm.

References:

- Wirat Sanitmajaro, Amnuay Kongprom, Narongsak Khongchai and Kingkarn Vibunpant. 2007 Marine Resources Caught by Fishery Research Vessel in the Southern Gulf of Thailand, 2006. Technical Paper No. 12/2007. Marine Fisheries Research and Development Bureau, Department of Fisheries, Ministry of Agriculture and Cooperatives. 54 pp. (In Thai)
- Thanate Sritakon, Somchai Vibunpant, Utit Chotitammo and Utit Chotitammo. 2012 Biology of Jinga Shrimp (*Metapenaeus affinis* H. Milne Edwards, 1837) from Ko Samui to Ko Kra. Technical Paper No. 12/2012. Marine Fisheries Research and Development Bureau, Department of Fisheries, Ministry of Agriculture and Cooperatives. 22 pp. (In Thai)

## ANNEX 8

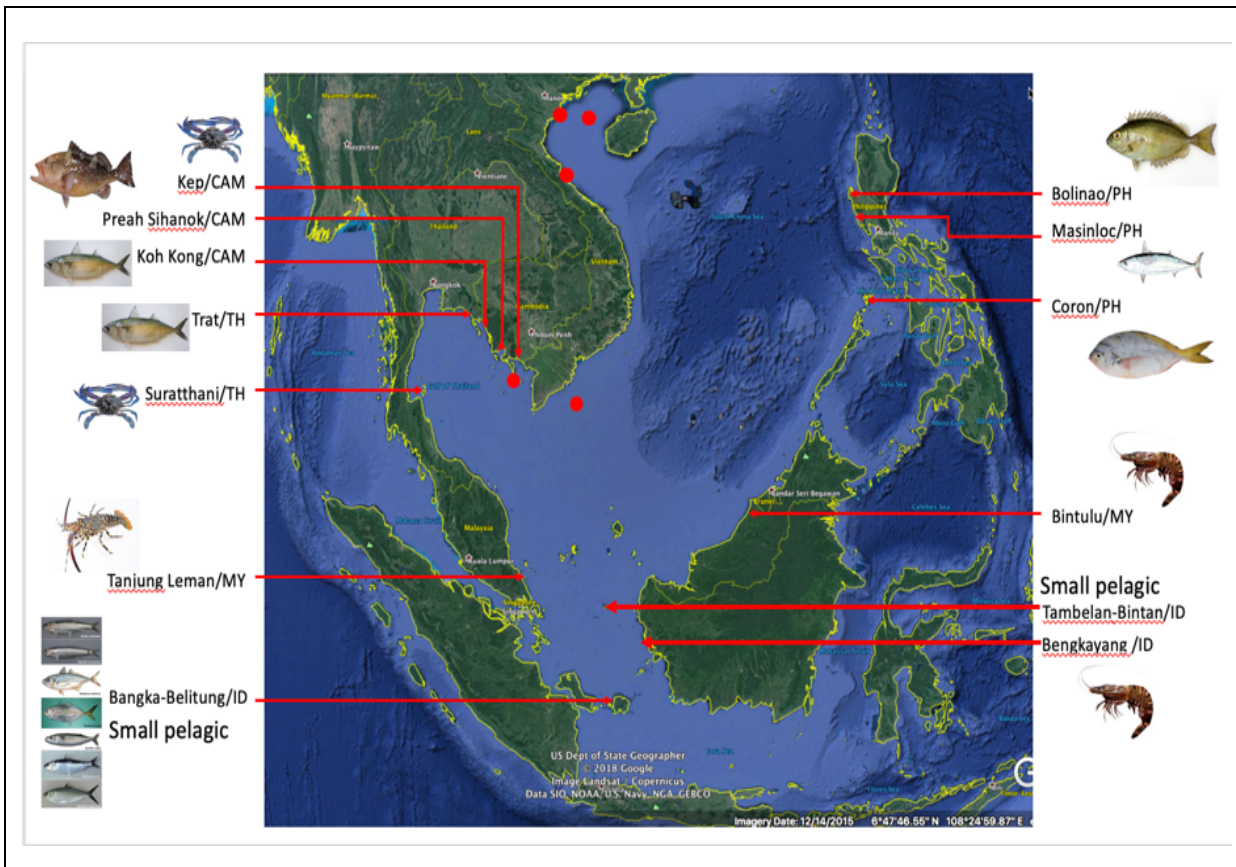
### Proposed Revision of National Workplan and Selected Fisheries Refugia Sites

#### I. Revision of National Workplan and Timeframe

This paper aims to introduce the initial workplan and timetable based on the Project Cooperation Agreement between UNEP and SEAFDEC signed in March 2016. However, the LOA between SEAFDEC and participating six Countries have signed since January 2017 till present there were four countries namely Cambodia, Malaysia, Philippines and Thailand. It is expected that the remaining two countries, namely Indonesia and Viet Nam will be signed on the LOA or LOI within 2018. In this connection, the initial workplan and timetable for countries implementation is required for adjustment based upon the individual country initiatives. It is expected that the country workplan will be revised within the time frame from 2017 to 2020 and submitted to the PCU for further documentations for endorsement by the 1<sup>st</sup> Project Steering Committee. The revised workplan and timeframe of each participating country are shown as following tables.

#### II. The selected Fisheries Refugia Site

Refers to progress report as appeared in the Annex 7 of the 1<sup>st</sup> Meeting of Regional Scientific and Technical Committee, a total of 16 selected fisheries refugia in 5 countries namely Cambodia (3), Indonesia (3), Malaysia (2), Philippines (3), and Thailand (2) as shown in Figure 8.1. Viet Nam proposed 3 fisheries refugia sites, but there is no update or confirm yet on the selected species similar to Indonesia. The selected fisheries refugia and target species at each site will be updated again to the PSC1 for consideration.



**TABLE 8.1: REVISED WORK PLAN AND TIMETABLE FOR MALAYSIA**

**Table 8.1 (a)** Work plan and timetable for national level activities of Component 1 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Malaysia

Activity Description	Year 1 (2017)				Year 2 (2018)				Year 3 (2019)				Year 4 (2020)				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
<b>COMPONENT 1: Identification and management of fisheries and critical habitat linkages at 3 priority fisheries refugia in Malaysia</b>																	
<b>1.1</b>	<b>Developing fisheries and coastal habitat information and data collection programmes for (1) Tg. Leman, Johor and (2) Kuala Baram, Sarawak</b>																
1.1.1.	Review existing information and data on fisheries and coastal habitats at sites, including needs					■	■										
1.1.2.	Consultation workshops to secure community and fisherfolk support in information and data collection						■										
1.1.3.	Design and conduct site-based survey to produce fisheries and habitat profile report for 2 sites						■	■									
1.1.4.	Design and conduct fisheries surveys at the 2 sites and submit data to a national online database					Design Phase				■	■	■	■	■	■	■	
<b>1.2</b>	<b>Facilitating agreement among stakeholders on the boundaries of fisheries refugia at the (1) Tg. Leman, Johor and (2) Kuala Baram, Sarawak sites</b>																
1.2.1.	Conduct consultations (including at-sea) to draft maps of fisheries refugia for priority species									■	■						
1.2.2.	Prepare maps for 2 refugia and elicit fisherfolk input to boundary delineation through consultation											■					
1.2.3.	Conduct assessment of environmental and social impacts of designation of sites as refugia											■					
1.2.4.	Secure formal municipal/local government designation of site as fisheries refugia							■		■			■				
<b>1.3</b>	<b>Developing Community-Based Management Plans for the (1) Tg. Leman, Johor and (2) Kuala Baram, Sarawak sites</b>																
1.3.1.	Consultations to identify key threats to fisheries refugia sites and identify management measures							■	■	■		■					
1.3.2.	Management plans for 2 sites developed through community-based consultations											■	■	■			
1.3.3.	Regulations/rules required for refugia management drafted with fisherfolk and local authorities												■				
1.3.4.	Management plans adopted by local authorities and regulatory reforms enacted													■			
<b>1.4</b>	<b>Establishing operational management for the (1) Tg. Leman, Johor and (2) Kuala Baram, Sarawak sites</b>																
1.4.1.	Establish management teams and a site-based volunteer network at 2 sites											■	■				
1.4.2.	Conduct practical capacity building programme for management volunteers at 2 sites											■	■	■			
1.4.3.	Coordinate monthly training and awareness activities at 2													■	■	■	

	sites, including pilot mgmt activities																		
1.4.4	Develop and implement collaborative observer and enforcement programme for management plan																		
<b>1.5</b>	<b>Strengthening civil society and community organization participation in the management of fisheries <i>refugia</i> sites</b>																		
1.5.1	Support local GEF Small Grant Programme proponents in design and execution of projects																		
1.5.2	Document and share examples of best practice																		

**Table 8.1 (B)** Work plan and timetable for national level activities of Component 2 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Malaysia

	Activity Description	Year 1 (2017)				Year 2 (2018)				Year 3 (2019)				Year 4 (2020)					
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
<b>COMPONENT 2: Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries refugia management in Malaysia</b>																			
<b>2.1</b>	<b>Enhancing policy guidance for improved management of the effects of fishing on critical habitats</b>																		
2.1.1	Identify and document key threats from fishing and the environment to fish stock and critical habitat linkages																		
2.1.2	Formulate recommendations on policy and legal reforms to support promotion of responsible fishing																		
2.1.3	Facilitate consultations with fisheries industry and competent authorities on policy reforms																		
2.1.4	National policy reform to promote fisheries sector's sustainable use of fish habitats and biodiversity																		
<b>2.2</b>	<b>Defining the policy and legal basis for formal designation and establishment of fisheries <i>refugia</i> in Malaysia</b>																		
2.2.1	Review of policy and legal aspects on <i>refugia</i> (terminology, procedures, recommended reforms)																		
2.2.2	National expert consultation to formulate agreed recommendations for policy and legal reforms																		



<b>2.3</b>	<b>Development of national guidelines on the establishment and operation of fisheries <i>refugia</i></b>																		
2.3.1	Draft national guidelines (based 2.1.2) on procedures for formal designation and mgmt of fisheries <i>refugia</i>																		
2.3.2	National and local consultative process to elicit stakeholder input to the draft guidelines																		
2.3.3	Amend and finalise the guidelines for approval by National Fisheries <i>Refugia</i> Committee and Secretary																		
<b>2.4</b>	<b>Reforming national policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i></b>																		
2.4.1	Based on 2.1.2 & 2.1.3, draft required policy and legal reforms to support <i>refugia</i> establishment and mgmt																		
2.4.2	Convene national and local stakeholder consultations to review and provisional text for adoption																		
2.4.3	Facilitate approval and formal adoption of reforms by the authorities at national and provincial levels																		
2.4.4	Develop National Action Plan for the management of <i>refugia</i> on the SCS coast of Malaysia																		
<b>2.5</b>	<b>Enhancing access to information relating to status and trends in fish stocks and their habitats in Malaysia waters of the SCS</b>																		
2.5.1	Compile information and data derived from abundance surveys for longer-term management																		
2.5.2	Compile information and data derived from surveys on size-frequency of priority species																		
2.5.3	Compile information and data on landings of priority species (volume/value, fishing areas and gears)																		
2.5.4	Produce annual syntheses reports of new and additional information for national and regional review																		



**Table 8.1 (C)** Work plan and timetable for national level activities of Component 3 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Malaysia

Activity Description	Year 1 (2017)				Year 2 (2018)				Year 3 (2019)				Year 4 (2020)			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 3: Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Malaysia</b>																
<b>3.1</b>	<b>Enhancing national uptake of best practices in integrating fisheries management and biodiversity conservation</b>															
3.1.1.	Quarterly capture and documentation of best practices in the establishment and operation of fisheries refugia															
3.1.2	Online catalogue of best practices approaches and measures developed and updated each 6 months															
3.1.3	6 monthly development of communications on best practices for dissemination and syndication															
<b>3.2</b>	<b>Improving community acceptance of area based approaches to marine management</b>															
3.2.1	Produce locally appropriate public awareness and outreach materials to promote local social, economic and environmental benefits of fisheries refugia															
3.2.2	In connection with activity 1.4.3, implement targeted annual outreach programmes at priority communities															
3.2.3	Benchmark and annually track community acceptance of <i>refugia</i> approach as a marine spatial planning tool															
<b>3.3</b>	<b>Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally</b>															
3.3.1	Establish and operate national web portal for knowledge management on fisheries refugia															
3.3.2	Prepare and publish one GEF International Waters Experience Note on application of refugia approach															

**Table 8.1 (D)** Work plan and timetable for national level activities of Component 4 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Malaysia

	Activity Description	Year 1 (2017)				Year 2 (2018)				Year 3 (2019)				Year 4 (2020)			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 4: National coordination for integrated fish stock and critical habitat management in Malaysia</b>																	
<b>4.1</b>	<b>Strengthened cross-sectoral coordination in the establishment and operation of fisheries refugia in Malaysia</b>																
4.1.1	Develop and agree ToR, membership & operational rules for National Fisheries <i>Refugia</i> Committee																
4.1.2	Establish and convene quarterly meetings of the National Fisheries <i>Refugia</i> Committee (NFRC)																
4.1.3	NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders																
4.1.4	National NFRC inputs to mid-term review and terminal evaluation of national & regional aspects of project																
<b>4.2</b>	<b>Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries <i>refugia</i></b>																
4.2.1	Establish and convene 6 monthly meetings of the National Technical Working Group																
4.2.2	Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3																
<b>4.3</b>	<b>Catalyzing local community action via establishment and operation of site-based management boards at 2 priority <i>refugia</i> sites</b>																
4.3.1	Review governance arrangements at each site to identify required ToR and membership of site-based management boards, including links to other local planning bodies																
4.3.2	Establish and convene quarterly meetings of site-based management boards																
4.3.3	Preparation of quarterly work plans & progress and financial reports on activities at each site																

	Tg. Leman, Johor Site
	Kuala Baram, Sarawak Site

**TABLE 8.2 : REVISED WORK PLAN AND TIMETABLE FOR THAILAND**

**TABLE 8.2 (A)** Work plan and timetable for national level activities of Component 1 of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in Thailand

	Activity Description	2017				2018				2019				2020				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
<b>COMPONENT 1: Identification and management of fisheries and critical habitat linkages at 3 priority fisheries <i>refugia</i> in Thailand</b>																		
<b>1.1</b>	<b>Developing fisheries and coastal habitat information and data collection programmes for the Chang Strait and Mu Koh Samui sites</b>																	
1.1.1.	Review existing information and data on fisheries and coastal habitats at sites, including needs																	
1.1.2	Consultation workshops to secure community and fishermen support in information and data collection																	
1.1.3	Design and conduct site-based survey to produce fisheries and habitat profile report for 2 sites																	
1.1.4	Conduct fisheries surveys at the 2 sites and submit data to a national online database																	
<b>1.2</b>	<b>Facilitating agreement among stakeholders on the boundaries of fisheries <i>refugia</i> at the Chang Strait and Mu Koh Samui sites</b>																	
1.2.1	Conduct consultations (including at-sea) to draft maps of fisheries <i>refugia</i> for priority species																	
1.2.2	Prepare maps for <del>3</del> 2 <i>refugia</i> and elicit fishermen input to boundary delineation through consultation																	
1.2.3	Conduct assessment of environmental and social impacts of designation of sites as <i>refugia</i>																	
1.2.4	Secure formal municipal/local government designation of site as fisheries <i>refugia</i>																	
<b>1.3</b>	<b>Developing Community-Based Management Plans for the Chang Strait and Mu Koh Samui sites</b>																	
1.3.1	Consultations to identify key threats to fisheries <i>refugia</i> sites and identify management																	

	measures																	
1.3.2	Management plans for 2 sites developed through community-based consultations																	
1.3.3	Regulations/rules required for <i>refugia</i> management drafted with fishermen and local authorities																	
1.3.4	Management plans adopted by local authorities and regulatory reforms enacted																	
<b>1.4</b>	<b>Establishing operational management for the Chang Strait and Mu Koh Samui sites</b>																	
1.4.1	Establish management teams and a site-based volunteer network at 2 sites																	
1.4.2	Conduct practical capacity building programme for management volunteers at 2 sites																	
1.4.3	Coordinate monthly training and awareness activities at 2 sites, including pilot mgmt activities																	
1.4.4	Develop and implement collaborative observer and enforcement programme for management plan																	
<b>1.5</b>	<b>Strengthening civil society and community organization participation in the management of fisheries <i>refugia</i> sites</b>																	
1.5.1	Support local GEF Small Grant Programme proponents in design and execution of projects																	
1.5.2	Document and share examples of best practice																	

**TABLE 8.2 (B)** Work plan and timetable for national level activities of Component 2 of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in Thailand

	Activity Description	2017				2018				2019				2020				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
<b>COMPONENT 2: Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in Thailand</b>																		
<b>2.1</b>	<b>Enhancing policy guidance for improved management of the effects of fishing on critical habitats</b>																	
2.1.1	Identify and document key threats from fishing and the environment to fish stock and critical habitat linkages																	

2.1.2	Formulate recommendations on policy and legal reforms to support promotion of responsible fishing																
2.1.3	Facilitate consultations with fisheries industry and competent authorities on policy reforms																
2.1.4	National policy reform to promote fisheries sector's sustainable use of fish habitats and biodiversity																
<b>2.2</b>	<b>Defining the policy and legal basis for formal designation and establishment of fisheries <i>refugia</i> in Thailand</b>																
2.2.1	Review of policy and legal aspects on <i>refugia</i> (terminology, procedures, recommended reforms)																
2.2.2	National expert consultation to formulate agreed recommendations for policy and legal reforms																
<b>2.3</b>	<b>Development of national guidelines on the establishment and operation of fisheries <i>refugia</i></b>																
2.3.1	Draft national guidelines (based 2.1.2) on procedures for formal designation and mgmt of fisheries <i>refugia</i>																
2.3.2	National and local consultative process to elicit stakeholder input to the draft guidelines																
2.3.3	Amend and finalise the guidelines for approval by National Fisheries <i>Refugia</i> Committee and Secretary																
<b>2.4</b>	<b>Reforming national policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i></b>																
2.4.1	Based on 2.1.2 & 2.1.3, draft required policy and legal reforms to support <i>refugia</i> establishment and mgmt																
2.4.2	Convene national and local stakeholder consultations to review and provisional text for adoption																
2.4.3	Facilitate approval and formal adoption of reforms by the authorities at national and provincial levels																





	of habitats; known spawning areas; locations of <i>refugia</i> ; MPAs; fisheries management areas; critical habitats for endangered species																
2.7.2	Prepare annual synthesis of new and additional information included in database (2.7.1)																
<b>2.8</b>	<b>Strengthening the information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites</b>																
2.8.1	Based on 1.1.4, produce detailed site characterizations for the 2 priority fisheries <i>refugia</i> sites for incorporation in national and regional datasets																

