



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

REPORT

**THE SECOND NATIONAL SCIENTIFIC AND TECHNICAL
COMMITTEE MEETING**

**KEDAH, MALAYSIA
4 MAY 2018**

Prepared by
DEPARTMENT OF FISHERIES, MALAYSIA

SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER
TRAINING DEPARTMENT



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Venue

Meeting Room, HIG Hotel Langkawi, Kedah

1. CHAIRPERSON KEYNOTE

- 1.1. Chairperson welcomed all the attendees to the meeting.
- 1.2. The meeting aimed to discuss scientific and technical issues, to prepare costed quarterly work plan of the implementation of two (2) refugia projects namely Lobster Refugia in Tanjung Leman, Johor and Tiger Prawn Refugia in Kuala Baram, Sarawak. These projects has been approved and will be carried until end of 2020. All relevant parties must ensure the implementation of this project as outlined in the workplan. Scientific data are crucial to support this project therefore study must carried out in order to formulate a management plan.
- 1.3. The structure of the committee will be divided into three (3) levels:
 - a) National Fisheries Refugia Committee
 - b) National Scientific and Technical Committee
 - c) Refugia Site Committee
 - Tanjung Leman, Johor
 - Kuala Baram, Sarawak.
- 1.4. The refugia project will be implemented into four (4) components:
 - a) Component 1: Identification and management of fisheries and critical habitat linkages at 3 priority fisheries refugia in Malaysia.
 - b) Component 2: Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledgebase for fisheries refugia management in Malaysia.
 - c) Component 3: Information Management and Dissemination in support of national-level implementation of the fisheries refugia concept in Malaysia
 - d) Component 4: National coordination for integrated fish stock and critical habitat management in Malaysia

2. DISCUSSION

- 2.1 **Refugia Project in Kuala Baram, Sarawak**
 - 2.1.1 The status of the project was presented by Mr. Hadil bin Rajali.
 - 2.1.2 Biological studies will be conducted by FRI Batu Maung and socioeconomic studies conducted by UiTM Sarawak and JPLS.
 - 2.1.3 Socio-economic studies showed that the tiger prawn is found at three (3) nautical miles from the coast and mostly are found in Kuala Baram.
- 2.2 **Refugia Project in Tanjung Leman, Johor**
 - 2.2.1 The status of the project was presented by Mr. Ryon Siow
 - 2.2.2 The shrimp research activities include the following aspects:
 - a) Lobster landing data collection

- b) Monitor the presence of broodstock with eggs
 - c) Obtain lobster spawning season
 - d) Distribution and density survey of lobster and larvae
- 2.2.3 Preliminary study showed broodstock with eggs are found from July to September and the peak season is August.
- 2.2.4 Refugia Information Centre was officiated by the Director General of Fisheries on November 20, 2017.

2.3 **FINANCIAL STATUS**

- 2.3.1 Malaysia has received the first cash from GEF / UNEP / SEAFDEC amount USD 27, 230.00 (RM113,276.80) in mid-March 2018 and shall be spent before July 2018.
- 2.3.2 Department of Fisheries Malaysia has allocated national fund (P23300 069) also for the implementation of refugia projects:
- a) Refugia Tanjung Leman, Johor - RM120,000
 - b) Refugia Kuala Baram - RM100,000
- 2.3.3 All Project Leaders and Coordinating Officers at Headquarters and State should plan the expenditures according to the approved budget by GEF and national fund.

3. **OTHER MATTERS**

- 3.1 Madam Haryati binti Abd.Wahab will carry out project management tasks while the Project Manager is appointed.
- 3.2 There are 29 refugia sites which have been identified in six (6) participating countries Out of this, two (2) sites have been proposed in Malaysia.
- 3.3 The committee requested the project progress report prepared by the Project Leader promptly.
- 3.4 The official appointment of members of the Technical and Scientific Committees shall be expedited. All documents and appointments issued for this project need to be documented.

4. **CLOSING**

- 4.1 The chairperson thanked all the attendees and the meeting adjourned at 5.00 pm.