**Table 8.2 (c)** Work plan and timetable for national level activities of Component 3 of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in Thailand

	Activity Description	2017				2018				2019				2020			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 3: Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Thailand</b>																	
<b>3.1</b>	<b>Enhancing national uptake of best practices in integrating fisheries management and biodiversity conservation</b>																
3.1.1.	Quarterly capture and documentation of best practices in the establishment and operation of fisheries <i>refugia</i>																
3.1.2	Online catalogue of best practices approaches and measures developed and updated each 6 months																
3.1.3	6 monthly development of communications on best practices for dissemination and syndication																
<b>3.2</b>	<b>Improving community acceptance of area based approaches to marine management</b>																
3.2.1	Produce locally appropriate public awareness and outreach materials to promote local social, economic and environmental benefits of fisheries <i>refugia</i>																
3.2.2	In connection with activity 1.4.3, implement targeted annual outreach programmes at priority communities																

3.2.3	Benchmark and annually track community acceptance of <i>refugia</i> approach as a marine spatial planning tool																
<b>3.3</b>	<b>Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally</b>																
3.3.1	Establish and operate national web portal for knowledge management on fisheries <i>refugia</i>																
3.3.2	Prepare and publish one GEF International Waters Experience Note on application of <i>refugia</i> approach																

**Table 8.2 (D)** Work plan and timetable for national level activities of Component 4 of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in Thailand

	Activity Description	2017				2018				2019				2020			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 4: National coordination for integrated fish stock and critical habitat management in Thailand</b>																	
<b>4.1</b>	<b>Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Thailand</b>																
4.1.1	Develop and agree ToR, membership & operational rules for National Fisheries <i>Refugia</i> Committee																
4.1.2	Establish and convene quarterly meetings of the National Fisheries <i>Refugia</i> Committee (NFRC)																
4.1.3	NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders																
4.1.4	National NFRC inputs to mid-term review and terminal evaluation of national and regional aspects of project																
<b>4.2</b>	<b>Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries <i>refugia</i></b>																
4.2.1	Establish and convene 6 monthly meetings of the National Scientific and Technical Committee																
4.2.2	Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3																

<b>4.3</b>	<b>Catalyzing local community action via establishment and operation of site-based management boards at 3 priority <i>refugia</i> sites</b>															
4.3.1	Review governance arrangements at each site to identify required ToR and membership of site-based management boards, including links to other local planning bodies															
4.3.2	Establish and convene quarterly meetings of site-based management boards															
4.3.3	Preparation of quarterly work plans and progress and financial reports on activities at each site															

**TABLE 8.3 (A) : REVISED WORK PLAN AND TIMETABLE FOR PHILIPPINES**

(A). Workplan and Timeframe for national level activities of **Component 1** of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in the Philippines

Activity Description	2017				2018				2019				2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 1: Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in the South China Sea</b>																
<b>1.1</b>	<b>Developing fisheries and coastal habitat information and data collection programmes for 3 priority fisheries <i>refugia</i> sites (underpins Outcome 3.5)</b>															
1.1.1.	Review existing information and data on fisheries and coastal habitats, including needs for management interventions identified															
1.1.2.	National consultation workshops to secure community and fisherfolk support in information & data collection															
1.1.3.	Design and conduct site-based surveys to produce fisheries and habitat profile report for 3 sites															
1.1.4.	Design and conduct fisheries surveys at 3 sites and submit data to a national online database															
		<b>Design Phase</b>														
<b>1.2</b>	<b>Facilitating agreement among stakeholders on the boundaries of fisheries <i>refugia</i> at the Calamianes Islands, Bolinao, and Masinloc sites</b>															
1.2.1.	Conduct consultations (including at-sea) to draft maps of fisheries <i>refugia</i> for priority species at 3 sites															
1.2.2.	Prepare maps for 3 <i>refugia</i> and elicit fisherfolk input to boundary delineation through consultation															
1.2.3.	Conduct assessment of environmental and social impacts of <i>refugia</i> designation at 3 locations															
1.2.4.	Secure formal municipal/local government designation of sites as fisheries <i>refugia</i> at 3 priority locations															
<b>1.3</b>	<b>Developing Community-Based Management Plans for the Calamianes Islands, Bolinao, and Masinloc sites</b>															
1.3.1.	Consultations to identify key threats to fisheries															

	<i>refugia</i> sites and identify management measures																	
1.3.2	Management plans for 3 sites developed through community-based consultations																	
1.3.3	Regulations/rules required for <i>refugia</i> management drafted with fisherfolk and local authorities																	
1.3.4	Management plans adopted by local authorities and regulatory reforms enacted																	
<b>1.4</b>	<b>Establishing operational management for the Calamianes Islands, Bolinao, and Masinloc sites</b>																	
1.4.1	Establish management teams and site-based volunteer networks at 3 sites																	
1.4.2	Conduct practical capacity building programme for management volunteers at 3 sites																	
1.4.3	Coordinate monthly training and awareness activities at 3 sites, including pilot mgmt activities																	
1.4.4	Develop and implement collaborative observer and enforcement programmes for management plan implementation at 3 sites																	
<b>1.5</b>	<b>Strengthening civil society and community organization participation in the management of fisheries <i>refugia</i> sites</b>																	
1.5.1	Support local GEF Small Grant Programme proponents in design and execution of projects																	
1.5.2	Document and share examples of best practice at regional and national levels in the 6 countries																	

**(B)** Work plan and timetable for national level activities of **Component 2** of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in the Philippines

Activity Description	2017				2018				2019				2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 2: Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in the South China Sea</b>																
<b>2.1</b>	<b>Enhancing policy guidance for improved management of the effects of fishing on critical habitats in the 6 participating countries</b>															

2.1.1	Identify and document key threats from fishing and the environment to fish stock and critical habitat linkages at 3 priority sites																
2.1.2	Formulate recommendations on policy and legal reforms to support promotion of responsible fishing at 3 priority sites																
2.1.3	Facilitate consultations with fisheries industry and competent authorities on policy reforms for responsible fishing gear and practices in the participating countries																
2.1.4	National policy reform to promote fisheries sector's sustainable use of fish habitats and biodiversity																
<b>2.2</b>	<b>Defining the policy and legal basis for formal designation and establishment of fisheries <i>refugia</i> in the 6 participating countries</b>																
2.2.1	Reviews of policy and legal aspects on <i>refugia</i> (terminology, procedures, recommended reforms)																
2.2.2	National expert consultations to formulate agreed recommendations for policy and legal reforms																
<b>2.3</b>	<b>Development of national guidelines on the establishment and operation of fisheries <i>refugia</i> and reflected in an updated regional <i>refugia</i> action plan</b>																
2.3.1	Draft national guidelines (based on 2.1.2) on procedures for formal designation and mgmt of fisheries <i>refugia</i>																
2.3.2	National and local consultative process to elicit stakeholder input to the draft guidelines																
2.3.3	Amend and finalise national guidelines for approval by National Fisheries <i>Refugia</i> Committee & Secretary																
2.3.4	Draft regional <i>refugia</i> action plan																
<b>2.4</b>	<b>Reforming national and regional policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i></b>																
2.4.1	Based on 2.1.2 & 2.1.3, draft required																

	policy and legal reforms to support <i>refugia</i> establishment and mgmt																
2.4.2	Convene national and local stakeholder consultations to review draft text for adoption in 6 countries																
2.4.3	Facilitate approval and formal adoption of reforms by the authorities at national and provincial levels for 3 priority sites in 6 countries																
2.4.4	Develop Regional Action Plan for the management of <i>refugia</i> in coastal areas of the South China Sea																
<b>2.5</b>	<b>Enhancing access to information relating to status and trends in fish stocks and their habitats in waters of the SCS marine basin</b>																
2.5.1	Compile information and data derived from abundance surveys for longer-term management																
2.5.2	Compile information and data derived from surveys on size-frequency of priority species																
2.5.3	Compile information and data on landings of priority species (volume/value, fishing areas and gears) in South China Sea waters of the																
2.5.4	Produce annual syntheses reports of new and additional information for national and regional review																
2.5.5	Revise national reports on fish stocks and habitats in the South China Sea for each 6 participating countries																
<b>2.6</b>	<b>Improved national and regional-level management and sharing of information and data on fish early life history in the waters of the SCS</b>																
2.6.1	Prepare national of fish egg and larvae samples collected from Philippine waters (both analysed and unanalysed)																
2.6.2	Develop and maintain a national database																

	of fish egg and larval fish distribution and abundance																		
2.6.3	Convene annual one-day workshop to monitor the implementation of national programmes for the processing/analysis of fish egg and larvae samples																		
2.6.4	Prepare annual status reports on fish early life history research for consideration regionally																		
<b>2.7</b>	<b>Enhancing access to information relating to the locations and status of coastal habitats and management areas in the SCS</b>																		
2.7.1	Compile and update information and data a National Google Earth based GIS on: distribution of habitats; known spawning areas; locations of <i>refugia</i> ; MPAs; fisheries management areas; critical habitats for endangered species																		
2.7.2	Prepare annual synthesis of new and additional information included in databases (2.7.1)																		
<b>2.8</b>	<b>Strengthening the information base for the planning, monitoring and evaluation of management at 3 priority fisheries <i>refugia</i> sites</b>																		
2.8.1	Based on 1.1.4, produce detailed site characterizations for the 3 priority fisheries <i>refugia</i> sites for incorporation into national and regional datasets																		
<b>2.9</b>	<b>Improved basin-wide understanding of linkages between ocean circulation patterns, nutrient/chlorophyll concentrations, and sources and sinks of fish larvae in the South China Sea</b>																		
2.9.1	Development of modelling system linking oceanographic, biochemical, and fish early life history information developed applied to improve regional understanding of fish early life history and links to critical habitats																		
2.9.2	Publication of report on application of modelling system in identifying priority locations for replication and scaling-up of																		



	fisheries <i>refugia</i> best practices																
<b>2.10</b>	<b>Regionally and locally appropriate best practices generated to address the effects of trawl and push net fishing on seagrass habitat, and the capture of juveniles, pre-recruits and fish in spawning condition</b>																
2.10.1	Best practice fishing methods and practices to address key threats to fish stock and critical habitat linkages demonstrated at priority <i>refugia</i>																

**(C)** Work plan and timetable for national level activities of **Component 3** of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in the Philippines

Activity Description	2017				2018				2019				2020				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
<b>COMPONENT 3: Information Management and Dissemination in support of national and regional-level implementation of the fisheries <i>refugia</i> concept in the South China Sea</b>																	
<b>3.1</b>	<b>Enhancing uptake of best practices in integrating fisheries management and biodiversity conservation in the 6 participating countries</b>																
3.1.1	Quarterly capture and documentation of best practices in the establishment and operation of fisheries <i>refugia</i> in the 6 participating countries																
3.1.2	Online catalogue of best practices approaches and measures developed and updated each 6 months																
3.1.3	6 monthly development of communications on best practices for dissemination and syndication, both nationally and regionally																
<b>3.2</b>	<b>Improving community acceptance of area based approaches to marine management in the 6 participating countries</b>																
3.2.1	Produce locally appropriate public awareness and outreach materials to promote local social, economic and environmental benefits of fisheries <i>refugia</i>																
3.2.2	In connection with activity 1.4.3, implement targeted annual outreach programmes at priority communities at the 3 sites in the SCS																
3.2.3	Benchmark and annually track community acceptance of <i>refugia</i> approach as a marine																

	spatial planning tool																	
<b>3.3</b>	<b>Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally</b>																	
3.3.1	Establish and operate national and regional web portals for knowledge management on fisheries <i>refugia</i>																	
3.3.2	Prepare and publish 1 GEF International Waters Experience Note on application of <i>refugia</i> approach at the national level																	
<b>3.4</b>	<b>Information and Education Campaigns for small-scale fisherfolk on the links between fisheries, habitats and biodiversity coordinated regionally through a Regional Education and Awareness Centre</b>																	
3.4.1	Establishment of Regional Education and Awareness Centre on fisheries and critical habitats																	
3.4.2	Production and regional-level sharing of information and education materials for <i>refugia</i> management																	
<b>3.5</b>	<b>Standardised methods for collection and analysis of information and data for use in assessing impacts of <i>refugia</i> and design appropriate indicators for the longer-term operation of the regional system of fisheries <i>refugia</i> (underpinned by information and data collection programmes of Component 1)</b>																	
3.5.1	Develop standardised information and data collection procedures in support of longer-term operation of a regional system of fisheries <i>refugia</i> ,																	
3.5.2	Regional consultation to agree on stress reduction and environmental state indicators for managed <i>refugia</i>																	

**(D)** Work plan and timetable for project component 4

		2017				2018				2019				2020				
	Activity Description	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
<b>COMPONENT 4: National cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea</b>																		
<b>4.1</b>	<b>Strengthened cross-sectorial coordination in the establishment and operation of fisheries <i>refugia</i> in the participating countries</b>																	
4.1.1	Develop and agree ToR, membership &																	

	operational rules for National Fisheries <i>Refugia</i> Committee																
4.1.2	Establish and convene quarterly meetings of the National Fisheries <i>Refugia</i> Committee (NFRC) (or equivalent) for 6 participating countries																
4.1.3	NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders																
4.1.4	National NFRC inputs to mid-term review and terminal evaluation of national and regional aspects of project																
<b>4.2</b>	<b>Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries <i>refugia</i></b>																
4.2.1	Establish and convene 6 monthly meetings of the National Scientific and Technical Committee (or equivalent)																
4.2.2	Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3 led by National Lead Agencies in each of 6 participating countries																
<b>4.3</b>	<b>Catalyzing local community action via establishment and operation of site-based management boards at 3 priority <i>refugia</i> sites</b>																
4.3.1	Review governance arrangements at each site to identify required ToR and membership of site-based management boards, including links to other local planning bodies																
4.3.2	Establish and convene quarterly meetings of site-based management boards at the 3 sites																
4.3.3	Preparation of quarterly work plans and progress and financial reports on activities at each of the 3 sites																
4.6.1	Establishment and operation of the regional Project Coordinating Unit, including appointment & retention of a Project Director																

TABLE 8.4: REVISED WORK PLAN AND TIMETABLE FOR CAMBODIA

(a): Workplan and Timetable of National Level Activities for Component 1

	Activity Description	2017				2018				2019				2020			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Component1: Identification and management of fisheries and critical habitat linkages at 3 fisheries <i>refugia</i> sites in Cambodia</b>																	
<b>1.1</b>	<b>Developing fisheries and coastal habitat information and data collection programmes</b>																
1.1.1	Review existing information and data on fisheries and coastal habitats at sites, including needs																
1.1.2	Consultation workshops to secure community and fisherfolk support in information and data collection																
1.1.3	Design and conduct site-based survey to produce fisheries and habitat profile report for 3 sites																
1.1.4	Conduct fisheries surveys at the 03 sites and submit data to a national online database																
<b>1.2</b>	<b>Facilitating agreement among stakeholder on the boundary of fisheries <i>refugia</i> at Kep, Koh Kong , and Kampot provinces</b>																
1.2.1	Conduct consultations (including at-sea) to draft maps of fisheries <i>refugia</i> for priority species																
1.2.2	Prepare maps for 3 <i>refugia</i> and elicit fisherfolk input to boundary delineation through consultation																
1.2.3	Conduct assessment of environmental and social impacts of designation of sites as <i>refugia</i>																
1.2.4	Secure formal municipal/local government designation of site as fisheries <i>refugia</i>																
<b>1.3</b>	<b>Developing Community-Based Management Plans for Fisheries <i>refugia</i> sites at Kep, Koh Kong, and Kampot provinces</b>																
1.3.1	Consultations to identify key threats to fisheries <i>refugia</i> sites and identify management measures																
1.3.2	Management plans for 3 sites developed through community-based consultations																

1.3.3	Regulations/rules required for <i>refugia</i> management drafted with fisherfolk and local authorities																						
1.3.4	Management plans adopted by local authorities and regulatory reforms enacted																						
1.4	<b>Establishing operational management for Fisheries refugia sites at Kep, Koh Kong, and Kampot</b>																						
1.4.1	Establish management teams and a site-based volunteer network at 3 sites																						
1.4.2	Conduct practical capacity building programme for management volunteers at 3 sites																						
1.4.3	Coordinate monthly training and awareness activities at 3 sites, including pilot mgmt activities																						
1.4.4	Develop and implement collaborative observer and enforcement programme for management plan																						
1.5	<b>Strengthening civil society and community organization participation in the management of fisheries <i>refugia</i> sites</b>																						
1.5.1	Support local GEF Small Grant Programme proponents in design and execution of projects																						
1.5.2	Document and share examples of best practice																						

**(b): Workplan and Timetable of National Level Activities for Component 2.**

	Activity Description	2017				2018				2019				2020									
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4						
<b>COMPONENT 2: Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in Cambodia</b>																							
2.1	<b>Enhancing policy guidance for improved management of the effects of fishing on critical habitats</b>																						
2.1.1	Identify and document key threats from fishing and the environment to fish stock and critical habitat linkages																						
2.1.2	Formulate recommendations on policy and legal reforms to support promotion of responsible fishing																						
2.1.3	Facilitate consultations with fisheries industry and competent authorities on policy reforms																						

2.1.4	National policy reform to promote fisheries sector's sustainable use of fish habitats and biodiversity																		
2.2	<b>Defining the policy and legal basis for formal designation and establishment of fisheries <i>refugia</i> in Cambodia</b>																		
2.2.1	Review of policy and legal aspects on <i>refugia</i> (terminology, procedures, recommended reforms)																		
2.2.2	National expert consultation to formulate agreed recommendations for policy and legal reforms																		
2.3	<b>Development of national guidelines on the establishment and operation of fisheries <i>refugia</i></b>																		
2.3.1	Draft national guidelines (based 2.1.2) on procedures for formal designation and mgmt of fisheries <i>refugia</i>																		
2.3.2	National and local consultative process to elicit stakeholder input to the draft guidelines																		
2.3.3	Amend and finalise the guidelines for approval by National Fisheries <i>Refugia</i> Committee and Secretary																		
2.4	<b>Reforming national policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i></b>																		
2.4.1	Based on 2.1.2 & 2.1.3, draft required policy and legal reforms to support <i>refugia</i> establishment and management																		
2.4.2	Convene national and local stakeholder consultations to review and provisional text for adoption																		
2.4.3	Facilitate approval and formal adoption of reforms by the authorities at national and provincial levels																		
2.4.4	Develop National Action Plan for the management of <i>refugia</i> on the SCS coast of Cambodia																		
2.5	<b>Enhancing access to information relating to status and trends in fish stocks and their habitats in Cambodian waters of the SCS</b>																		
2.5.1	Compile information and data derived from abundance surveys for longer-term management																		
2.5.2	Compile information and data derived from surveys on size-frequency of priority species																		
2.5.3	Compile information and data on landings of priority species (volume/value, fishing areas and gears)																		