List of participants

| NO. | NAME | AGENCY |
|------------|---------------------------------------|--|
| 1 | Dr. Zainoddin bin Jamari | Fisheries Research Institute |
| 2 | Rosidi bin Ali | Fisheries Research Institute |
| 3 | Dr. Alias bin Man | Fisheries Research Institute |
| 4 | Mr. Bohari bin Haji Leng | Department of Marine Fisheries Sarawak |
| 5 | Mrs. Noor Hasmayana binti Yahaya | Department of Fisheries Malaysia |
| 6 | Mr. Abd. Haris Hilmi bin Ahmad Arshad | Fisheries Research Institute |
| 7 | Mr. Hadil bin Rajali | Fisheries Research Institute |
| 8 | Mr. Ryon Siow | Fisheries Research Institute |
| 9 | Mr. Zainuddin bin Ilias | Fisheries Research Institute |
| 10 | Mrs. Liza binti Haji Long | Department of Marine Fisheries Sarawak |
| 11 | Mrs. Haryati binti Abd. Wahab | Department of Fisheries Malaysia |
| 12 | Mrs. Annie Nunis Billy | Marine Fishery Resources Development and Management Department |
| 13 | Mrs. Fadzilah binti Md Kassim | Department of Fisheries Malaysia |
| 14 | Mrs. Nooraein binti Hassan | Department of Fisheries Malaysia |
| 15 | Mr. Dolhadi bin Lihi | Department of Marine Fisheries Sarawak |
| 16 | Ms. Nur Hidayah binti Asgnari | Fisheries Research Institute |

Disemak oleh:



(En. Rosidi bin Ali)
Pengarah Bahagian FRI Kg. Aceh

Disahkan oleh:



(Dr. Zainoddin bin Jamari)
Pengarah Kanan Bahagian Penyelidikan

**MINIT MESYUARAT JAWATANKUASA SAINTIFIK DAN TEKNIKAL KEBANGSAAN PROJEK REFUGIA PERIKANAN
DI PERAIRAN LAUT CHINA SELATAN DAN TELUK SIAM DI BAWAH SEAFDEC/UNEP/GEF BIL. 1/2018**

Lampiran 1

SEAFDEC/UNEP/GEF South China Sea Fisheries Refugia Initiative
MALAYSIA
[OKTOBER 2017 & DECEMBER 2017] Q1 & Q2

| Key Result Area | Related Target | Planned Activities(s) | Anticipated Deliverable/ Timeline | Status | Inputs/ Support Required | Agreed Follow-up |
|---|--|---|--|---|--|--------------------|
| Component 1 | | | | | | |
| Component 1. Identification and management of fisheries and critical habitat linkages at 3 priority fisheries refugia in Malaysia 1.1 Developing fisheries and coastal habitat information and data collection programmes for (1) Tg. Leman, Johor | 1.1.1 Review existing information and data on fisheries and coastal habitats at sites, including needs | Literature review and data collection | Data profile Agreed physical document | Need to compile existing information and past research papers | Tj Leman: RM500 K. Baram: RM500 Total: RM1,000 (USD 240) | |
| | | 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 | Need to analyse the raw data collected during survey in Johor and Sarawak waters | Tj Leman: RM5000 K. Baram: RM5000 Total: RM10,000 to organize the 3 days workshop (1 workshops x 2 days) (USD 2,400) | |
| | | Analysis of larvae samples from East Johor | Lobster larvae distribution and density | Need to analyse larvae samples from recent survey | Estimated samples analysis cost: RM4000 (USD 960) | |
| | 1.1.2 Consultation workshops to secure community and fisherfolk support in information and data collection | Consultation workshops with the traditional gears fishermen in Rompin District, Pahang | 1 consultation workshop | Need to coordinate with the fishery district office for a suitable date, venue and number of participants | - | Used Natoinal fund |
| | 1.1.3 Design and conduct site-based survey to produce fisheries and habitat profile report for 2 sites | Site based survey and reconnaissance for socio-economic study | 1 recon survey | Need to develop questionnaire survey | Tj Leman: RM6000 (USD 1440) | |
| Daily collection of lobster and tiger prawns landing data from selected sites: Site 1: Sedili | | Lobster and tiger prawns landing trend and basic biological information (species, | Need to select and hire field workers (6 persons) 2 technical officer (for 2 sites) | Estimated wage of field workers: Tj Leman RM1200 x 4 persons | | |