2.5.4	Produce annual syntheses reports of new and additional information for national and regional review																		
2.5.5	Revise national report on fish stocks and habitats in Cambodia waters of the South China																		
2.6	<b>Improving national-level management and sharing of information and data on fish early life history in Cambodian waters of the SCS</b>																		
2.6.1	Prepare a national inventory of fish egg and larvae samples collected from [insert country name] waters (both analysed and unanalysed)																		
2.6.2	Develop and maintain a national database of fish egg and larval fish distribution and abundance																		
2.6.3	Convene an annual one-day workshop to monitor the implementation of national programmes for the processing/analysis of fish egg and larvae samples																		
2.6.4	Prepare an annual status report on fish early life history research for consideration regionally																		
2.7	<b>Enhancing access to information relating to the locations and status of coastal habitats and management areas in Cambodian waters of the SCS</b>																		
2.7.1	Compile and update information and data in a National Google Earth based GIS on: distribution of habitats; known spawning areas; locations of <i>refugia</i> ; MPAs; fisheries management areas; critical habitats for endangered species																		
2.7.2	Prepare annual synthesis of new and additional information included in database (2.7.1)																		
2.8	<b>Strengthening the information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites</b>																		
2.8.1	Based on 1.1.4, produce detailed site characterizations for the 3 priority fisheries <i>refugia</i> sites for incorporation in national and regional datasets																		

## (c): Workplan and Timetable of National Level Activity for Component 3

Activity Description	2017				2018				2019				2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

**COMPONENT 3: Information Management and Dissemination in support of national-level implementation of the fisheries *refugia* concept in Cambodia**

3.1	<b>Enhancing national uptake of best practices in integrating fisheries management and biodiversity conservation</b>																		
3.1.1	Quarterly capture and documentation of best practices in the establishment and operation of fisheries <i>refugia</i>																		
3.1.2	Online catalogue of best practices approaches and measures developed and updated each 6 months																		
3.1.3	6 monthly development of communications on best practices for dissemination and syndication																		
3.2	<b>Improving community acceptance of area based approaches to marine management</b>																		
3.2.1	Produce locally appropriate public awareness and outreach materials to promote local social, economic and environmental benefits of fisheries <i>refugia</i>																		
3.2.2	In connection with activity 1.4.3, implement targeted annual outreach programmes at priority communities																		
3.2.3	Benchmark and annually track community acceptance of <i>refugia</i> approach as a marine spatial planning tool																		
3.3	<b>Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally</b>																		
3.3.1	Establish and operate national web portal for knowledge management on fisheries <i>refugia</i>																		
3.3.2	Prepare and publish one GEF International Waters Experience Note on application of <i>refugia</i> approach																		

**(d): Workplan and Timetable of National Level Activities for Component 4**

	Activity Description	2017				2018				2019				2020				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
<b>COMPONENT 4: National coordination for integrated fish stock and critical habitat management in Cambodia</b>																		
4.1	<b>Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Cambodia</b>																	
4.1.1	Develop and agree ToR, membership & operational rules for National Fisheries <i>Refugia</i> Committee																	
4.1.2	Establish and convene quarterly meetings of the National Fisheries <i>Refugia</i> Committee (NFRC)																	



4.1.3	NFRC review and endorse work plans and progress and financial reports, including tracking of continuity of participation of stakeholders																			
4.1.4	National NFRC inputs to mid-term review and terminal evaluation of national and regional aspects of project																			
4.1.5	Supporting secretariat and Annual audit																			
4.2	<b>Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries <i>refugia</i></b>																			
4.2.1	Establish and convene 6 monthly meetings of the National Scientific and Technical Committee																			
4.2.2	Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3																			
4.3	<b>Catalyzing local community action via establishment and operation of site-based management boards at 3 priority <i>refugia</i> sites</b>																			
4.3.1	Review governance arrangements at each site to identify required ToR and membership of site-based management boards, including links to other local planning bodies																			
4.3.2	Establish and convene quarterly meetings of site-based management boards																			

**TABLE 8.5 : WORK PLAN AND TIMETABLE FOR INDONESIA (ORIGINAL)**

**TABLE 8.5 (a)** Work plan and timetable for national level activities of Component 1 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Indonesia

Activity Description	Year 1				Year 2				Year 3				Year 4			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 1: Identification and management of fisheries and critical habitat linkages at 3 priority fisheries <i>refugia</i> in Indonesia</b>																
<b>1.1</b>	<b>Developing fisheries and coastal habitat information and data collection programmes for Bangka Belitung, Kalimantan Barat, and Kep. Riau sites</b>															
1.1.1.	Review existing information and data on fisheries and coastal habitats at sites, including needs															
1.1.2	Consultation workshops to secure community and fisherfolk support in information and data collection															
1.1.3	Design and conduct site-based survey to produce fisheries and habitat profile report for 3 sites															
1.1.4	Design and conduct monthly fisheries surveys at the 3 sites and submit data to a national online database	Design Phase														
<b>1.2</b>	<b>Facilitating agreement among stakeholders on the boundaries of fisheries refugia at the Bangka Belitung, Kalimantan Barat, and Kep. Riau sites</b>															
1.2.1	Conduct consultations (including at-sea) to draft maps of fisheries refugia for priority species															
1.2.2	Prepare maps for 3 refugia and elicit fisherfolk input to boundary delineation through consultation															
1.2.3	Conduct assessment of environmental and social impacts of designation of sites as refugia															
1.2.4	Secure formal municipal/local government designation of site as fisheries refugia															
<b>1.3</b>	<b>Developing Community-Based Management Plans for the Bangka Belitung, Kalimantan Barat, and Kep. Riau sites</b>															
1.3.1	Consultations to identify key threats to fisheries <i>refugia</i> sites and identify management															

	measures																
1.3.2	Management plans for 3 sites developed through community-based consultations																
1.3.3	Regulations/rules required for <i>refugia</i> management drafted with fisherfolk and local authorities																
1.3.4	Management plans adopted by local authorities and regulatory reforms enacted																
<b>1.4</b>	<b>Establishing operational management for the Bangka Belitung, Kalimantan Barat), and Kep. Riau sites <i>refugia</i> sites</b>																
1.4.1	Establish management teams and a site-based volunteer network at 3 sites																
1.4.2	Conduct practical capacity building programme for management volunteers at 3 sites																
1.4.3	Coordinate monthly training and awareness activities at 3 sites, including pilot mgmt activities																
1.4.4	Develop and implement collaborative observer and enforcement programme for management plan																
<b>1.5</b>	<b>Strengthening civil society and community organization participation in the management of fisheries <i>refugia</i> sites</b>																
1.5.1	Support local GEF Small Grant Programme proponents in design and execution of projects																
1.5.2	Document and share examples of best practice																

**TABLE 8.5 (b)** Work plan and timetable for national level activities of Component 2 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Indonesia

	Activity Description	Year 1				Year 2				Year 3				Year 4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 2: Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries refugia management in Indonesia</b>																	
<b>2.1</b>	<b>Enhancing policy guidance for improved management of the effects of fishing on critical habitats</b>																
2.1.1	Identify and document key threats from fishing and the environment to fish stock and critical																

	habitat linkages																	
2.1.2	Formulate recommendations on policy and legal reforms to support promotion of responsible fishing																	
2.1.3	Facilitate consultations with fisheries industry and competent authorities on policy reforms																	
2.1.4	National policy reform to promote fisheries sector's sustainable use of fish habitats and biodiversity																	
<b>2.2</b>	<b>Defining the policy and legal basis for formal designation and establishment of fisheries <i>refugia</i> in Indonesia</b>																	
2.2.1	Review of policy and legal aspects on <i>refugia</i> (terminology, procedures, recommended reforms)																	
2.2.2	National expert consultation to formulate agreed recommendations for policy and legal reforms																	
<b>2.3</b>	<b>Development of national guidelines on the establishment and operation of fisheries <i>refugia</i></b>																	
2.3.1	Draft national guidelines (based 2.1.2) on procedures for formal designation and mgmt of fisheries <i>refugia</i>																	
2.3.2	National and local consultative process to elicit stakeholder input to the draft guidelines																	
2.3.3	Amend and finalise the guidelines for approval by National Fisheries <i>Refugia</i> Committee and Secretary																	
<b>2.4</b>	<b>Reforming national policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i></b>																	
2.4.1	Based on 2.1.2 & 2.1.3, draft required policy and legal reforms to support <i>refugia</i> establishment and mgmt																	
2.4.2	Convene national and local stakeholder consultations to review and provisional text for adoption																	
2.4.3	Facilitate approval and formal adoption of reforms by the authorities at national and																	

	provincial levels																
2.4.4	Develop National Action Plan for the management of <i>refugia</i> on the SCS coast of Indonesia																
<b>2.5</b>	<b>Enhancing access to information relating to status and trends in fish stocks and their habitats in Indonesian waters of the SCS</b>																
2.5.1	Compile information and data derived from abundance surveys for longer-term management																
2.5.2	Compile information and data derived from surveys on size-frequency of priority species																
2.5.3	Compile information and data on landings of priority species (volume/value, fishing areas and gears)																
2.5.4	Produce annual syntheses reports of new and additional information for national and regional review																
2.5.5	Revise national report on fish stocks and habitats in Philippine waters of the South China																
<b>2.6</b>	<b>Improving national-level management and sharing of information and data on fish early life history in Indonesian waters of the SCS</b>																
2.6.1	Prepare a national inventory of fish egg and larvae samples collected from Indonesia waters (both analysed and unanalysed)																
2.6.2	Develop and maintain a national database of fish egg and larval fish distribution and abundance																
2.6.3	Convene an annual one-day workshop to monitor the implementation of national programmes for the processing/analysis of fish egg and larvae samples																
2.6.4	Prepare an annual status report on fish early life history research for consideration regionally																
<b>2.7</b>	<b>Enhancing access to information relating to the locations and status of coastal habitats and management areas in Indonesian waters of the SCS</b>																
2.7.1	Compile and update information and data in a National Google Earth based GIS on: distribution																

	of habitats; known spawning areas; locations of refugia; MPAs; fisheries management areas; critical habitats for endangered species																
2.7.2	Prepare annual synthesis of new and additional information included in database (2.7.1)																
<b>2.8</b>	<b>Strengthening the information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites</b>																
2.8.1	Based on 1.1.4, produce detailed site characterizations for the 3 priority fisheries <i>refugia</i> sites for incorporation in national and regional datasets																

**TABLE 8.5 (c)** Work plan and timetable for national level activities of Component 3 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Indonesia

	Activity Description	Year 1				Year 2				Year 3				Year 4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 3: Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Indonesia</b>																	
<b>3.1</b>	<b>Enhancing national uptake of best practices in integrating fisheries management and biodiversity conservation</b>																
3.1.1.	Quarterly capture and documentation of best practices in the establishment and operation of fisheries refugia																
3.1.2	Online catalogue of best practices approaches and measures developed and updated each 6 months																
3.1.3	6 monthly development of communications on best practices for dissemination and syndication																
<b>3.2</b>	<b>Improving community acceptance of area based approaches to marine management</b>																
3.2.1	Produce locally appropriate public awareness and outreach materials to promote local social, economic and environmental benefits of fisheries refugia																
3.2.2	In connection with activity 1.4.3, implement targeted annual outreach programmes at priority communities																

3.2.3	Benchmark and annually track community acceptance of <i>refugia</i> approach as a marine spatial planning tool																
<b>3.3</b>	<b>Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally</b>																
3.3.1	Establish and operate national web portal for knowledge management on fisheries <i>refugia</i>																
3.3.2	Prepare and publish one GEF International Waters Experience Note on application of <i>refugia</i> approach																

**TABLE 8.5 (D)** Work plan and timetable for national level activities of Component 4 of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in Indonesia

	Activity Description	Year 1				Year 2				Year 3				Year 4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 4: National coordination for integrated fish stock and critical habitat management in Indonesia</b>																	
<b>4.1</b>	<b>Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Indonesia</b>																
4.1.1	Develop and agree ToR, membership & operational rules for National Fisheries <i>Refugia</i> Committee																
4.1.2	Establish and convene quarterly meetings of the National Fisheries <i>Refugia</i> Committee (NFRC)																
4.1.3	NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders																
4.1.4	National NFRC inputs to mid-term review and terminal evaluation of national and regional aspects of project																
<b>4.2</b>	<b>Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries <i>refugia</i></b>																
4.2.1	Establish and convene 6 monthly meetings of the National Technical Working Group																
4.2.2	Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3																

4.3	Catalyzing local community action via establishment and operation of site-based management boards at 3 priority <i>refugia</i> sites																
4.3.1	Review governance arrangements at each site to identify required ToR and membership of site-based management boards, including links to other local planning bodies																
4.3.2	Establish and convene quarterly meetings of site-based management boards																
4.3.3	Preparation of quarterly work plans and progress and financial reports on activities at each site																



**TABLE 8.6: WORK PLAN AND TIMETABLE FOR VIET NAM (ORIGINAL)**

**TABLE 8.6 (a)** Work plan and timetable for national level activities of Component 1 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Vietnam

	Activity Description	Year 1				Year 2				Year 3				Year 4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 1: Identification and management of fisheries and critical habitat linkages at 3 priority fisheries <i>refugia</i> in Vietnam</b>																	
<b>1.1</b>	<b>Developing fisheries and coastal habitat information and data collection programmes for Bach Long Vi Island, Hon Cau Island and Phu Quoc Island</b>																
1.1.1.	Review existing information and data on fisheries and coastal habitats at sites, including needs																
1.1.2	Consultation workshops to secure community and fisherfolk support in information and data collection																
1.1.3	Design and conduct site-based survey to produce fisheries and habitat profile report for 3 sites																
1.1.4	Design and conduct fisheries surveys at the 3 sites and submit data to a national online database	Design Phase															
<b>1.2</b>	<b>Facilitating agreement among stakeholders on the boundaries of fisheries refugia at the Bach Long Vi Island, Hon Cau Island &amp; Phu Quoc Island sites</b>																
1.2.1	Conduct consultations (including at-sea) to draft maps of fisheries refugia for priority species																
1.2.2	Prepare maps for 3 refugia and elicit fisherfolk input to boundary delineation through consultation																
1.2.3	Conduct assessment of environmental and social impacts of designation of sites as refugia																
1.2.4	Secure formal municipal/local government designation of site as fisheries refugia																
<b>1.3</b>	<b>Developing Community-Based Management Plans for the Bach Long Vi Island, Hon Cau Island and Phu Quoc Island sites</b>																
1.3.1	Consultations to identify key threats to fisheries <i>refugia</i> sites and identify management																

	measures																
1.3.2	Management plans for 3 sites developed through community-based consultations																
1.3.3	Regulations/rules required for <i>refugia</i> management drafted with fisherfolk and local authorities																
1.3.4	Management plans adopted by local authorities and regulatory reforms enacted																
<b>1.4</b>	<b>Establishing operational management for the Bach Long Vi Island, Hon Cau Island and Phu Quoc Island <i>refugia</i> sites</b>																
1.4.1	Establish management teams and a site-based volunteer network at 3 sites																
1.4.2	Conduct practical capacity building programme for management volunteers at 3 sites																
1.4.3	Coordinate monthly training and awareness activities at 3 sites, including pilot mgmt activities																
1.4.4	Develop and implement collaborative observer and enforcement programme for management plan																
<b>1.5</b>	<b>Strengthening civil society and community organization participation in the management of fisheries <i>refugia</i> sites</b>																
1.5.1	Support local GEF Small Grant Programme proponents in design and execution of projects																
1.5.2	Document and share examples of best practice																

**TABLE 8.6 (b)** Work plan and timetable for national level activities of Component 2 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Vietnam

	Activity Description	Year 1				Year 2				Year 3				Year 4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 2: Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries refugia management in Vietnam</b>																	
<b>2.1</b>	<b>Enhancing policy guidance for improved management of the effects of fishing on critical habitats</b>																
2.1.1	Identify and document key threats from fishing and the environment to fish stock and critical																

	habitat linkages																
2.1.2	Formulate recommendations on policy and legal reforms to support promotion of responsible fishing																
2.1.3	Facilitate consultations with fisheries industry and competent authorities on policy reforms																
2.1.4	National policy reform to promote fisheries sector's sustainable use of fish habitats and biodiversity																
<b>2.2</b>	<b>Defining the policy and legal basis for formal designation and establishment of fisheries <i>refugia</i> in Vietnam</b>																
2.2.1	Review of policy and legal aspects on <i>refugia</i> (terminology, procedures, recommended reforms)																
2.2.2	National expert consultation to formulate agreed recommendations for policy and legal reforms																
<b>2.3</b>	<b>Development of national guidelines on the establishment and operation of fisheries <i>refugia</i></b>																
2.3.1	Draft national guidelines (based 2.1.2) on procedures for formal designation and mgmt of fisheries <i>refugia</i>																
2.3.2	National and local consultative process to elicit stakeholder input to the draft guidelines																
2.3.3	Amend and finalise the guidelines for approval by National Fisheries <i>Refugia</i> Committee and Secretary																
<b>2.4</b>	<b>Reforming national policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i></b>																
2.4.1	Based on 2.1.2 & 2.1.3, draft required policy and legal reforms to support <i>refugia</i> establishment and mgmt																
2.4.2	Convene national and local stakeholder consultations to review and provisional text for adoption																
2.4.3	Facilitate approval and formal adoption of reforms by the authorities at national and																

	provincial levels																
2.4.4	Develop National Action Plan for the management of <i>refugia</i> on the SCS coast of Vietnam																
<b>2.5</b>	<b>Enhancing access to information relating to status and trends in fish stocks and their habitats in Vietnam waters of the SCS</b>																
2.5.1	Compile information and data derived from abundance surveys for longer-term management																
2.5.2	Compile information and data derived from surveys on size-frequency of priority species																
2.5.3	Compile information and data on landings of priority species (volume/value, fishing areas and gears)																
2.5.4	Produce annual syntheses reports of new and additional information for national and regional review																
2.5.5	Revise national report on fish stocks and habitats in Philippine waters of the South China																
<b>2.6</b>	<b>Improving national-level management and sharing of information and data on fish early life history in Vietnam waters of the SCS</b>																
2.6.1	Prepare a national inventory of fish egg and larvae samples collected from Vietnam waters (both analysed and unanalysed)																
2.6.2	Develop and maintain a national database of fish egg and larval fish distribution and abundance																
2.6.3	Convene an annual one-day workshop to monitor the implementation of national programmes for the processing/analysis of fish egg and larvae samples																
2.6.4	Prepare an annual status report on fish early life history research for consideration regionally																
<b>2.7</b>	<b>Enhancing access to information relating to the locations and status of coastal habitats and management areas in Vietnam waters of the SCS</b>																
2.7.1	Compile and update information and data in a National Google Earth based GIS on: distribution																

	of habitats; known spawning areas; locations of refugia; MPAs; fisheries management areas; critical habitats for endangered species																
2.7.2	Prepare annual synthesis of new and additional information included in database (2.7.1)																
<b>2.8</b>	<b>Strengthening the information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites</b>																
2.8.1	Based on 1.1.4, produce detailed site characterizations for the 3 priority fisheries <i>refugia</i> sites for incorporation in national and regional datasets																