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|---|---|---|--|--|--|--|
| | | Site 2: Pengerang Site 3: Mersing Site 4: Rompin Site 5: Kuala Baram | length, weight, egg presence) | | =RM4,800 per month Cost for 3 months: RM14,400 K. Baram RM1200 x 2 persons =RM2,400 per month Cost for 3 months: RM7,200 Cost for technical officer (DSA and hotel lodging) = Tj Leman: RM10,000 K. Baram: RM10,000 Total: RM20,000 - Total = RM 41.600 (USD 9,984) | |
| | 1.1.4 Design and conduct fisheries surveys at the 2 sites and submit data to a national online database | Design site based survey | 1 technical workshop (2 days) | Need to develop appropriate design | | |
| Component 2 | | | | | | |
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| Component 3 | | | | | | |
| Component 3: Information Management and Dissemination in support of national-level implementation of the fisheries refugia concept in Malaysia | 3.3.1 Establish and operate national web portal for knowledge management on fisheries refugia | Establish 1 Information Center for Refugia Site | To provide technical information and management information for refugia to local community | Need to identify suitable location and appoint 1 contract worker Cost of renovation and exhibition material | Tj. Leman: RM 20,000 (USD 4,800) | |

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|---|---|--|---|---------------------------------|--|--|
| 3.3 Knowledge generated and experiences from establishing and operating fisheries refugia captured and shared nationally, regionally, and globally | | | | | | |
| Component 4 | | | | | | |
| Component 4. National coordination for integrated fish stock and critical habitat management in Malaysia | 4.1.1 Develop and agree ToR, membership & operational rules for National Fisheries Refugia Committee | 1 meeting | Meeting report including participant list | Need to determine suitable date | RM10,000 (USD2,400) | |
| | 4.1.2 Establish and convene quarterly meetings of the National Fisheries Refugia Committee (NFRC) | 1 meeting | Meeting report including participant list | Need to determine suitable date | - | |
| | 4.1.3 NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders | 1 meeting | Meeting report including participant list | Need to determine suitable date | - | |
| 4.2 Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries refugia | 4.2.1 Establish and convene 6 monthly meetings of the National Technical Working Group | 2 meetings | Meeting report including participant list | Need to determine suitable date | - | |
| | 4.2.2 Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3 | 1 meeting | Compilation of data | Need to determine suitable date | - | |
| 4.3 Catalyzing local community action via establishment and operation of site-based management boards at 2 priority refugia 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 | 1 meeting at Johor, Pahang and Sarawak | Meeting report including participant list | Need to determine suitable date | Tj Leman: RM4,700 K. Baram: RM4,700 Total: RM 9400 (USD 2,256) | |

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| | 4.3.2 Establish and convene quarterly meetings of site-based management boards | 1 meeting at Johor, Pahang and Sarawak | Meeting report including participant list | Need to determine suitable date | | |
| | 4.3.3 Preparation of quarterly work plans and progress and financial reports on activities at each site | Appointment of a Project Manager | quarterly work plans and progress and financial reports | Need to appoint suitable person for the post | RM11,440 for wage and travel expenses (USD 2750) | |
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| Training and Capacity Development | | | | | | |
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| Planned Attendance at Workshops/ Meetings | | | | | | |
| TOTAL | | | | | RM113,276.80 | USD27,230 |