**Table 8.6 (c)** Work plan and timetable for national level activities of Component 3 of the SEAFDEC/UNEP/GEF Fisheries Refugia Project in Vietnam

Activity Description	Year 1				Year 2				Year 3				Year 4				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
<b>COMPONENT 3: Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Vietnam</b>																	
<b>3.1</b>	<b>Enhancing national uptake of best practices in integrating fisheries management and biodiversity conservation</b>																
3.1.1.	Quarterly capture and documentation of best practices in the establishment and operation of fisheries refugia																
3.1.2	Online catalogue of best practices approaches and measures developed and updated each 6 months																
3.1.3	6 monthly development of communications on best practices for dissemination and syndication																
<b>3.2</b>	<b>Improving community acceptance of area based approaches to marine management</b>																
3.2.1	Produce locally appropriate public awareness and outreach materials to promote local social, economic and environmental benefits of fisheries refugia																
3.2.2	In connection with activity 1.4.3, implement targeted annual outreach programmes at priority communities																

3.2.3	Benchmark and annually track community acceptance of <i>refugia</i> approach as a marine spatial planning tool																
<b>3.3</b>	<b>Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally</b>																
3.3.1	Establish and operate national web portal for knowledge management on fisheries <i>refugia</i>																
3.3.2	Prepare and publish one GEF International Waters Experience Note on application of <i>refugia</i> approach																

**Table 8.6 (D)** Work plan and timetable for national level activities of Component 4 of the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project in Vietnam

	Activity Description	Year 1				Year 2				Year 3				Year 4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMPONENT 4: National coordination for integrated fish stock and critical habitat management in Vietnam</b>																	
<b>4.1</b>	<b>Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Vietnam</b>																
4.1.1	Develop and agree ToR, membership & operational rules for National Fisheries <i>Refugia</i> Committee																
4.1.2	Establish and convene quarterly meetings of the National Fisheries <i>Refugia</i> Committee (NFRC)																
4.1.3	NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders																
4.1.4	National NFRC inputs to mid-term review and terminal evaluation of national and regional aspects of project																
<b>4.2</b>	<b>Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries <i>refugia</i></b>																
4.2.1	Establish and convene 6 monthly meetings of the National Technical Working Group																
4.2.2	Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3																

4.3	Catalyzing local community action via establishment and operation of site-based management boards at 3 priority <i>refugia</i> sites																
4.3.1	Review governance arrangements at each site to identify required ToR and membership of site-based management boards, including links to other local planning bodies																
4.3.2	Establish and convene quarterly meetings of site-based management boards																
4.3.3	Preparation of quarterly work plans and progress and financial reports on activities at each site																

## ANNEX 9

# GENDER MAINSTREAMING TO THE PROJECT IMPLEMENTATION

### The Output from The Experts Consultation Workshop on Guidance to Monitoring and Evaluation of Gender Equity and Social Well-being in Fisheries Communities

#### 1. Introduction

The Experts Consultation Workshop on Guidance to Monitoring and Evaluation of Gender Equity and Social Well-being in Fisheries Communities was convened from 8 to 10 August 2018 in Bangkok, Thailand. The Workshop was attended by the SEAFDEC Secretary-General, SEAFDEC Gender Working Team, the ASEAN Member States, regional organizations and partners such as the Asian Institute of Technology (AIT), Asian Coastal Resources Institute-Foundation Cambodia (CORIN-Asia Cambodia), Food and Agriculture Organization of the United Nations (FAO), Learning Institute (LI), Mekong River Commission (MRC), Sustainable Development Foundation (SDF), Sweden Embassy (Bangkok), and the United States Agency for International Development (USAID Oceans).

#### 2. INDICATORS AND GUIDE QUESTIONS FOR GENDER ANALYSIS

##### 2.1. GOVERNANCE OF TENURE IN SMALL-SCALE FISHERIES AND RESOURCE MANAGEMENT

Indicators	Guide Questions
<b>Policy/Law/ Mechanism on FM and CRM (national, provincial, municipal and village level)</b>	
Involvement of men and women stakeholders in policy formulation process	<ul style="list-style-type: none"> <li>- Have you been involved in policy formulation process? At what stage were you involved?</li> <li>- Have you ever participated in policy making?</li> <li>- Are there conscious efforts to ensure equitable number of women and men SSF in formulation of policies, laws, and mechanisms?</li> </ul>
Involvement of men and women stakeholders in decision-making	<ul style="list-style-type: none"> <li>- Are you involved in decision making?</li> <li>- To what extent were you involved?</li> </ul>
Number of policies addressing gender issues	<ul style="list-style-type: none"> <li>- What are the policies that clearly promote gender equality and equity in fisheries and resource management?</li> </ul>
Existence of measures/plans that address and recognize gender and SSF?	<ul style="list-style-type: none"> <li>- Are there any measures/plans that address or recognize gender in policy and law in relation to SSF/WSSF at all levels (national, provincial, district, community)?</li> </ul>
Access to fishing grounds by small-scale fishers including women	<ul style="list-style-type: none"> <li>- Are there any measures that secure rights to access fishing grounds (conservation/municipal zone) by small-scale fishers including women?</li> </ul>
Perception on gender policy (household and policy makers level)	<ul style="list-style-type: none"> <li>- WHAT ARE YOUR PERCEPTIONS ON GENDER POLICY?</li> </ul>
Development/formulation of gender responsive FM/CRM for SSF	<ul style="list-style-type: none"> <li>- DID POLICIES, LAW AND MECHANISM TAKE INTO ACCOUNT THE GENDER NEEDS AND CONCERNS OF BOTH MEN AND WOMEN SSF?</li> <li>- INCLUDE SOME RELEVANCE TO LOCAL LAWS OR VILLAGE LEVEL REGULATIONS, AND EXAMPLES (MPAs, FISH SANCTUARIES, ETC.)</li> </ul>
<b>Governance of tenure rights</b>	
Existence of secured social and cultural tenure rights to resources and equitable	<ul style="list-style-type: none"> <li>- Do you benefit from the policy governance of tenure? What benefit have you obtained?</li> </ul>



distribution of benefits for women and men in SSF	- Were you consulted in the formulation of framework/guide related to tenure rights?
<b>Plan of action and allocation of resources (human, financial, and natural resources)</b>	
Existence of plan of action and allocation of resources (human, financial, and natural resources)	- Are there any POA that target men and women?
Availability of budget to implement the plan of action	- Do you avail of budgetary allocation to implement the plan of action? - Is the budget equitable to the promotion of gender equality and equity?
Access to use and management of natural resources	- Do you have access to use of natural resources? What type of natural resources? - Have you participated in management of natural resources? How?
<b>Access to Information and technology (meaningful participation, transparency, accountability)</b>	
Access to information and technology	- Do you have access to information? - What types of media do you use to access information? - Do you have access to information, education and communication materials? - How do you engage in decision making process on information?
Participation in public fora	- Have you participated in any public forum?
Access to training or capacity building and awareness building programs	- Have availed of training or capacity building and awareness building programs?
	-
<b>Conflict settlement</b>	
Issues to be solved in relation to gender equity	- Were you involved in the conflict resolution in the community? How often?
Channels/mechanisms to address the problem to take up the conflict issues on fisheries resources management	- How are the conflicts resolved?
Benefits to compensate the stakeholders affected by the conflict	- Did you benefit fair compensation?

## 2.2. SOCIAL DEVELOPMENT, EMPLOYMENT AND DECENT WORK

Indicators	Guide Questions
<b>Access to basic services (equitable benefits)</b>	
health/medical care	- IS THERE ANY MEDICAL FACILITIES AVAILABLE IN YOUR AREA? - DO YOU GO TO THIS FACILITIES WHEN YOU GET SICK? IF NOT, WHY?
safe drinking water	- ARE YOU RESPONSIBLE FOR GETTING DRINKING WATER? - IS THE WATER YOU GET SAFE FOR DRINKING? - DO YOU GET WATER FOR DAILY HOUSEHOLD CONSUMPTION?
house (safe, adequate)	- IS YOUR HOUSE SAFE FROM NATURAL DISASTERS? - WHAT IS YOUR HOUSE MADE OF? - WHERE IS YOUR HOUSE LOCATED?

Indicators	Guide Questions
hygiene/sanitation (toilet, solid waste management services)	<ul style="list-style-type: none"> <li>- DO YOU HAVE A TOILET IN YOUR HOUSE? WHAT TYPE OF TOILET?</li> <li>- DO YOU HAVE SEPARATE TOILET FOR MEN AND WOMEN IN PUBLIC AREAS (E.G. IN FISH PORTS, FISH LANDING CENTERS, FISH MARKETS, ETC.)? WHAT TYPE OF TOILET?</li> <li>- HOW DO YOU DISPOSE OF YOUR SOLID WASTES?</li> </ul>
clean and safe energy source and household fuel (health and environment)	<ul style="list-style-type: none"> <li>- ARE YOU RESPONSIBLE IN COOKING FOOD FOR FAMILY?</li> <li>- WHAT FUEL DO YOU USE FOR COOKING FOOD?</li> </ul>
access to information on weather, safety at sea, national accident reporting, sea safety awareness programs legislations for safety at sea	<ul style="list-style-type: none"> <li>- DO YOU FOLLOW THE NEWS ON WEATHER AND SEA CONDITIONS? HOW?</li> </ul>
access to search and rescue at sea	<ul style="list-style-type: none"> <li>- DO YOU KNOW IF THERE IS A SEARCH AND RESCUE OPERATIONS IN YOUR COMMUNITY? WHERE?</li> <li>- DO YOU KNOW HOW TO CONTACT THE PERSONS IN CHARGE OF THE OPERATIONS?</li> </ul>
child nutrition program	<ul style="list-style-type: none"> <li>- ARE YOU AWARE OF NUTRITIOUS FOODS FOR YOUR CHILDREN?</li> <li>- DO YOUR CHILDREN HAVE ACCESS TO SCHOOL FEEDING PROGRAM?</li> </ul>
Access to schools/educational facilities	<ul style="list-style-type: none"> <li>- WHAT IS LEVEL OF YOUR EDUCATION? WHY DID YOU QUIT SCHOOL?</li> <li>- DO YOU HAVE ACCESS TO SCHOOLS/EDUCATION FACILITIES? HOW FAR IS THE SCHOOL FROM YOUR HOUSE? HOW DO YOU GO TO SCHOOL?</li> </ul>
<b>Social security schemes</b>	-
life/health insurance/sea accident (government/private)	<ul style="list-style-type: none"> <li>- ARE YOU INSURED? WHAT KIND OF INSURANCE?</li> </ul>
pension/senior citizen benefits	<ul style="list-style-type: none"> <li>- DO YOU HAVE PENSION/SENIOR CITIZEN BENEFITS? HOW MUCH?</li> </ul>
allowance/subsidy during closed season	<ul style="list-style-type: none"> <li>- DO YOU HAVE ACCESS TO SUBSIDY DURING CLOSED SEASON? HOW MUCH?</li> </ul>
alternative livelihood during closed season	<ul style="list-style-type: none"> <li>- DO YOU HAVE ANY ALTERNATIVE LIVELIHOOD DURING CLOSED SEASON? WHAT KIND?</li> </ul>
<b>Financial services</b>	-
bank account	<ul style="list-style-type: none"> <li>- DO YOU HAVE A BANK ACCOUNT? IS IT SEPARATE OR JOINT ACCOUNT WITH YOUR SPOUSE? UNDER WHOSE NAME? WHO CONTROLS THE HOUSEHOLD FINANCES?</li> </ul>
informal community/group savings	<ul style="list-style-type: none"> <li>- DO YOU PARTICIPATE IN INFORMAL GROUP SAVINGS? WHAT TYPE?</li> </ul>
credit/loan and preventing debt-bondage	<ul style="list-style-type: none"> <li>- DO YOU HAVE ACCESS TO CREDITS AND LOANS? WHAT IS THE SOURCE OF YOUR CREDIT/LOAN? WHO DECIDES TO TAKE THE LOAN? WHO DECIDES ON HOW TO SPEND THE LOAN? WHAT IS THE PAYMENT SCHEME? WHAT IS THE PURPOSE OF THE LOAN? WHO PAYS THE LOAN? HOW MANY CREDITORS DO YOU BORROW FROM AT THE SAME TIME?</li> </ul>
property insurance (boat, fishing gear, land, fish pond, etc.)	<ul style="list-style-type: none"> <li>- DO YOU HAVE PROPERTY INSURANCE (LAND, BOAT, FISHING GEARS, ETC.)?</li> </ul>
remittance	<ul style="list-style-type: none"> <li>- DO YOU RECEIVE FINANCIAL REMITTANCE? FROM WHOM? HOW OFTEN?</li> </ul>
<b>Working conditions</b>	

Indicators	Guide Questions
skills development opportunities	- HAVE YOU PARTICIPATED IN ANY TRAINING? WHY? WHAT TYPE OF TRAINING? WHO PARTICIPATED? WHY? WHAT TRAINING DO YOU NEED AND FOR WHAT PURPOSE? WHY?
participation in cooperative/association (processing, marketing, etc.)	- ARE YOU A MEMBER OF A COOPERATIVE OF ASSOCIATION? WHY OR WHY NOT? WHAT TYPE OF ASSOCIATION? WHAT IS YOUR POSITION?
employment in formal/informal work	- ARE YOU EMPLOYED IN ANY FORMAL OR INFORMAL? PART TIME OR FULL TIME? HOW MANY WORKING HOURS?
compensation/salary/remuneration for same type of work (fair, adequate)	- DO YOU RECEIVE COMPENSATION/SALARY/REMUNERATION FOR SAME TYPE OF WORK THAT COMMENSURATE TO YOUR SKILLS?
occupational safety and health (OSH)	- WHAT ARE THE BENEFITS DO YOU RECEIVE FROM DOING HIGH RISK JOBS?
human rights	- HAVE YOU EXPERIENCED POWER/SEXUAL HARASSMENT? HOW DO YOU REPORT? TO WHOM DO YOU REPORT? HOW IS IT MONITORED IN YOUR WORKPLACE? -
fishing license (move to governance)	- DO YOU HAVE FISHING LICENSE?
boat ownership	- DO YOU OWN THE FISHING BOAT? WHAT TYPE OF FISHING BOAT?
crew members (roles, compensation, working condition, contract terms)	- WHAT ARE YOUR ROLES AS A CREW MEMBER? DO YOU RECEIVE ANY COMPENSATION AND HOW MUCH? - HOW MANY WORKING HOURS DO YOU SPEND PER DAY? HOW LONG IS YOUR WORKING CONTRACT?
access to fishing grounds (refer to governance)	-
child labor (below 18 years old)	- HOW MANY CHILDREN DO YOU HAVE? HOW MANY ARE BELOW 18 YEARS OLD? - ARE THEY STUDYING OR NOT? - AT WHAT AGE DO YOU ASK YOUR CHILDREN TO HELP IN FISHING AND OTHER FISHING ACTIVITIES? WHAT KIND OF WORK DO BOYS/GIRLS PERFORM?
forced labor	- ?
safety at sea	- IS YOUR BOAT SEA WORTHY? IS IT EQUIPPED WITH SAFETY EQUIPMENT AND EMERGENCY KITS (LIFE JACKETS, FLASH LIGHT, ETC.)? - HAVE YOU ATTENDED ANY TRAINING ON SAFETY AT SEA?
maternity/paternity leave	- IS THERE ANY REGULATION FOR MATERNITY/PATERNITY LEAVE IN YOUR WORKPLACE? - HAVE YOU AVAILED OF MATERNITY/PATERNITY LEAVE?
lactation room in fishing facilities (fish port, etc.)	- IS THERE A DESIGNATED LACTATION ROOM IN YOUR WORKPLACE?
<b>Migration and movement</b>	
Reasons for migration and movement	- WHAT IS YOUR HOME COUNTRY? WHY DID YOU MIGRATE? WHAT SKILLS DO YOU HAVE? WHAT KIND OF JOB ARE YOU ENGAGED WITH?
Compensation and benefits	- AS A MIGRANT WORKER, DO YOU AVAIL OF FAIR COMPENSATION AND BENEFITS? HOW MUCH SALARY DO YOU RECEIVE? ARE YOU ENTITLED TO LEAVE BENEFITS?
Access to schools/education facilities	- DO YOUR CHILDREN GO TO SCHOOL?

Indicators	Guide Questions
Access to basic services (health/medical care)	- DO YOU HAVE ACCESS TO BASIC SERVICES (HEALTH/MEDICAL CARE)?
<b>Ethnic groups</b>	
Ethnicity	- WHAT ETHNIC GROUP DO YOU BELONG? - DO YOU HAVE ANY IDENTIFICATION DOCUMENT? - WHAT ARE THE GENDER ROLES IN YOUR ETHNIC GROUP?
Access to basic services (health/medical, education, etc.)	- DO YOU HAVE ACCESS TO HEALTH, MEDICAL, AND EDUCATIONAL SERVICES?
Access to traditional fishing grounds	- DO YOU HAVE ACCESS TO FISHING GROUNDS? HOW?
Existence of traditional fishing practices	- CAN YOU DESCRIBE THE TRADITIONAL FISHING PRACTICES?
Participation in decision-making in the community	- DO YOU PARTICIPATE IN THE DECISION MAKING IN YOUR COMMUNITY? AT WHAT LEVEL?
Existence of indigenous knowledge	- WHAT INDIGENOUS PRACTICES DO YOU APPLY IN FISHING? WHAT ARE THE GENDER ROLES IN THESE PRACTICES?
Participation in community activities	- HAVE YOU CONTRIBUTED TO COMMUNITY ACTIVITIES VOLUNTARILY?
<b>Others</b>	
Inheritance to property	- DO YOU HAVE THE RIGHT OF INHERITANCE TO PROPERTY? WHAT KIND OF PROPERTIES?
Household chores	- WHAT IS YOUR ROLE IN YOUR HOUSEHOLD? WHAT ARE YOUR CHORES?
Participation in voluntary activities	- DO YOU PARTICIPATE IN ANY VOLUNTARY ACTIVITIES? WHAT KIND OF ACTIVITIES? WHAT ARE YOUR ROLES IN THESE ACTIVITIES?
Life expectancy	- WHAT IS THE LIFE EXPECTANCY OF MEN/WOMEN IN THE COMMUNITY? WHAT ARE THE REASONS?
Self-identification as “fishers”	- DO YOU IDENTIFY AS “FISHER”? WHY? WHAT FISHING ACTIVITIES DO YOU PERFORM? HOW MANY HOURS PER DAY?
Participation in religious activities	- WHAT ARE RELIGIOUS PRACTICES IN YOUR COMMUNITY? DO YOU PARTICIPATE? HOW OFTEN? WHAT ARE YOUR ROLES?
Domestic violence	- HAVE YOU HEARD OF ANY DOMESTIC VIOLENCE IN YOUR COMMUNITY? WHAT IS YOUR INTERVENTION? HOW AND TO WHOM DO YOU REPORT? HOW IS IT SETTLED?

### 2.3. VALUE CHAINS, POST-HARVEST AND TRADE

Indicators	Guide Questions				
General information on the activities/works	(Respondents: fishers/aquaculturists and their household members) - COULD YOU PLEASE DESCRIBE YOUR ACTIVITIES/WORKS?				
	<table border="1"> <thead> <tr> <th>Capture fisheries</th> <th>Aquaculture</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>○ SIZE OF FISHING BOATS</li> <li>○ FISHING GEAR USED</li> <li>○ SPECIES, SIZE</li> <li>○ FISHING GROUND/AREA</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>○ CULTURE FACILITY, SIZE, SYSTEM</li> <li>○ CULTURE SPECIES</li> </ul> </td> </tr> </tbody> </table>	Capture fisheries	Aquaculture	<ul style="list-style-type: none"> <li>○ SIZE OF FISHING BOATS</li> <li>○ FISHING GEAR USED</li> <li>○ SPECIES, SIZE</li> <li>○ FISHING GROUND/AREA</li> </ul>	<ul style="list-style-type: none"> <li>○ CULTURE FACILITY, SIZE, SYSTEM</li> <li>○ CULTURE SPECIES</li> </ul>
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<ul style="list-style-type: none"> <li>- WHERE AND HOW DID YOU LEARN TO DO THIS KIND OF WORK?</li> <li>- HOW LONG (HOW MANY YEARS) HAVE YOU BEEN DOING THIS KIND OF WORK?</li> <li>- WHY ARE YOU DOING THIS KIND OF WORK?</li> <li>- ARE YOU SATISFIED IN DOING THIS KIND OF WORK?</li> <li>- DO YOU INTEND TO CONTINUE THIS WORK IN THE NEXT (NUMBER) YEARS?</li> </ul>					
Proportion of time spent on different activities within 24 hours	- WHAT ARE THE ACTIVITIES THAT YOU DO IN ONE DAY? HOW MUCH TIME DO YOU SPEND FOR EACH ACTIVITY WITHIN 24 HOURS? WHAT TIME DO YOU START DOING YOUR ACTIVITIES?				

Involvement in different processes/activities of capture fisheries and aquaculture	- WHICH OF THE FOLLOWING ACTIVITIES DO YOU DO?	
	<b>Capture fisheries</b>	<b>Aquaculture</b>
	<b>Pre-fishing activities</b> <input type="checkbox"/> PURCHASING OF INPUTS (FOOD, GEARS, BOATS, EQUIPMENT, FUEL, ICE) <input type="checkbox"/> PREPARATION OF FISHING BOATS AND MACHINERY <input type="checkbox"/> MAINTENANCE/REPAIRING OF GEARS <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> OTHERS (SPECIFY)	<b>Pre-culture activities</b> <input type="checkbox"/> POND PREPARATION <input type="checkbox"/> PURCHASING OF INPUTS <input type="checkbox"/> REPAIRING OF CULTURE FACILITIES <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> OTHERS (SPECIFY)
	<b>Actual fishing activities</b> <input type="checkbox"/> FISHING OPERATIONS <input type="checkbox"/> ON-BOARD SORTING <input type="checkbox"/> OTHERS (SPECIFY)	<b>Actual culture activities</b> <input type="checkbox"/> STOCKING <input type="checkbox"/> FEEDING <input type="checkbox"/> SAMPLING <input type="checkbox"/> WATER MANAGEMENT <input type="checkbox"/> FERTILIZING <input type="checkbox"/> SAMPLING <input type="checkbox"/> HARVESTING <input type="checkbox"/> PRODUCT COMPLIANCE TO FOOD SAFETY STANDARDS AND CERTIFICATION, GAPs <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> OTHERS (SPECIFY)
	<b>Non-fishing activities (on-board)</b> <input type="checkbox"/> COOKING <input type="checkbox"/> CLEANING <input type="checkbox"/> COMMUNICATION (RADIO) <input type="checkbox"/> MEDICAL <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> OTHERS (SPECIFY)	<b>Non-culture activities (on-farm)</b> <input type="checkbox"/> FARM SECURITY <input type="checkbox"/> FOOD PREPARATION <input type="checkbox"/> CLEANING <input type="checkbox"/> MEDICAL <input type="checkbox"/> COMMUNICATION <input type="checkbox"/> LOGISTIC AND SUPPLY <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> OTHERS (SPECIFY)
	<b>Onshore fish handling</b> <input type="checkbox"/> UNLOADING OF FISH <input type="checkbox"/> SORTING AND GRADING <input type="checkbox"/> WEIGHING AND COUNTING <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> CRATES, BOX SETS <input type="checkbox"/> OTHERS (SPECIFY)	<b>Harvesting</b> <input type="checkbox"/> SEINING <input type="checkbox"/> DRAINING WATER <input type="checkbox"/> SORTING AND WEIGHING <input type="checkbox"/> ICING <input type="checkbox"/> CRATES, BOX SETS <input type="checkbox"/> CARRYING FISH TO TRANSPORT VEHICLE (TRUCK, TANK) <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> OTHERS (SPECIFY)
	<b>Selling/trading</b> <input type="checkbox"/> COMMUNICATION WITH BUYER <input type="checkbox"/> ON-SHORE SELLING <input type="checkbox"/> PRICE NEGOTIATING (E.G. ON SHORE) <input type="checkbox"/> AUCTION (E.G. AT PORT) <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> HANDLING CASH SALES <input type="checkbox"/> CASH/CREDIT COLLECTION <input type="checkbox"/> OTHERS (SPECIFY)	<b>Selling/trading</b> <input type="checkbox"/> COMMUNICATION WITH BUYER <input type="checkbox"/> EX-FARM AND ON-FARM SELLING <input type="checkbox"/> NEGOTIATING PRICE <input type="checkbox"/> AUCTION <input type="checkbox"/> RECORD KEEPING <input type="checkbox"/> HANDLING CASH SALES <input type="checkbox"/> CASH/CREDIT COLLECTION <input type="checkbox"/> OTHERS (SPECIFY)
	<b>Transporting/hauling of fish</b> <input type="checkbox"/> HAULING OF FISH <input type="checkbox"/> LOADING TO VEHICLE	<b>Transporting/hauling of fish</b> <input type="checkbox"/> HAULING OF FISH <input type="checkbox"/> LOADING TO VEHICLE

<ul style="list-style-type: none"> <li>○ OTHERS (SPECIFY)</li> </ul>	<ul style="list-style-type: none"> <li>○ OTHERS (SPECIFY)</li> </ul>	<ul style="list-style-type: none"> <li>○ OTHERS (SPECIFY)</li> </ul>
<p><b>Household processing</b></p> <ul style="list-style-type: none"> <li>○ VALUE ADDED PRODUCTS (FRYING, BOILING, SMOKING, FERMENTING, FISH CAKE, ETC.)</li> <li>○ BY PRODUCT MANAGEMENT</li> <li>○ RECORD KEEPING</li> <li>○ OTHERS (SPECIFY)</li> </ul>	<p><b>Household processing</b></p> <ul style="list-style-type: none"> <li>○ VALUE ADDED PRODUCTS (FRYING, BOILING, SMOKING, FERMENTING, FISH CAKE, ETC.)</li> <li>○ BY PRODUCT MANAGEMENT</li> <li>○ RECORD KEEPING</li> <li>○ OTHERS (SPECIFY)</li> </ul>	<p><b>Household processing</b></p> <ul style="list-style-type: none"> <li>○ VALUE ADDED PRODUCTS (FRYING, BOILING, SMOKING, FERMENTING, FISH CAKE, ETC.)</li> <li>○ BY PRODUCT MANAGEMENT</li> <li>○ RECORD KEEPING</li> <li>○ OTHERS (SPECIFY)</li> </ul>
<p><b>Industrial fish processing</b></p> <ul style="list-style-type: none"> <li>○ RAW MATERIAL RECEIVING</li> <li>○ WEIGHING, CHECKING QUALITY</li> <li>○ RAW MATERIAL PREPARATION (CLEANING, DEFINING, DESCALING, DEGUTTING), DEPENDING ON SPECIES AND FINAL PRODUCTS</li> <li>○ PROCESSING LINE (FREEZING, CANNING, ETC.)</li> <li>○ PACKAGING (WEIGHING, LABELING, ETC.)</li> <li>○ QUALITY CONTROL (INCL. LABORATORY, RESEARCHER)</li> <li>○ HAULING OF FINAL PRODUCTS</li> <li>○ STORAGE (OF SUPPLIES AND FINAL PRODUCTS)</li> <li>○ TRANSPORTATION</li> <li>○ BY-PRODUCTS MANAGEMENT</li> <li>○ DOCUMENTATION</li> <li>○ ADMINISTRATION (INCL. HR, MEDICAL)</li> <li>○ MARKETING (DOMESTIC AND INTERNATIONAL TRADE)</li> <li>○ PRODUCT COMPLIANCE TO STANDARDS AND CERTIFICATION</li> <li>○ FINANCE AND ACCOUNTING</li> <li>○ ENGINEERING</li> <li>○ SECURITY</li> <li>○ OTHERS (SPECIFY)</li> </ul>	<p><b>Industrial fish processing</b></p> <ul style="list-style-type: none"> <li>○ RAW MATERIAL RECEIVING</li> <li>○ WEIGHING, CHECKING QUALITY</li> <li>○ RAW MATERIAL PREPARATION (CLEANING, DEFINING, DESCALING, DEGUTTING), DEPENDING ON SPECIES AND FINAL PRODUCTS</li> <li>○ PROCESSING LINE (FREEZING, CANNING, ETC.)</li> <li>○ PACKAGING (WEIGHING, LABELING, ETC.)</li> <li>○ QUALITY CONTROL (INCL. LABORATORY, RESEARCHER)</li> <li>○ HAULING OF FINAL PRODUCTS</li> <li>○ STORAGE (OF SUPPLIES AND FINAL PRODUCTS)</li> <li>○ TRANSPORTATION</li> <li>○ BY-PRODUCTS MANAGEMENT</li> <li>○ DOCUMENTATION</li> <li>○ ADMINISTRATION (INCL. HR, MEDICAL)</li> <li>○ MARKETING (DOMESTIC AND INTERNATIONAL TRADE)</li> <li>○ PRODUCT COMPLIANCE TO STANDARDS AND CERTIFICATION</li> <li>○ FINANCE AND ACCOUNTING</li> <li>○ ENGINEERING</li> <li>○ SECURITY</li> <li>○ OTHERS (SPECIFY)</li> </ul>	<p><b>Industrial fish processing</b></p> <ul style="list-style-type: none"> <li>○ RAW MATERIAL RECEIVING</li> <li>○ WEIGHING, CHECKING QUALITY</li> <li>○ RAW MATERIAL PREPARATION (CLEANING, DEFINING, DESCALING, DEGUTTING), DEPENDING ON SPECIES AND FINAL PRODUCTS</li> <li>○ PROCESSING LINE (FREEZING, CANNING, ETC.)</li> <li>○ PACKAGING (WEIGHING, LABELING, ETC.)</li> <li>○ QUALITY CONTROL (INCL. LABORATORY, RESEARCHER)</li> <li>○ HAULING OF FINAL PRODUCTS</li> <li>○ STORAGE (OF SUPPLIES AND FINAL PRODUCTS)</li> <li>○ TRANSPORTATION</li> <li>○ BY-PRODUCTS MANAGEMENT</li> <li>○ DOCUMENTATION</li> <li>○ ADMINISTRATION (INCL. HR, MEDICAL)</li> <li>○ MARKETING (DOMESTIC AND INTERNATIONAL TRADE)</li> <li>○ PRODUCT COMPLIANCE TO STANDARDS AND CERTIFICATION</li> <li>○ FINANCE AND ACCOUNTING</li> <li>○ ENGINEERING</li> <li>○ SECURITY</li> <li>○ OTHERS (SPECIFY)</li> </ul>
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	<ul style="list-style-type: none"> <li>○ LOGISTICS/DELIVERY</li> <li>○ OTHERS (SPECIFY)</li> </ul>	<ul style="list-style-type: none"> <li>○ LOGISTICS/DELIVERY</li> <li>○ OTHERS (SPECIFY)</li> </ul>
	<ul style="list-style-type: none"> <li>- WHO ELSE IN YOUR HOUSEHOLD ARE INVOLVED IN ANY OF THE ACTIVITIES, AND WHAT ARE THEIR GENDER?</li> </ul>	
<p>Socio-economic status of the respondent</p> <p><i>(link to governance and socio-economic aspects)</i></p>	<ul style="list-style-type: none"> <li>- HOW OFTEN DO YOU INTERACT WITH LOCAL ASSOCIATION, ETC.</li> <li>- WHAT IS YOUR MAIN SOURCE OF FUND FOR YOUR OPERATION?</li> <li>- ARE THERE ANY CONSTRAINTS IN OBTAINING FINANCIAL SUPPORT? WHAT ARE THE CONSTRAINTS?</li> <li>- ARE THE FACILITIES (VESSELS, FARMS) BELONG TO YOURSELF? OR TO WHOM?</li> <li>- WHO MAKE DECISION IN THE OPERATION ACTIVITIES (E.G. CULTURE SPECIES, ETC.), AND SPENDING OF MONEY ON OTHER ACTIVITIES?</li> </ul>	
<p>Selling/trading of fish products</p>	<ul style="list-style-type: none"> <li>- TO WHOM DO YOU SELL YOUR PRODUCTS TO (E.G. CONSUMER, MIDDLEMAN, ETC.), AND WHETHER THEY ARE MALE OR FEMALE?</li> <li>- HOW DO YOU CONTACT YOUR BUYERS?</li> <li>- WHO DECIDE ON THE PRICE?</li> <li>- ARE YOU HAPPY WITH THE PRICE?</li> <li>- WHO KEEP THE MONEY FROM SELLING THE PRODUCTS?</li> <li>- WHAT KIND OF TRADING RECORDS DO YOU KEEP?</li> </ul>	
<p>Household fish processing</p>	<ul style="list-style-type: none"> <li>- WHAT FISH PRODUCTS DO YOU PRODUCE? HOW MUCH TIME DO YOU SPEND PROCESSING THESE PRODUCTS?</li> <li>- WHAT OTHER PRODUCTS DO YOU PRODUCE? HOW MUCH TIME DO YOU SPEND PROCESSING THESE PRODUCTS?</li> <li>- WHAT ARE THE RAW MATERIALS? WHERE ARE THE SOURCES OF RAW MATERIALS? (OWN CATCH OR PURCHASE FROM OTHER FISHERS)? HOW MUCH IS THE PRICE (MATERIAL/KG)?</li> <li>- WHAT ARE THE MATERIALS ADDED AND THE PRICE/KG AND MATERIAL?</li> <li>- HOW MUCH DO YOU PRODUCE (KG/DAY)?</li> <li>- HOW MUCH IS THE PRICE OF YOUR PROCESSED FISH PRODUCTS (MATERIAL/KG)?</li> <li>- HOW DO YOU FEEL ABOUT MARKETABILITY/ ACCEPTABILITY OF YOUR PRODUCT?</li> <li>- WHAT IS YOUR LEVEL OF SATISFACTION ON THE QUANTITY AND QUALITY OF YOUR RAW MATERIALS?</li> </ul>	
<p>Industrial fish processing Small and Medium Enterprises (SMEs) (see also migration in social development aspect)</p>	<p>Respondents: workers (local and migrant) in fish processing companies</p> <ul style="list-style-type: none"> <li>- ARE YOU EMPLOYED IN AN SME IN FISH PROCESSING? WHAT ARE YOUR ROLES? HOW MUCH DO YOU EARN (PER HOUR OR DAY)?</li> <li>- WHAT ARE YOUR OTHER SKILLS TO EARN ADDITIONAL INCOME?</li> <li>- WHAT ARE THE MAIN PROBLEMS/CONSTRAINTS YOU FACE IN YOUR WORK?</li> <li>- DO YOU HAVE CONCERN ABOUT SAFETY AND HEALTH IN YOUR WORK? (RELATED TO SOCIAL DEVELOPMENT)</li> </ul>	
<p>Intermediaries (ice plant, cold storage, other supplies)</p>	<p>Respondents: staff of intermediary company</p> <ul style="list-style-type: none"> <li>- WHAT ARE YOUR PRODUCTS AND SERVICES?</li> <li>- WHO ARE THE CUSTOMERS?</li> <li>- WHO DECIDE ON THE PRICE OF YOUR PRODUCTS AND SERVICES?</li> <li>- ARE YOU SATISFIED WITH THE PRICE?</li> <li>- WHO KEEP THE MONEY FROM SELLING YOUR PRODUCTS AND SERVICES?</li> <li>- DO YOU KEEP ACCOUNTING RECORDS?</li> </ul>	
<p>Labor aspect (link to social development aspect... demographic and legal status)</p>	<p>Question should be referred to from <i>Ethical Trading Initiative Base Code (ETI BaseCode)</i> at <a href="http://www.ethicaltrade.org/eti-base-code">www.ethicaltrade.org/eti-base-code</a></p>	