Lampiran 2

**SEAFDEC/UNEP/GEF South China Sea Fisheries Refugia Initiative
MALAYSIA**

[JULY 2018 – SEPT 2018] Q3

| Key Result Area | Related Target | Planned Activities(s) | Anticipated Deliverable/ Timeline | Status | Inputs/ Support Required | Agreed Follow-up |
|---|---|---|---|---|--|---|
| Component 1 | | | | | | |
| Component 1. Identification and management of fisheries and critical habitat linkages at 3 priority fisheries refugia in Malaysia 1.1 Developing fisheries and coastal habitat information and data collection programmes for (1) Tg. Leman, Johor (2) K. Baram, Sarawak | 1.1.3 Design and conduct site-based survey to produce fisheries and habitat profile report for 2 sites | Collection of lobster and tiger prawns landing data from selected sites: Site 1: Sedili Site 2: Sg Rengit Site 3: Tj Leman Site 4: Endau Site 5: Kuala Baram | Lobster and tiger prawns landing trend and basic biological information (species, length, weight, egg presence) | Supervising the data collection of field workers (7 persons) 2 technical officer (for 2 sites) | Estimated wage of field workers: RM1500 x 4 persons =RM6000 per month Cost for 3 months: RM18,000 (Tj. Leman) Cost for technical officer (DSA and hotel lodging) = RM30,500 (K.Baram) RM3000 (Tj. Leman) - Total = RM 51,500 (USD 12,979.03) | |
| | 1.1.4 Design and conduct fisheries surveys at the 2 sites and submit data to a national online database | Conduct lobster and prawn survey at refugia sites | 2 survey reports | Need to conduct survey at 2 sites | Taxonomic consultant during survey at sea : RM8000 (Tj. Leman) (USD2,016.06) | Use national fund for surveys (RM200,000) |
| 1.2 Facilitating agreement among stakeholders on the boundaries of fisheries refugia at the (1) Tg. Leman, Johor and (2) Kuala Baram, Sarawak sites | 1.2.1 Conduct consultations (including at-sea) to draft maps of fisheries refugia for priority species | Observer-on-board activity on fish trawlers to record lobster catch location and biology | Map of lobster catch location and migration route (coordinates, egg presence, size) | Need to select and hire field workers (4 persons) | <u>Tj Leman:</u> Estimated wage of field workers: RM1250 x 4 persons =RM5000 per trip Cost for 3 months: RM5000 K.Baram RM2550 - RM7550 (USD1,902.75) | |

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|--|--|---|--------------------------|--|---|-------------------|
| | | | | | | |
| | 1.2.3 Conduct assessment of environmental and social impacts of designation of sites as refugia | Compilation of data and report writing | 1 report | Ongoing socio-economic survey | - | Use national fund |
| 1.3 Developing Community-Based Management Plans for the (1) Tg. Leman, Johor and (2) Kuala Baram, Sarawak sites | 1.3.1 Consultations to identify key threats to fisheries <i>refugia</i> sites and identify management measures | Consultations workshop with the traditional gears fishermen in Refugia sites | 2 consultations workshop | Need to coordinate with the fishery district office for a suitable date, venue and number of participants | - | Use national fund |
| Component 2 | | | | | | |
| 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 2.1 Enhancing policy guidance for improved management of the effects of fishing on critical habitats | 2.1.1 Identify and document key threats from fishing and the environment to fish stock and critical habitat linkages | Compilation of reports and literature concerning the subject | Reports | Need to identify and document key threats from fishing and the environment to fish stock and critical habitat linkages | - | - |
| 2.2 Defining the policy and legal basis for formal designation and establishment of fisheries refugia in Malaysia | 2.2.1 Review of policy and legal aspects on refugia (terminology, procedures, recommended reforms) | 1 meeting to review of policy and legal aspects on refugia (terminology, procedures, recommended reforms) | 1 meeting report | - | - | |