2.4. DISASTER RISKS, AND CLIMATE CHANGE

Quantitative indicators	Guide question
<b>Disaster risks</b>	
<b>Prevention and preparedness</b>	
Access to warning systems	<ul style="list-style-type: none"> <li>- WHAT ARE THE WARNING SYSTEMS AVAILABLE IN YOUR COMMUNITY? STILL FUNCTIONING OR NOT?</li> <li>- DO YOU HAVE ACCESS TO WARNING SYSTEMS? HOW?</li> <li>- HOW ARE THE WARNINGS DISSEMINATED?</li> </ul>
Access to evacuation drills, emergency kits, and basic first aid and rescue skills	<ul style="list-style-type: none"> <li>- HAVE YOU PARTICIPATED IN EVACUATION DRILLS? WHAT TYPE OF DRILLS? DID YOU UNDERSTAND THE NECESSARY PROCEDURES? ARE YOU CAPABLE TO PERFORM THE EVACUATION PROCEDURES DURING ACTUAL SCENARIO?</li> <li>- DO YOU KEEP EMERGENCY KITS AT HOME? WHAT ARE INCLUDED IN THE KITS?</li> <li>- HAVE YOU ATTENDED TRAINING ON BASIC FIRST AID AND RESCUE OPERATIONS?</li> </ul>
Access to weather forecast	<ul style="list-style-type: none"> <li>- DO YOU HAVE ACCESS TO WEATHER FORECASTS? HOW?</li> </ul>
Existence of evacuation infrastructures (e.g. schools, high grounds, )	<ul style="list-style-type: none"> <li>- WHAT ARE THE EVACUATION INFRASTRUCTURES AVAILABLE IN YOUR COMMUNITY? WHERE ARE THESE LOCATED?</li> </ul>
<b>Immediate response</b>	
Access to basic needs after disasters (food, clothes, shelter, medicine)	<ul style="list-style-type: none"> <li>- HAVE YOU EXPERIENCED DISASTERS? WHAT KIND?</li> <li>- WHAT BASIC NEEDS HAVE YOU AVAILED OF? HOW LONG DID IT TAKE TO RECEIVE THE BASIC NEEDS?</li> </ul>
Access to compensation for deaths and damages to properties	<ul style="list-style-type: none"> <li>- HAVE YOU RECEIVED ANY COMPENSATION? HOW MUCH? SOURCE?</li> </ul>
Access to medical support (e.g. psychological and physical)	<ul style="list-style-type: none"> <li>- HAVE YOU RECEIVED ANY MEDICAL SUPPORT AFTER DISASTER? WHAT KIND?</li> <li>- WHO IS THE PROVIDER OF MEDICAL ASSISTANCE?</li> </ul>
<b>Rehabilitation, adaptive capacity/resilience</b>	
Access to former livelihood	<ul style="list-style-type: none"> <li>- WHAT IS YOUR OCCUPATION BEFORE AND AFTER DISASTER? DO YOU INTEND TO RETAIN THE SAME OCCUPATION BEFORE THE DISASTER?</li> </ul>
Access for training on alternative livelihood	<ul style="list-style-type: none"> <li>- HAVE YOU ATTENDED ANY TRAINING ON ALTERNATIVE LIVELIHOOD? WHAT KIND? IS IT BENEFICIAL?</li> </ul>
Access to relocation/resettlement programs	<ul style="list-style-type: none"> <li>- DID YOU BENEFIT FROM RELOCATION/RESETTLEMENT PROGRAM? WHAT KIND OF BENEFITS/SERVICES HAVE YOU AVAILED OF?</li> </ul>
Access to new livelihood opportunities	<ul style="list-style-type: none"> <li>- WHAT KIND OF LIVELIHOOD DID YOU ENGAGE WITH?</li> <li>- ARE YOU WILLING FIND OTHER SOURCE OF INCOME?</li> </ul>
Savings (Refer to social development)	<ul style="list-style-type: none"> <li>- DO YOU HAVE ANY SAVINGS TO FINANCE REHABILITATION?</li> </ul>
<b>Climate change</b>	
Access to information on climate change	<ul style="list-style-type: none"> <li>- WHAT IS YOUR UNDERSTANDING OF CLIMATE CHANGE? HOW DID YOU ACCESS TO INFORMATION ON CLIMATE CHANGE?</li> </ul>
Awareness on adaptation to climate change	<ul style="list-style-type: none"> <li>- ARE YOU AWARE OF ANY ADAPTATION MEASURES?</li> </ul>
Effects on fishing activities	<ul style="list-style-type: none"> <li>- HAVE YOU OBSERVED ANY CHANGES IN THE CONDITION OF YOUR FISHING GROUNDS/FISH PONDS? WHAT ARE THE EFFECTS ON YOUR CATCH/HARVEST?</li> <li>- WHAT ACTIONS DO YOU TAKE TO ALLEVIATE THE IMPACTS OF CLIMATE CHANGE TO YOUR FISHING ACTIVITIES?</li> </ul>
Access to new livelihood opportunities	<ul style="list-style-type: none"> <li>- WHAT KIND OF LIVELIHOOD DID YOU ENGAGE WITH?</li> <li>- ARE YOU WILLING FIND OTHER SOURCE OF INCOME?</li> </ul>
Existence of programs on climate change adaptation	<ul style="list-style-type: none"> <li>- TO WHOM DO YOU ASK FOR INFORMATION ON CLIMATE CHANGE ADAPTATION PROGRAMS?</li> </ul>



## ANNEX 10

### SHARING EXPERIENCES ON IMPLEMENTATION OF FISHERIES REFUGIA FOR SUSTAINABLE FISHERIES:

#### ADVANCING THE APPLICATION OF THE FISHERIES REFUGIA CONCEPT IN THE GULF OF THAILAND

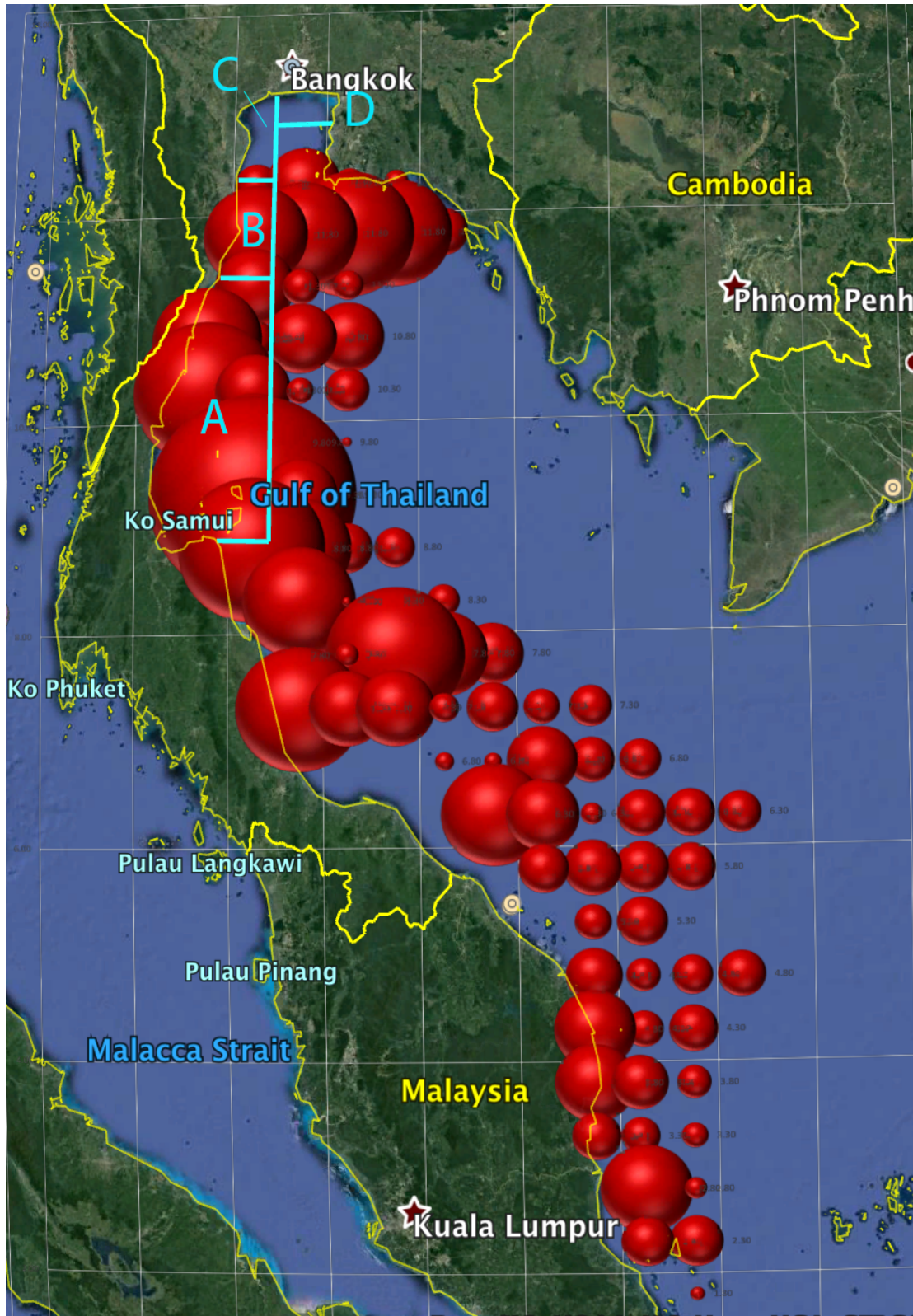
Area-based approaches to fisheries management in the western Gulf of Thailand have applied over the last decade to safeguard spawning stock and larvae of the Indo-Pacific Mackerel (*Rastrelliger brachysoma*). The measures designed against the backdrop of high fishing pressure and increasing demand for the region's seafood products (see refugia areas A and B depicted in Figure 1) have enabled resource managers, scientists, fisherfolk and communities to develop experience working together in safeguarding critical fish stock and life-cycle linkages.

This has involved the application of targeted management measures aimed at significant reductions in fishing effort and use of inappropriate fishing gear and practices for 90 days in area A (15 Feb-15 May) and 30 days area B (16 May – 14 June) to safeguard fish in spawning condition and fish larvae, respectively. The large size of these management have been the source of some tension between government and larger-scale operators, with discussions largely having focused on the need for area-based measures to reflect more fully the known migratory routes, ocean circulation patterns and primary production in the Gulf.

Accordingly, the fisheries refugia concept was recently applied to the establishment of nursery refugia in the upper Gulf of Thailand aimed at boosting year class strength of new recruits to the fishery. This has been achieved via application of targeted measures, combined with revised and strengthened regulations and enforcement, in refugia area C (60 days from 15 Jun – 15 Aug) and refugia areas D (60 days from 1 Aug – 30 Sep) aimed at targeted and incidental capture of larval and juvenile fish. This staged and combined application of refugia areas in a northerly, clockwise direction from the western to the upper central Gulf to protect fish at critical life-cycle stages including spawning, larval, and juvenile to pre-recruit has shown to bring about significant improvements in landings and food security for small-scale operators

Department of Fisheries, Thailand reports an almost 10-fold increase in landings from 2,470 tons prior to the expansion of the network to 28,670 include the operational management of areas C and D. This success points to possible strengthened resilience of stocks of Indo-Pacific associated with the ongoing establishment and planned management of fisheries refugia sites for this species in the transboundary area of Trat, Thailand and Koh Kong, Cambodia which are located to the east of the present managed areas. Recent surveys show these areas to be critical areas for juvenile and young adult Indo-Pacific mackerel.

Success breeds success in the Southeast Asian region, with the abovementioned achievements leading to senior officials of the Department of Fisheries, Thailand recently issuing directives to explore the application of the fisheries refugia approach in bringing about improved management of overexploited stocks of the longtail tuna (*Thunnus tonggol*). The latter represents a true example of the mainstreaming of the science generated by GEF projects in the day-to-day operations of a national government in planning for sustainable fisheries in Southeast Asia.



Distribution and relative abundance of fish larvae in the Gulf of Thailand derived from analysis of samples collected by the Southeast Fisheries Development Center's research vessel, M.V. SEAFDEC 1

Prepared by Somboon Siriraksophon and Christopher John Paterson.

ANNEX 11

Baseline Survey on Socio-Economic Templates



BASELINE SURVEY TEMPLATE

QUESTIONNAIRE CODE	
INTERVIEWER	
DATE	
VILLAGE / COMMUNE / DISTRICT / PROVINCE	

1. HOUSEHOLD SOCIO-DEMOGRAPHIC PROFILE

Section 1: Household members

1.1 Permanent household members

Name  <i>(Mark * at respondent name)</i>	Sex  Male=1, Female=2	Age	Marital status  <i>(code a)</i>	Religion  <i>(code b)</i>	Relation  <i>(code c)</i>	Highest education  <i>(code d)</i>	Current Occupation  <i>(code e)</i>	
							Main	Secondary
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

<i>Code a</i>	<i>Code c</i>	<i>Code d</i>	<i>Code e</i>
1= Single 2= Married 3= Widowed 4= Separated	0= respondent 1=Head 2= Wife/Husband 3=Son/Daughter 4= Other relatives 5= Others, specify	1=none 2=Primary school 3=Junior high school 4=Senior high school 5=Bachelor's degree 6=others, specify	0=schooling 1=farming/livestock keeping 2=Agriculture 3=self employment 4=fishing related activities 5=mangrove related activities 6=employed by private or public sector 7=Retired 8=Searching for job 9=Tourisms related activities 10 others, specify
<i>Code b</i>			
1= Buddhist 2=Muslim 3=Christian 4=Others specify			

1.2 How many years are you residing in your area? \_\_\_\_\_ years.

1.3 If less than five (5) years of residence, indicate place of origin. \_\_\_\_\_.

**Section 2: Asset**

2.1 Classification of household by prosperity

- Off shore fishing     
  Near shore fishing     
  In shore fishing  
 Inland fishing     
  Aquaculture     
  Others, specify \_\_\_\_\_.

2.2 Ownership. Is your house?

- Owned  Rented (how much? \_\_\_\_\_)  Not owned, specify \_\_\_\_\_.

2.3 Furniture/appliance ownership:

- Radio       Sofa set       Gas stove       Bed  
 Washing machine  Microwave       Electric fan       Air-conditioner  
 Sewing machine  T.V.       Refrigerator       Computer  
 Mobile phone       Motorbike       Car       Others, specify \_\_\_\_\_.

2.4 Land:

- Owned, how big? \_\_\_\_\_.  Leased, how much a year? \_\_\_\_\_.

2.5 Fishing gear:

- Canoes, No \_\_\_\_\_.       Sailboats, No \_\_\_\_\_.       Motorized boat, No \_\_\_\_\_.  
 Nets, specify type of nets \_\_\_\_\_.  
 Others fishing gear, specify \_\_\_\_\_.

2.6 Animals owned:

- Buffalo, No \_\_\_\_\_.       Cattle, No \_\_\_\_\_.       Chickens, No \_\_\_\_\_.  
 Ducks, No \_\_\_\_\_.       Goats, No \_\_\_\_\_.       Horses, No \_\_\_\_\_.  
 Pigs, No \_\_\_\_\_.  Others, specify \_\_\_\_\_.

**Section 3: Aquaculture**

3.1 Aquaculture area? \_\_\_\_\_ (local scale)

3.2 When did your family start aquaculture farm? \_\_\_\_\_ years ago.

3.3 What are common species kept in the pond?

Species	
Shrimp	<input type="checkbox"/>
Crab	<input type="checkbox"/>
Fish	<input type="checkbox"/>
Mollusk	<input type="checkbox"/>
Others, specify _____.	<input type="checkbox"/>

3.4 Culture techniques?

- Mono-species   
  Integrated (multi-species)   
  Intensive  
 Semi-intensive   
  Extensive

3.5 How profitable was it for your family aquaculture during the last three years?

- Profitable   
  Break even   
  Lost

**Section 4: Household income**

4.1 Amount of estimated average income per month \_\_\_\_\_.

4.2 Which of the following activities are major sources of livelihood? Please put rank in order of importance. *(Rank the first (1) to be the most important source)*

Activities	Rank of income
Capture fisheries	
Aquaculture	
Agriculture (crop, livestock and forestry)	
Fishery processing	
Coral reefs mining/collection	
Mangroves harvesting	
Seaweed farming	
Laboring	
Trading	
Live stock	
Tourism activities	
Business	
Wages or salaries	
Others, specify _____.	

4.3 What percentage of your income is derived from fishing?

- 76% - 100%   
  50% - 75%   
  25% - 50%   
  Less than 25%

4.4 What are the major problems facing your activities?

	(tick ✓)
1. LACK OF CREDITS	<input type="checkbox"/>
2. LOW PRICES OF OUTPUTS	<input type="checkbox"/>
3. HIGH INPUT PRICES	<input type="checkbox"/>
4. INPUTS UNAVAILABILITY	<input type="checkbox"/>
5. POOR MARKET NETWORKS	<input type="checkbox"/>
6. BAD HEALTH, ACCIDENT	<input type="checkbox"/>
7. DEGRADATION OF CORAL REEFS	<input type="checkbox"/>
8. DECREASE IN MANGROVE FORESTS	<input type="checkbox"/>
9. EXISTENCE OF PROTECTED AREAS	<input type="checkbox"/>
10. DECREASING IN FISHES	<input type="checkbox"/>
11. LACK OF INFRASTRUCTURE	<input type="checkbox"/>
12. LACK OF ALTERNATIVE EMPLOYMENT	<input type="checkbox"/>
13. INCREASE IN POPULATION IN THE AREA	<input type="checkbox"/>
14. OTHERS, SPECIFY _____.	<input type="checkbox"/>

**Section 5: Microfinance**

5.1 Which credit mechanism do you most like to borrow money?

Formal mechanisms       Semi-formal mechanisms       Informal mechanisms

5.2 During the last five years, which of the following financial services did you borrow money?

Formal financial institutions	Loan amount (local currency)	Purpose
Savings and Credit Cooperative		
Agriculture Bank		
Other commercial banks		
NGOs, ODAs		
Private		

5.3 If there is a reliable and convenient financial organization for you to deposit your savings, are you willing to make saving?

Yes       No       Can't decide

5.4 If yes, how much can your family mobilize for saving per month? \_\_\_\_\_ (local currency)

**Section 6: Safety at sea**

6.1 To what extent are you aware of the availability of Safety at sea (SAS) information:

Very aware       Aware       Not aware

6.2 To what extent can you access to information on SAS

Easy       Difficult       Not at all

6.3 To what extent are you satisfied with the following channels for accessing information on safety at sea?

Information channels	Very satisfied	Satisfied	Not satisfied
----------------------	----------------	-----------	---------------

Radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coastal communication/information station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Border Guard Wireless systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commune broadcast system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal communication equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6.4 Do you and your family members comply with the following regulations on safety at sea?

Regulations on safety at sea	Yes	No	Not required
Shipping safety equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Life vest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifebuoy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire fighting equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Location equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trained staff in safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valid ship driving license	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valid boat registration certificate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valid staff registration certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6.5 What do you think about the effectiveness of the systems for responding safety issues and disasters?

Very effective       Effective       Ineffective       No idea

6.6 Have you or your family members ever been trained in avoiding and dealing with accidents at sea?

Yes       No

6.7 How confident are you to avoid accidents at sea?

Very confident     Confident       Not confident

6.8 How confident are you to deal with accidents at sea?

Very confident     Confident       Not confident

## 2. FISHERIES AND MANAGEMENT

### Section 1: Fisheries

1.1 How many years experience do you have in the fishery?

<5 years       5-10 years       11-15 years       16-20 years       >20 years

1.2 Fishing boat

Name	Motor	Length (meter)	Engine power (horse power)	Construction material	Price of boat when purchased	Licensed	No. of crew (person)
	Code; 1= In board 2=Out board			Code; 1=wood 2=fiberglass 3=steel 4=others,specify		Code; 1=Yes 2=No	

1.							
2.							
3.							
4.							
5.							

1.3 Type of fishing gear

Type of fishing gear	No. of fishing gear	High season (Month)	Low season (Month)	No. of fishing day per month	Fishing hours per day	No. of haul per fishing trip	Fishing ground <i>Code; 1=Coastal reef 2= Lagoon 3=Mangrove 4=Outer reef (including passages) 5=Pelagic/open ocean</i>
1.							
2.							
3.							
4.							
5.							

1.4 Catch utilization and distribution (per trip)

Fish species	Utilization (%/trip)		Total quantity (kg/trip)	Price (local currency/kg)	Total income (local currency /trip)
	Family consumption	Sale			
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

1.5 To whom did you sell your fish / fisheries products last year?

Products	Fish frozen factory (%)	Middlemen (%)	Local Processing enterprise (%)	Local market (%)	Others (%)	Don't know
Shrimp						
Crab						



Green crab						
Fish						
Fresh squid						
Dried squid						
Dried fish						
Grilled fish						
Others....						

1.6 How did your catch rates for the current year compare to last year?

Target species	Much higher	Higher	No change	Lower	Much lower	No opinion
<i>Tunas</i>	?	?	?	?	?	?
<i>Scads</i>	?	?	?	?	?	?
<i>Mackerels</i>	?	?	?	?	?	?
<i>Anchovies</i>	?	?	?	?	?	?
<i>crabs</i>	?	?	?	?	?	?
<i>shrimp</i>	?	?	?	?	?	?
<i>squid</i>	?	?	?	?	?	?
	?	?	?	?	?	?
	?	?	?	?	?	?

1.7 How much small fish did you see in your catches this year?

Target species	A lot more small fish than last year	A little more small fish than last year	Same as last year	Fewer small fish from last year	A lot fewer small fish from last year	No opinion
<i>Tunas</i>	?	?	?	?	?	?
<i>Scads</i>	?	?	?	?	?	?
<i>Mackerels</i>	?	?	?	?	?	?
<i>Anchovies</i>	?	?	?	?	?	?
<i>crabs</i>	?	?	?	?	?	?
<i>shrimp</i>	?	?	?	?	?	?
<i>squid</i>	?	?	?	?	?	?
	?	?	?	?	?	?
	?	?	?	?	?	?

1.8 Have you had problem with by-catch of threatened/endangered species in directed fisheries?

	Large problem	Slight problem	No problem	No opinion
<b>Sea turtles</b>	?	?	?	?
<b>Whale</b>	?	?	?	?
<b>Dolphins</b>	?	?	?	?
<b>Sharks</b>	?	?	?	?

Rays	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dugong/ Manatee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Section 2: Post harvest and marketing

2.1 When are you your fish products applied post-harvest method to maintain their quality?

On boat       On land  On boat and on land       Not at all

2.2 Availability, status and utilization of post harvest facilities

Post harvest facilities	Availability		Status		Frequency of use			
	Yes	No	Working properly	Not working properly	Daily	Sometime	Rarely	Never
Ice store on boat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insulating box	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cold store	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oven	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drying oven	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.3 Have you or your family members attended a training course on post harvest during the last three years?

Yes, If yes who attend? \_\_\_\_\_       No

2.4 To what extent are you satisfied with the support of the following institutions on post harvest fisheries?

Institution	Satisfied	Not satisfied	No idea
Sub-department of Rural Development and agricultural - fishery product quality control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
District trade department	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
District extension station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fishery association	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commune People Committee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mass organizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Section 3: Management

3.1 What is the purpose of fisheries management in your fishing ground?

Releasing seeds/fingerling       Conserve fisheries       Increase fishery resources

Maintain fisheries resources       Don't know       Others, specify

3.2 To what extent are you aware of the term Fishery *Refugia* System?

Very aware       Aware       Not aware

3.3 What do you think about the overall usefulness of Fishery *Refugia* System in fisheries resources management?

Very useful       useful       not useful       No idea

3.4 What do you think about the overall usefulness of Fishery *Refugia* System in fisheries livelihoods improvement?

Very useful       useful       not useful       No idea

3.5 What do you think about the effectiveness of fishery management systems?

Very effective       Effective       Not effective       No idea

3.6 Which member in your family often participates in fishery management activities?

Male       Female       Both       None, If no go to 3.8

3.7 During the last six months, did any member in your family attend any fishery management meetings / activities?

Yes       No       Don't know

3.8 To what extent are you satisfied with current fishery management activities?

Very satisfied       Satisfied       Not satisfied       No idea

3.9 Do you have conflict in your community about fisheries management systems?

Yes, in what issue? \_\_\_\_\_.

No       Don't know

3.10 What are your opinions about fisheries resources **during the last five years?**

	Decrease	Increase	Stable	No idea
Productivity of fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversity of fisheries resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lagoon and sea water pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fishing capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.11 What are your opinions about fisheries resources during **the next five years?**

	Decrease	Increase	Stable	No idea
Productivity of fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversity of fisheries resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lagoon and sea water pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fishing capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 3. MARINE ENVIRONMENT

#### Section 1: Knowledge

1.1 DO YOU KNOW WHAT BIODIVERSITY IS?

Yes       No       Not aware of

1.2 IF YES, WHAT CONSISTS BIODIVERSITY?

Animals/microorganism       Trees/plants/forests       Estuaries/coastal area  
 Rivers/lakes/streams       Caves

1.3 WHAT ARE THE ROLES/IMPORTANCE OF THE COASTAL AND MARINE AND OTHER ECOSYSTEMS IN YOUR AREA?

- Habitat of various species.
- Provide foods, livelihood and medicinal benefits to the people.
- Protect us from extreme/destructive effects of storm surges, waves and currents.
- Provide recreational, physical and mental benefits, tourism activities, and spiritual activities.
- Coastal, marine and other ecosystems are interconnected.
- Economic and environmental benefits.
- Option/s:\_\_\_\_\_.

1.4 WHAT ARE THE DIFFERENT ECOSYSTEMS IN YOUR AREA?

- MUDFLAT AREAS                       MANGROVE FORESTS                       SEAGRASS BEDS
- CORAL REEFS
- SALT MARSHES                       LAKES                                       LOWLAND FORESTS
- RIVER
- CAVE

1.5 WHAT ARE THE CHARACTERISTICS OF OUR MANGROVE FORESTS

- COMPOSED OF TREES AND SHRUBS IN SALTY COASTAL AREA
- HAS SOFT SUBSTRATE
- PROP ROOTS, THICK AND WAXY LEAVES
- OTHERS, SPECIFY\_\_\_\_\_.

1.6 DOES THE CONDITION OF OUR MANGROVE FORESTS AFFECTS THE SOURCE OF FOOD OF VARIOUS SPECIES LIKE MOLLUSKS, CRUSTACEANS AND FISHES?

- Yes                                       No                                       Not aware

1.7 WHAT ARE THE IMPORTANCES OF OUR MANGROVE FORESTS?

- Natural breakwater                       Food source to many organisms
- Provide refuge to organisms                       Others, specify\_\_\_\_\_.

1.8 WHAT ARE THE DIFFERENT FACTORS/ACTIVITIES THAT AFFECT OUR MANGROVE FOREST?

- Production of charcoal                       Logging
- Fishing grounds                                       Others, specify\_\_\_\_\_.

1.9 WHAT ARE THE CHARACTERISTICS OF OUR SEAGRASS BEDS

- ENTIRELY IMMERSSED IN SEAWATER
- GROW IN SHALLOW MARINE AND BRACKISH WATERS
- DEPTH DISTRIBUTION LIMITED BY AVAILABILITY OF LIGHT
- OTHERS, SPECIFY\_\_\_\_\_.

1.10 DOES THE CONDITION OF OUR SEAGRASS BEDS AFFECTS DIRECTLY AFFECT FISH PRODUCTIVITY?

- Yes                                       No                                       Not aware

1.11 WHAT ARE THE IMPORTANCES OF OUR SEAGRASS BEDS?

- Maintenance of biodiversity: provide shelter and food for marines animals
- Nursery grounds for fish and invertebrates
- Stabilize coastlines and absorb nutrients from runoff

Others, specify\_\_\_\_\_.

1.12 WHAT ARE THE DIFFERENT FACTORS/ACTIVITIES THAT AFFECT OUR SEAGRASS BEDS?

- Tree planting  Accidents resulting to oil spills  
 Boat docking  Others, specify\_\_\_\_\_.

1.13 WHAT ARE THE CHARACTERISTICS OF OUR CORAL REEFS?

- SOFT OR HARD  EXTENSIVE OR PATCHY  
 LIVE, BLEACHED OR DEAD WITH ALGAE  OTHERS,  
 SPECIFY\_\_\_\_\_.

1.14 DOES THE CONDITION OF OUR CORAL REEFS AFFECTS DIRECTLY AFFECT FISH PRODUCTIVITY?

- Yes  No  Not aware

1.15 WHAT ARE THE IMPORTANCES OF OUR CORAL REEFS?

- HABITAT FOR FISHES  RECREATION  
 Reduce strong wave action  Others, specify\_\_\_\_\_.

1.16 WHAT ARE THE DIFFERENT FACTORS/ACTIVITIES THAT AFFECT OUR CORAL REEFS?

- Dynamite fishing  Global warming  
 Poaching  Others, specify\_\_\_\_\_.

1.17 DO YOU KNOW ABOUT OCEAN/MARINE POLLUTION?

- Yes  No  Not aware

1.18 WHAT ARE THE SOURCES OF MARINE POLLUTION?

- Runoff from sewage, deforestation, farming, and other land use.  
 Sedimentation due to erosion from mining, farming and coastal dredging.  
 Pathogens from sewage and livestock.  
 Ballast water  
 Toxins (Heavy metals, radioactive substances, etc.)  
 Oil from cars, heavy machinery, industry, other land-based sources.  
 Plastics  
 Noise produced by supertankers, other large vessels and machinery.  
 Others, specify\_\_\_\_\_.

1.19 DO PEOPLE DIRECTLY CONTRIBUTE TO OCEAN/MARINE POLLUTION?

- Yes. If yes,How?\_\_\_\_\_.  
 No  Not aware

1.20 DO YOU HAVE IDEA ABOUT CLIMATE CHANGE?

- Yes  No  Not aware

1.21 FOR YOU WHAT IS CLIMATE CHANGE?

- Global warming  
 Caused by human's use of fossil fuels, which releases carbon dioxide and other greenhouse gases into the air.  
 Shifting weather patterns  
 Coastal areas are vulnerable to sea level rise, warming of sea/oceans, intensified weather disturbances.  
 Low lying coastal communities being highly vulnerable to sea level rise

Extreme weather conditions such as drought and flooding can compromise terrestrial crops and pressure on coastal and marine resources.

Ocean acidification

**1.22 DO PEOPLE DIRECTLY CONTRIBUTE TO CLIMATE CHANGE AND ITS CATASTROPHIC EFFECTS?**

Yes

No

Not aware

**Section 2: Utilization**

2.1 Mangrove forests resources, Is your household engages in mangrove harvest related activity?

Yes

No, if no go 2.2

Activity <i>Code a</i>	How long has the household been involved	Indicate the supply source <i>Code b</i>	Distance to supply source (km)	Where sold <i>Code c</i>	Distance to market	Major customers	Quantity sold/week (indicate unit)	Unit price	Mode of transport <i>Code d</i>

<i>Code a</i> 1= Firewood collection 2= Timber collection 3= Charcoal production 4= Boat construction 5= Others, specify	<i>Code b</i> 1=Along forest edge 2= Deep in the heart of the forest 3=In the far forest 4= In the protected area 5= Others, specify	<i>Code c</i> 1=Home 2=Roadside 3=Organized market 4=Urban market 5=Hotel/resort 6=others, specify	<i>Code d</i> 1=On head 2=Bicycle 3=Personal vehicle 4=Hired vehicle 5=others, specify
---	---	--	---

2.2 Coral collection and mining, Is your household engages in Coral harvest related activity?

Yes

No, if no go 2.3

Coral reefs related products <i>Code a</i>	How long has the household been involved	Indicate the supply source <i>Code b</i>	Distance to supply source (km)	Where sold <i>Code c</i>	Distance to market	Major customers	Quantity sold/week (indicate unit)	Unit price	Mode of transport <i>Code d</i>


<i>Code a</i>	<i>Code b</i>	<i>Code c</i>	<i>Code d</i>
1= Coral 2= Shells 3= Others, specify	1=Along the shore 2= In open sea 3=Far away 4= In the protected area 5= Others, specify	1=Home 2=Roadside 3=Organized market 4=Urban market 5=Hotel/resort 6=others, specify	1=On head 2=Bicycle 3=Personal vehicle 4=Hired vehicle 5=others, specify

2.3 Please describe current resource condition in following:

	Very good	Good	Neither	Bad	Very bad
Mangrove	?	?	?	?	?
Coral reefs	?	?	?	?	?
Seagrass beds	?	?	?	?	?
Beaches	?	?	?	?	?
Freshwater	?	?	?	?	?
Upland forest	?	?	?	?	?
Fishery	?	?	?	?	?

2.4 Perceived changes in marine resources. What differences do you see between the present and the past ten (10) years ago with regard to:

Change in:	Better now	Better years ago	No change	Why? (describe)
Fish size	?	?	?	
Fish abundance	?	?	?	
Giant clam abundance	?	?	?	
Sea turtle abundance	?	?	?	
Groupers abundance	?	?	?	
Coral abundance and diversity	?	?	?	
Other organisms	?	?	?	

**Section 3: Attitude**





## ANNEX 12

### Discussion on the Networking and Regional Cooperation

#### I. ESTABLISHMENT OF THE NETWORKING

1.1 Project Director presents this agenda with aims to raise the awareness of all member countries on enhancing the project networking for regional outcomes which requires the national activities inputs. Taking into accounts three outputs mentioned in the project documents as followed: 1) The outcome 2.5 on “Improved national and regional-level management and sharing of information and data on fish early life history in the waters of the South China Sea” in which 6 databases online and populated with datasets and one regional database are needed to develop; 2) The outcome 2.6 on “Enhanced access to information relating to the locations and status of coastal habitats and management areas in the South China Sea and Gulf of Thailand” in which 6 national and 1 regional Geographical Information System online; and 3) The outcome 2.8 on “Improved basin-wide understanding of linkages between ocean circulation patterns, nutrient/chlorophyll concentrations, and sources and sinks of fish larvae in the South China Sea regarding this 1 modeling system online to support the implementation is also needed to develop. In addition, a report on application of modelling system in identifying priority locations for replication and scaling-up of fisheries refugia best practices will be published.

1.2 The PCU will further consult with the partners and participating countries for further discussion at the next Regional Scientific and Technical Committee Meeting in 2019.

#### II. ENHANCING OF THE REGIONAL COOPERATION

2.1 Project Director addresses the requirement for regional cooperation within the ASEAN region because there are many challenges and some issues on transboundary species in which are linked to other member and non-member countries. In addition, cooperation with other institutions and partners, who studied on the same target species, are needed to take into consideration.

2.2 The following studies made by other Donner agencies and program that required of cooperation with are:

- 2.2.1 The Joint Collaborative Research Survey on Fisheries Resources and Marine Environment between Thailand – Cambodia – Vietnam in 2017, 2018:
- 2.2.2 JTF funded SEAFDEC Program support the collaborative Survey to clarify on fish-larvae identification
- 2.2.3 SEAFDEC Sweden Project support on the genetic study to clarify the Indo-pacific mackerel population in the Gulf of Thailand
- 2.2.4 Possibility to create the cooperation between Malaysia and Brunei Darussalam on Tiger Prawn population study. To support the establishment of Fisheries refugia of Tiger Prawn in Miri, Sarawak State, Malaysia.
- 2.2.5 Possibility to create the cooperation between Philippines and Malaysia on Frigate Tuna as a highly migratory species in the SCS and as a selected target species by fishing community in Masinloc, the Philippines.
- 2.2.6 In addition, the Frigate tuna is one of the Target species managed/studied by the Scientific Working Group for Neritic tunas Stock Assessment established under the ASEAN Framework.

## ANNEX 13

### Project Budgeting and Reporting

This paper highlights the requirements, and responsibility of the national lead Agency for budgeting and reporting of the progress of activities to the Project Coordinating Unit (PCU). Following the UN Environment standard monitoring, reporting and evaluation processes and procedures, the substantive and financial project reporting requirements are summarized in **Appendix 8** of the approved Project Document. There is some part of task by national lead agency that agreed in either the Letters of Agreement (LoA) or Letter of Intent (LOI) between SEAFDEC and the National Executing Entities for the Fisheries Refugia Project as follow;

#### LOA/LOI (TASKS BY THE NATIONAL LEAD AGENCY)

- e) PLAN AND IMPLEMENT ACTIVITIES BASED ON THE RESULTS FRAMEWORK, WORK PLAN AND TIMETABLE CONTAINED IN THE NATIONAL PROJECT DOCUMENT AIMED AT ACHIEVING THE NATIONAL-LEVEL GOALS AND OBJECTIVES FOR THE SEAFDEC/UNEP/GEF FISHERIES REFUGIA PROJECT IN [COUNTRY NAME];
- f) PREPARE AND FACILITATE ENDORSEMENT, BY THE NATIONAL FISHERIES REFUGIA COMMITTEE (NFRC), OF QUARTERLY COSTED WORK PLANS TO GUIDE THE EXECUTION OF NATIONAL AND SITE-BASED ACTIVITIES OF THE PROJECT;
- g) SUBMIT ENDORSED QUARTERLY NATIONAL COSTED WORK PLANS TOGETHER WITH A CASH ADVANCE REQUEST IN THE FORMAT ATTACHED AS **ANNEX 2** TO THIS DOCUMENT (LOA/LOI) TO THE PROJECT COORDINATING UNIT AT SEAFDEC AT LEAST FIVE (5) WORKING DAYS BEFORE THE COMMENCEMENT OF EACH QUARTER (I.E. QUARTER 1 IS JANUARY-MARCH; QUARTER 2 IS APRIL-JUNE; QUARTER 3 IS JULY-SEPTEMBER; QUARTER 4 IS OCTOBER-DECEMBER).
- h) PREPARE AND SUBMIT QUARTERLY PROGRESS REPORTS (**ANNEX 3**), EXPENDITURE REPORTS (**ANNEX 4**), AND CASH ADVANCE REQUESTS (**ANNEX 2**) FOR ENDORSEMENT BY THE NFRC AND SUBSEQUENT SUBMISSION TO THE PROJECT COORDINATING UNIT AT SEAFDEC AT LEAST FIVE (5) WORKING DAYS BEFORE THE END OF EACH QUARTER;
- i) PREPARE ANNUAL PROGRESS REPORTS ON NATIONAL-LEVEL ACTIVITIES (**ANNEX 5**) AND RESULTS OF EFFORTS TO ESTABLISH OPERATIONAL MANAGEMENT OF PRIORITY FISHERIES REFUGIA SITES IN [INSERT COUNTRY NAME];
- j) MAINTAIN ACCURATE AND UP-TO-DATE RECORDS AND DOCUMENTS IN RESPECT OF ALL EXPENDITURES INCURRED WITH THE FUNDS MADE AVAILABLE TO ENSURE THAT ALL EXPENDITURES ARE IN CONFORMITY WITH THE PROVISIONS OF THE NATIONAL PROJECT DOCUMENT AND COSTED WORK PLANS ENDORSED BY THE NATIONAL FISHERIES REFUGIA COMMITTEE. FOR EACH DISBURSEMENT, PROPER SUPPORTING DOCUMENTATION SHALL BE MAINTAINED, INCLUDING ORIGINAL INVOICES, BILLS, AND RECEIPTS PERTINENT TO THE TRANSACTION.
- k) PROVIDE SEAFDEC WITH CERTIFIED PERIODIC FINANCIAL STATEMENTS, REPORTS ON CO-FINANCING RECEIVED (**ANNEX 6**).