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| 2.5 Enhancing access to information relating to status and trends in fish stocks and their habitats in Malaysia waters of the SCS | 2.5.1 Compile information and data derived from abundance surveys for longer-term management | Compilation of literature and past reports | 1 report compilation | Need to identify past survey report and literature | - | |
| | 2.5.2 Compile information and data derived from surveys on size-frequency of priority species | Compilation of literature and past reports | 1 report compilation | Need to identify past survey report and literature | - | |
| 2.6 Improving national-level management and sharing of information and data on fish early life history in Malaysia waters of the SCS | 2.6.1 Prepare a national inventory of lobster larvae samples collected from Malaysia waters (both analysed and unanalysed) | Analysis of larvae samples from East Johor for year 2018 | Lobster larvae distribution and density | Need to collect and analyse larvae samples from 2018 survey | Tj. Leman Estimated larvae samples analysis cost: RM1500 (USD378.03) | |
| Component 3 | | | | | | |
| Component 3: Information Management and Dissemination in support of national-level implementation of the fisheries refugia concept in Malaysia | 3.1.1 Quarterly capture and documentation of best practices in the establishment and operation of fisheries refugia | To be carry out in next term | - | - | - | |
| 3.1 Enhancing national uptake of best practices in integrating fisheries management and biodiversity conservation | | | | | | |
| 3.3 Knowledge generated and experiences from establishing and operating fisheries refugia captured and | 3.3.1 Establish and operate national web portal for knowledge management on fisheries refugia | Establish 1 Information Center for Refugia Site at Kuala Baram | To provide technical information and management information for refuge to local community | Need to identify suitable location and appropriate exhibition material | RM10,000 (K Baram) RM10,000 (Tj. Leman) -RM20,000 (USD5,040.40) | |

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|---|---|--|---|--|--|-------------------|
| shared nationally, regionally, and globally | | Upgrade facilities at Tj. Leman Information Center | | | | |
| Component 4 | | | | | | |
| Component 4. National coordination for integrated fish stock and critical habitat management in Malaysia | 4.1.2 Establish and convene quarterly meetings of the National Fisheries Refugia Committee (NFRC) | 1 Meeting | Meeting report including participant list | Need to determine suitable date | RM5,000 (USD1,260.10) | |
| | 4.1.3 NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders | 1 meeting | Meeting report including participant list | Need to determine suitable date | - | |
| 4.1 Strengthened cross-sectoral coordination in the establishment and operation of fisheries refugia in Malaysia | | | | | | |
| | | | | | | |
| 4.2 Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries refugia | 4.2.1 Establish and convene 6 monthly meetings of the National Technical Working Group | 1 Meeting and Seminar | Meeting report including participant list | Need to determine suitable date | RM8,000 (USD2,016.06) | |
| | 4.2.2 Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3 | Incorporate in 4.2.1 | - | - | - | |
| 4.3 Catalyzing local community action via establishment and operation of site-based management boards at 2 priority refugia sites | 4.3.2 Establish and convene quarterly meetings of site-based management boards | 3 meetings | 3 meeting reports | Need to determine suitable date | - | Use national fund |
| | 4.3.3 Preparation of quarterly work plans and progress and financial reports on activities at each site | Appointment of a Project Manager | Quarterly work plans and progress and financial reports | Need to appoint suitable person for the post | RM11,440 for wage and travel expenses (USD 2883.11) | |
| Training and Capacity Development | | | | | | |
| Planned Attendance at Workshops/ Meetings | | | | | \ | |

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| TOTAL | RM112,990 (USD28,475.74) |
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Lampiran 3

SEAFDEC/UNEP/GEF South China Sea Fisheries Refugia Initiative
MALAYSIA
[OCT 2018 - DIS 2018] Q4

| Key Result Area | Related Target | Planned Activities(s) | Anticipated Deliverable/ Timeline | Status | Inputs/ Support Required | Agreed Follow-up |
|---|---|---|---|--|--|---|
| Component 1 | | | | | | |
| Component 1. Identification and management of fisheries and critical habitat linkages at 3 priority fisheries refugia in Malaysia 1.1 Developing fisheries and coastal habitat information and data collection programmes for (1) Tg. Leman, Johor | 1.1.3 Design and conduct site-based survey to produce fisheries and habitat profile report for 2 sites | Daily collection of lobster and tiger prawns landing data from selected sites: Site 1: Sedili Site 2: Sg Rengit Site 3: Tj Leman Site 4: Endau Site 5: Kuala Baram | Lobster and tiger prawns landing trend and basic biological information (species, length, weight, egg presence) | Need to select and hire field workers (6 persons) 2 technical officer (for 2 sites) | Estimated wage of field workers: RM1500 x 4 persons =RM6000 per month Cost for 3 months: RM18,000 (Tj. Leman) Cost for technical officer (DSA and hotel lodging)= RM22,200 (K.Baram) RM3000 (Tj. Leman) - Total = RM 43,200 (USD 10,887.26) | |
| | 1.1.4 Design and conduct fisheries surveys at the 2 sites and submit data to a national online database | Conduct prawn survey at refugia site | 1 survey report | Need to conduct survey at 1 site (K. Baram) | - | Use national fund for surveys (RM200,000) |
| 1.2 Facilitating agreement among stakeholders on the boundaries of fisheries refugia at the (1) Tg. Leman, Johor and (2) Kuala Baram, Sarawak sites | 1.2.1 Conduct consultations (including at-sea) to draft maps of fisheries refugia for priority species | Observer-on-board activity on fish trawlers to record lobster catch location and biology | Map of lobster catch location and migration route (coordinates, egg presence, size) | Need to select and hire field workers (4 persons) | <u>Tj Leman:</u> Estimated wage of field workers: RM1250 x 4 persons =RM5000 per trip Cost for 3 months: RM5000 K.Baram RM2550 -RM7550 (USD1,902.75) | |

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|---|--|---|---|--|---|-------------------|
| | 1.2.2 Prepare maps for 2 refugia and elicit fisherfolk input to boundary delineation through consultation | Compilation of maps preparation | 2 maps | Need to compile data | - | Use national fund |
| | 1.2.3 Conduct assessment of environmental and social impacts of designation of sites as refugia | Compilation of data and report writing | 1 report | Ongoing socio-economic survey | - | Use national fund |
| 1.3 Developing Community-Based Management Plans for the (1) Tg. Leman, Johor and (2) Kuala Baram, Sarawak sites | 1.3.1 Consultations to identify key threats to fisheries <i>refugia</i> sites and identify management measures | Consultations workshop with the traditional gears fishermen in Refugia sites | 2 consultations workshop | Need to coordinate with the fishery district office for a suitable date, venue and number of participants | - | Use national fund |
| Component 2 | | | | | | |
| 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 | 2.1.1 Identify and document key threats from fishing and the environment to fish stock and critical habitat linkages | Compilation of reports and literature concerning the subject | Reports | Need to 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 | 1 meeting | Meeting report including participant list | Need to determine suitable date | - | - |
| 2.1 Enhancing policy guidance for improved management of the effects of fishing on critical habitats | | | | | | |
| 2.2 Defining the policy and legal basis for formal designation and establishment of fisheries <i>refugia</i> in | 2.2.1 Review of policy and legal aspects on <i>refugia</i> (terminology, procedures, recommended reforms) | 1 meeting to review of policy and legal aspects on refugia (terminology, procedures, recommended reforms) | 1 meeting report | - | - | |

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|---|---|--|---|---|---|-------------------|
| Malaysia | | | | | | |
| 2.3 Development of national guidelines on the establishment and operation of fisheries refugia | 2.3.1 Draft national guidelines (based 2.1.2) on procedures for formal designation and mgmt of fisheries <i>refugia</i> | 1 meeting | Meeting report including participant list | Need to determine suitable date | - | - |
| 2.5 Enhancing access to information relating to status and trends in fish stocks and their habitats in Malaysia waters of the SCS | 2.5.1 Compile information and data derived from abundance surveys for longer-term management. | Compilation of literature and past reports | 1 report compilation | Need to identify past survey report and literature | - | |
| | 2.5.2 Compile information and data derived from surveys on size-frequency of priority species | Compilation of literature and past reports | 1 report compilation | Need to identify past survey report and literature | - | |
| | 2.5.4 Produce annual syntheses reports of new and additional information for national and regional review | 1 meeting | 1 annual report | Need to determine suitable date | - | - |
| 2.6 Improving national-level management and sharing of information and data on fish early life history in Malaysia waters of the SCS | 2.6.1 Prepare a national inventory of lobster larvae samples collected from Malaysia waters (both analysed and unanalysed) | Analysis of larvae samples from East Johor for year 2018 | Lobster larvae distribution and density | Need to collect and analyse larvae samples from 2018 survey | Tj. Leman Estimated larvae samples analysis cost: RM4000 (USD1,008.08) | |
| | 2.6.3 Convene an annual one-day workshop to monitor the implementation of national programmes for the processing/analysis of lobster larvae samples | 1 day internal workshop | 1 workshop report | Need to determine suitable date | - | Use national fund |