**Appendix 8: Summary of reporting requirements and responsibilities**

M&E COMPONENT/ ACTIVITY	RESPONSIBILITY ASSIGNMENT		MEANS OF ASSESSMENT/ MONITORING/DATA SOURCE
	INSTITUTION/ AGENCY	PROJECT/ AGENCY OFFICER	
<b>Monitoring</b>			
Preparation of the Overall Project Plan of Operations (PPO), Work-plans and Time-tables, budgets, Risk and IW indicator tables	SEAFDEC/PCU	Project Director	Project Document Resolutions of the Project Steering Committee Meetings
Preparation of individual country/regional work plans:  Cambodia (C) Indonesia (I) Malaysia (M) Philippines (P) Thailand (T) Viet Nam (V) Regional (R)	National Agency/Regional Project Coordination Unit:  C: Department of Fisheries Conservation, Fisheries Administration I: Directorate General of Capture Fisheries, MMFA M: Department of Fisheries, Malaysia P: National Fisheries Research and Development Institute T: Department of Fisheries, Thailand V: Directorate of Fisheries, Viet Nam R: PCU/SEAFDEC	National Focal Points & Project Director:  C: Mr. Ouk Vibol I: xxx (to be confirmed) M: Mrs. Tan Geik Hong P: Mr. Joeren Yleana T: Ms. Praulai Nootmorn V: xxx (to be confirmed) R: Project Director	Project Document Resolutions of the National Fisheries <i>Refugia</i> Committee Meetings Resolutions of the Project Steering Committee Meetings
Preparation of Overall Project Progress Reports	SEAFDEC/PCU UNEP-DEWA	Project Director UNEP Task Manager	Project Coordination Unit's reports to PSC & UNON

M&E COMPONENT/ ACTIVITY	RESPONSIBILITY ASSIGNMENT		MEANS OF ASSESSMENT/ MONITORING/DATA SOURCE
	INSTITUTION/ AGENCY	PROJECT/ AGENCY OFFICER	
Preparation of country and regional component quarterly progress reports:  Cambodia (C) Indonesia (I) Malaysia (M) Philippines (P) Thailand (T) Viet Nam (V) Regional (R)	National Agency/Regional Project Coordination Unit:  C: Department of Fisheries Conservation, Fisheries Administration I: Directorate General of Capture Fisheries, MMFA M: Department of Fisheries, Malaysia P: National Fisheries Research and Development Institute T: Department of Fisheries, Thailand V: Directorate of Fisheries (D-Fish) R: PCU/SEAFDEC	National Focal Points & Project Director:  C: Mr. Ouk Vibol I: xxx (to be confirmed) M: Mrs. Tan Geik Hong P: Mr. Joeren Yleana T: Ms. Praulai Nootmorn V: xxx (to be confirmed) R: Project Director	Component Coordination Units reports to PSC and PCU
Preparation of Expenditure Statements (including co-financing):  Cambodia (C) Indonesia (I) Malaysia (M) Philippines (P) Thailand (T) Viet Nam (V) Regional (R)	National Agency/Regional Project Coordination Unit:  C: Department of Fisheries Conservation, Fisheries Administration I: Directorate General of Capture Fisheries, MMFA M: Department of Fisheries, Malaysia P: National Fisheries Research and Development Institute T: Department of Fisheries, Thailand V: Directorate of Fisheries (D-Fish) R: PCU/SEAFDEC	National Focal Points & Project Director:  C: Mr. Ouk Vibol I: xxx (to be confirmed) M: Mrs. Tan Geik Hong P: Mr. Joeren Yleana T: Ms. Praulai Nootmorn V: xxx (to be confirmed) R: Project Director	UNON-IMIS

M&E COMPONENT/ ACTIVITY	RESPONSIBILITY ASSIGNMENT		MEANS OF ASSESSMENT/ MONITORING/DATA SOURCE
	INSTITUTION/ AGENCY	PROJECT/ AGENCY OFFICER	
Preparation of counterpart contribution reports:  Cambodia (C) Indonesia (I) Malaysia (M) Philippines (P) Thailand (T) Viet Nam (V) Regional (R)	National Agency/Regional Project Coordination Unit:  C: Department of Fisheries Conservation, Fisheries Administration I: Directorate General of Capture Fisheries, MMFA M: Department of Fisheries, Malaysia P: National Fisheries Research and Development Institute T: Department of Fisheries, Thailand V: Directorate of Fisheries (D-Fish) R: PCU/SEAFDEC	National Focal Points & Project Director:  C: Mr. Ouk Vibol I: xxx (to be confirmed) M: Mrs. Tan Geik Hong P: Mr. Joeren Yleana T: Ms. Praulai Nootmorn V: xxx (to be confirmed) R: Project Director	Reports on co-financing to the PSC
On-site supervision of Component Activities:  Cambodia (C) Indonesia (I) Malaysia (M) Philippines (P) Thailand (T) Viet Nam (V) Regional (R)	National Agency/Regional Project Coordination Unit:  C: Department of Fisheries Conservation, Fisheries Administration I: Directorate General of Capture Fisheries, MMFA M: Department of Fisheries, Malaysia P: National Fisheries Research and Development Institute T: Department of Fisheries, Thailand V: Directorate of Fisheries, Viet Nam (D-Fish) R: PCU/SEAFDEC	National Focal Points & Project Director:  C: Mr. Ouk Vibol I: xxx (to be confirmed) M: Mrs. Tan Geik Hong P: Mr. Joeren Yleana T: Ms. Praulai Nootmorn V: xxx (to be confirmed) R: Project Director	On-site data collection
UNEP-DEWA Supervision Missions	PCU  UNEP-DEWA	UNEP Task Manager	On-site data collection  Mission reports

M&E COMPONENT/ ACTIVITY	RESPONSIBILITY ASSIGNMENT		MEANS OF ASSESSMENT/ MONITORING/DATA SOURCE
	INSTITUTION/ AGENCY	PROJECT/ AGENCY OFFICER	
<b>Evaluation</b>			
Meetings of the PSC	SEAFDEC/PCU (acting as Secretariat of the Committee)	Project Director UNEP Task Manager	Minutes of the meetings of the PSC
Meetings of the RSTC	SEAFDEC/PCU (acting as Secretariat of the Committee)	Project Director UNEP Task Manager	Minutes of the meetings of the RSTC
Mid-Term Management Review	UNEP-EOU in consultation with the SEAFDEC/PCU, and participating institutions and stakeholders	Independent consultant	On-site data collection Project Manager review
Final Evaluation	UNEP-EOU in consultation with the PCU, and participating institutions and stakeholders	Independent consultant	On-site data collection Consultant report
Annual Project Implementation Review (PIR)	UNEP with the assistance of participating Institutions	Project Director in consultation with UNEP Task Manager	On-site data collection PIR reports

## ANNEX 2

### AGREED PAYMENT PROCESSING FORM

SEAFDEC/UNEP/GEF PROJECT ENTITLED  
"ESTABLISHMENT AND OPERATION OF A REGIONAL SYSTEM OF FISHERIES REFUGIA IN  
THE SOUTH CHINA SEA AND GULF OF THAILAND"

[INSERT COUNTRY NAME]

#### 1. BANKING INFORMATION

Funds for the project entitled "Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand" (hereafter referred to as the South China Sea Fisheries Refugia Initiative) in [INSERT COUNTRY NAME] are to be transferred to the following bank account:

**Name of Bank:** [INSERT BANK NAME]  
**Country of Bank:** [INSERT COUNTRY]  
**Address of Bank:** [INSERT ADDRESS OF BANK]  
**Account Title:** [INSERT ACCOUNT TITLE]  
**Account Number:** [INSERT BANK ACCOUNT NUMBER]  
**Routing Instructions:** [INSERT ROUTING INSTRUCTIONS E.G. SWIFT CODE]

#### 2. RELEASE OF FUNDS AND AUDITING

i. The initial cash advance, will be made upon final clearance of the Memorandum of Understanding by the Head of Lead Agency and the Southeast Asian Fisheries Development Center (SEAFDEC).

ii. Subsequent payments will be made at three monthly intervals upon receipt by the Project Coordinating Unit of an expenditure statement signed by a duly authorised official, and a narrative progress report together with a cash advance request in the agreed formats.

iii. The Lead Agency shall report the end year expenditure accounts at 31 December, certified by a duly authorised official, but, in addition, SEAFDEC requires that the end of year expenditure account should be reported in an opinion by a recognised firm of public accountants (for a government, by Government auditors), which shall be dispatched to SEAFDEC by 31 March. In particular, the auditors should be asked to report whether, in their opinion:

- Proper books of account and records have been maintained;
- All project expenditures are supported by vouchers and adequate documentation; and,
- Expenditures have been incurred in accordance with the objectives outlined in the Memorandum of Understanding.

#### 3. USE OF GEF GRANT FUNDS TRANSFERRED TO THE NOMINATED BANK ACCOUNT

Funds (US dollars) transferred to the bank account indicated in Part 1 of this form will be used solely for the purpose of executing national activities of the South China Sea Fisheries Refugia Initiative in [INSERT COUNTRY NAME].

#### 4. CERTIFYING OFFICERS



Prepared by:

Authorised by:

Approved by:

[Insert Name]  
 National Focal Point  
 [Insert Position]  
 [Insert Ministry Name]  
 [Insert Country Name]  
 Date: [Insert Date]

[Insert Head of Lead Agency's  
 Name]  
 [Insert Position]  
 [Insert Ministry Name]  
 [Insert Country Name]  
 Date: [Insert Date]

Mr. XXXXXXXXX  
 Project Director  
 South China Sea Fisheries  
 Refugia Initiative  
 SEAFDEC  
 Date: [Insert Date]

Annex 3: Quarterly-Progress-Report

**SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER  
SOUTH CHINA SEA FISHERIES REFUGIA INITIATIVE  
THREE MONTHLY PROGRESS REPORT**

**SECTION 1 - BACKGROUND INFORMATION**

- 1.1 Project Title:
- 1.2 Agreement: SEAFDEC/UNEP/GEF/Country
- 1.3 Responsible Office: UNEP/GEF Project Coordinating Unit, SEAFDEC
- 1.4 Lead Agency (Supporting Organization): Name of Lead Agency
- 1.5 Reporting Period: Quarterly Period
- 1.6 Focal Point Name: Name of Focal Point

**SECTION 2 - PROJECT STATUS**

- 2.1 Status of the Implementation of the Activities and Outputs Listed Under the Workplan in the Memorandum of Understanding (check appropriate box)

- Project activities and outputs listed in the Project workplan for the reporting period have been materially completed and the responsible Office is satisfied that the project will be fully completed on time (give reasons for minor variations as Section 3 below).
- Project activities and outputs listed in the Project Workplan for the reporting period have been altered (give reasons for alterations: lack of finance; project reformulated; project revisions; other at Section 3 below).
- Project activities and outputs listed in the Project Workplan for the reporting period have not been fully completed and delays in project delivery are expected (give reasons for variations in Section 3.1 and new completion date in Section 3.2 below).
- Insufficient detail provided in the Project Workplan.

- 2.2 List Actual Activities/Outputs Achieved in the Reporting period: (check appropriate box)

(a) **MEETINGS** (Duplicate this box for each meeting individually)

- Committee Mtg.  Consultation Mtg.  Training Seminar/Workshop  Others

Title \_\_\_\_\_  
Venue and dates \_\_\_\_\_  
Convened by \_\_\_\_\_ Organized by \_\_\_\_\_  
Report issued as doc. No/Symbol \_\_\_\_\_ Languages \_\_\_\_\_ Dated \_\_\_\_\_

Please indicate: No. of participants' \_\_\_\_\_ and attach **annex** giving names, gender of participants and meeting summary.

**Please indicate co-financing as follows:**

Source \_\_\_\_\_  
Cash (US\$) \_\_\_\_\_  
In-Kind (person days) \_\_\_\_\_



(b) **PRINTED MATERIALS** (Duplicate this box for each printed item)

Committee Report       Technical Publication       Technical Report       Others

Title: \_\_\_\_\_

Author(s)/Editor(s) \_\_\_\_\_

Publisher \_\_\_\_\_

Symbol (ISBN/I \_\_\_\_\_

Date of publication \_\_\_\_\_

(When technical reports/publications have been distributed, **attach distribution list**)

**Please indicate co-financing as follows:**

Source \_\_\_\_\_

Cash (US\$) \_\_\_\_\_

In-Kind (person days) \_\_\_\_\_

(c)  **TECHNICAL INFORMATION**       **PUBLIC INFORMATION** (posters, leaflets, broadcasts etc.) (Duplicate this box for each item)

Description \_\_\_\_\_

Dates \_\_\_\_\_

**Please indicate co-financing as follows:**

Source \_\_\_\_\_

Cash (US\$) \_\_\_\_\_

In-Kind (person days) \_\_\_\_\_

(d) **SERVICES** (surveys, technical assistance etc.) (Duplicate this box for each item)

Description

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Dates \_\_\_\_\_

**Please indicate co-financing as follows:**

Source \_\_\_\_\_

Cash (US\$) \_\_\_\_\_

In-Kind (person days) \_\_\_\_\_

**(e) OTHER OUTPUTS (Duplicate this box for each item)**

Description: \_\_\_\_\_

Dates \_\_\_\_\_

**Please indicate co-financing as follows:**

Source: .....

Cash (US\$): .....

In-Kind (person days):

**SECTION 3 - PROJECT DELIVERY**

**3.1 Summary of the Problems Encountered in Project Delivery (if any)**

**3.2 Actions Taken or Required to Solve the Problems (identified in Section 3.1 above)**

**SECTION 4 - PROJECT COORDINATING UNIT ASSISTANCE REQUIRED**

**4.1 Describe specific assistance you would like the PCU to provide in the next quarter.**

**Signed:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Designation:** \_\_\_\_\_

Annex 4 a:

**THREE-MONTHLY (QUARTERLY) PROJECT EXPENDITURE ACCOUNT FOR NATIONAL LEAD AGENCIES**  
**Project Statement of allocation (Budget), expenditure and balance (Expressed in US\$) covering the period**  
**from January to March 2017**

National Lead Agency: Insert Name of National Lead Agency

MoU Number: SEAFDEC/UNEP/GEF/Country/MoU Number

Project Title: South China Sea Fisheries Refugia Initiative

Project commencing: January 2017

Project ending: December 2021

NB: The expenditures should be reported in line with the specific object of expenditures as per project budget		Project budget allocation for the 3-month period <span style="color: red;">(Insert dates)</span>	Expenditure incurred for the three-month period <span style="color: red;">(Insert dates)</span>	Unspent balance of budget for the three-month period <span style="color: red;">(Insert dates)</span>
Object of Expenditure in accordance with UNEP Budget codes		Amount (1)	Amount (2)	Amount (1-2)
Code	Description	Jan-Mar 2017	Jan-Mar 2017	Jan-Mar 2017
<b>1000</b>	<b>PROJECT PERSONNEL COMPONENT</b>			
1100	Project Personnel			
1101	Insert object of expenditure (add lines as required)	0.00		
1199	Total	0.00		
1999	Component Total	0.00		
<b>3000</b>	<b>TRAINING COMPONENT</b>			
3300	Meetings/conferences			
3301	Insert object of expenditure (add lines as required)	0.00		
3999	Component Total	0.00		
<b>5000</b>	<b>MISCELLANEOUS COMPONENT</b>			
5200	Reporting costs			
5201	Insert object of expenditure (add lines as required)	0.00		
5299	Total	0.00		
5999	Component Total	0.00		
9999	Project Total	0.00		

Annex 5 (a): Progress Towards Achieving the Project Objectives: Project Objectives and Outcomes

Project objective and Outcomes	Description of indicator <sup>1</sup>	Baseline level <sup>2</sup>	Mid-term target <sup>3</sup>	End-of-project target	Level at 30 June 20..
<b>Objective<sup>4</sup></b>	1.				
	2.				
	3.				
<b>Outcome 1:</b> <i>(describe)</i>					
<b>Outcome 2:</b> <i>(describe)</i>					
<b>Outcome 3:</b> <i>(describe)</i>					
<b>Outcome 4:</b> <i>(describe)</i>					
<b>Outcome 5:</b>					

<sup>1</sup> Add rows if your project has more than 3 key indicators per objective or outcome.

<sup>2</sup> Depending on selected indicator, quantitative or qualitative baseline levels and targets could be used (see Glossary included as Annex 1).

<sup>3</sup> Many projects did not identify Mid-term targets at the design stage therefore this column should only be filled if relevant.

<sup>4</sup> Add rows if your project has more than 4 objective-level indicators. Same applies for the number of outcome-level indicators.

Annex 5 (b): Progress Towards Achieving the Project Objectives: Project Implementation Progress

Outputs <sup>5</sup>	Expected completion date <sup>6</sup>	Implementation status as of 30 June 20.. (%)
<b>Output 1: (describe)</b>		
Activity 1: (describe)		
Activity 2:		
Activity 3:		
<b>Output 2:</b>		
Activity 4:		
Activity 5:		
Activity 6:		
<b>Output 3:</b>		
Activity 7:		
Activity 8:		
Activity 9:		
<b>Output 4:</b>		
Activity 10:		
Activity 11:		
Activity 12:		
<b>Output 5:</b>		
Activity 13:		
Activity 14:		
Activity 15:		
Activity 16:		

<sup>5</sup> Outputs and activities as described in the project logframe or in any updated project revision.

<sup>6</sup> As per latest workplan (latest project revision)

Annex 6: Co-financing Report

**SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER  
SOUTH CHINA SEA FISHERIES REFUGIA INITIATIVE  
ANNUAL REPORT OF COFINANCING**

(Year \_\_\_\_\_ )

<b>(f) OTHER IN-KIND AND CASH CO-FINANCING TO THE PROJECT</b>		
<b>Sources of co-financing</b>	<b>In-kind Contribution (in person days)</b>	<b>Cash Contribution (in US\$)</b>