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|---|---|---|---|---|------------------------|-------------------|
| | 2.6.4 Prepare an annual status report on lobster early life history research for consideration regionally | Refer to 2.6.3 | | | | |
| 2.8 strengthening the information base for the planning, monitoring and evaluation of management at priority fisheries refugia sites | 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 | 2 surveys data processing workshop | 2 reports | Need to produce 2 detailed survey reports | - | Use national fund |
| Component 3 | | | | | | |
| Component 3: Information Management and Dissemination in support of national-level implementation of the fisheries refugia concept in Malaysia 3.1 Enhancing national uptake of best practices in integrating fisheries management and biodiversity conservation | 3.1.1 Quarterly capture and documentation of best practices in the establishment and operation of fisheries refugia | Printing of refugia related publication | 2 publications | Need to compile and prepare publication | RM10,000 (USD2,520.20) | |
| | 3.1.2 Online catalogue of best practices approaches and measures developed and updated each 6 months | Upload of refugia related information into DOFM website | 1 online catalogue | Need to identify best practices approaches and measures | - | Use national fund |
| | 3.1.3 6 monthly development of communications on best practices for dissemination and syndication | 1 Meeting | Meeting report including participant list | Need to determine suitable date | - | Use national fund |
| 3.2 Improving community acceptance of area based approaches to marine management | 3.2.3 Benchmark and annually track community acceptance of refugia approach as a marine spatial planning tool | Need to be carry out in next term | - | - | - | - |
| Component 4 | | | | | | |

| | | | | | | |
|---|---|----------------------------------|---|--|--|-------------------|
| Component 4. National coordination for integrated fish stock and critical habitat management in Malaysia | 4.1.2 Establish and convene quarterly meetings of the National Fisheries Refugia Committee (NFRC) | 1 Meeting | Meeting report including participant list | Need to determine suitable date | RM5,000 (USD1,260.10) | |
| | 4.1.3 NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders | 1 meeting | Meeting report including participant list | Need to determine suitable date | - | |
| 4.1 Strengthened cross-sectoral coordination in the establishment and operation of fisheries refugia in Malaysia | | | | | | |
| | | | | | | |
| 4.2 Harnessing national scientific and technical expertise and knowledge to inform policy, legal and institutional reforms for fisheries refugia | 4.2.1 Establish and convene 6 monthly meetings of the National Technical Working Group | 1 Meeting and Seminar | Meeting report including participant list | Need to determine suitable date | RM8,000 (USD2,016.16) | |
| | 4.2.2 Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3 | Incorporate in 4.2.1 | - | - | - | |
| 4.3 Catalyzing local community action via establishment and operation of site-based management boards at 2 priority refugia sites | 4.3.2 Establish and convene quarterly meetings of site-based management boards | 3 meetings | 3 meeting reports | Need to determine suitable date | - | Use national fund |
| | 4.3.3 Preparation of quarterly work plans and progress and financial reports on activities at each site | Appointment of a Project Manager | quarterly work plans and progress and financial reports | Need to appoint suitable person for the post | RM11,440 for wage and travel expenses (USD 2,883.11) | |
| | | | | | | |
| Training and Capacity Development | | | | | | |
| | | | | | | |
| Planned Attendance at Workshops/ Meetings | | | | | | |
| TOTAL | | | | | RM89, 190 (USD 22,477.66) | |