



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

REPORT

**CONSULTATIVE MEETING FOR ESTABLISHING FISHERIES
REFUGIA IN WEST KALIMANTAN**

WEST KALIMANTAN, INDONESIA

16-17 FEBRUARY 2021

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MEETING REPORT

CONSULTATIVE MEETING FOR ESTABLISHING FISHERIES REFUGIA IN WEST KALIMANTAN

Virtual Meeting, 16-17 February 2021

1. Preface

In terms of fisheries management, Indonesia consists of eleven Fisheries Management Areas of the Republic of Indonesia (FMA-RI), in which two project sites are Karimata Strait waters and Natuna Sea waters included in FMA-RI 711. The waters of West Kalimantan as part of Karimata strait is proposed as project site for establishing Fisheries *Refugia* for penaeid shrimp. The waters of West Kalimantan known as a potential habitat for penaeid shrimp. Fishing activities with various types of active and passive fishing gears showed that the level of utilization is high or even over exploited because shrimp is commodity with high economic value and high market demand. The decline of shrimp production in West Kalimantan is indicated because of habitat degradation and destructive fishing.

The West Kalimantan water has various species of Penaeid shrimp which is high value commodity. The penaeid shrimp which is frequently caught on the coast of West Kalimantan is white shrimps (*Fenneropenaeus* spp), yellow shrimp (*Metapenaeus brevicornis*) and yellow-white shrimp (*Metapenaeus lysianassa*). The white shrimp (*Fenneropenaeus* spp), a penaeid species, has the highest economic value compared to other species.

Along the coast of West Kalimantan are potential fishing area for shrimp, especially area with estuary and mangrove ecosystem. The previous research conducted in West Kalimantan showed that estuary and mangroves are very important to support shrimp life cycle especially during their critical cycle, juvenile stage. Thus, critical habitat has linkage to the sustainability of fishery resources, therefore the management of shrimp stocks must be integrated with habitat management and protection.

The fisheries refugia concept defines as “Spatially and geographically defined, marine or coastal areas in which specific management measures are applied to sustain important species (fisheries resources) during critical stages of their life cycle, for their sustainable” was developed as a novel approach to the identification and designation of priority areas in which to integrate fisheries and habitat management. This concept can be implemented for shrimp fisheries management which focused in critical habitat management for shrimp stock sustainable use.

In the fisheries management process, the role of all stakeholders is very important to achieve sustainable management, as well as in management with the fisheries refugia approach. Local government as a key stakeholder has a role in decision making as well as legal authority in making regulations. In addition, there are other stake holders who also have an important role in the decision-making process, namely academic groups from university.

Thus, in implementing this project, the participation of the West Kalimantan regional government and groups of higher education academics is needed. Therefore, it is necessary to establish good communication and collaboration for the effectiveness of project implementation.

In terms of fisheries management, stakeholder participation is very important for the effectiveness of the management process, this also applies to the establishment and operation of fisheries refugia system. The local government is a key stakeholder that has a role in decision making and as well as academics as a secondary stakeholder that has access to government decision making. Thus, the local government and academics of university in West Kalimantan should be involved in project implementation.

2. AGENDA OF THE MEETING

- 2.1 Consultative meeting for establishing fisheries refugia of Penaeid shrimp in West Kalimantan were conducted through virtual meeting on 16th -17th February 202. The meeting was aimed to gather information and input from local governments, academics from university and other relevant institutions in West Kalimantan regarding the condition of shrimp fisheries, threats of shrimp stocks and their critical habitats, conservation areas that have been established in West Kalimantan and zoning plans for coastal areas in West Kalimantan. All the aforementioned matters are important information required for the establishing fisheries refugia.
- 2.2 The meeting was attended by 43 participants consisted of The Head of Fisheries Research Centre, The Head of Marine and Fisheries Agency of West Kalimantan Province and the staff; The Head of Fisheries Agency of Kubu Raya District and the staff; The Head of Marine and Fisheries Agency of Kayong Utara District and staff; academics and experts of marine and fisheries science from Tanjung Pura University; fisheries experts from Polytechnic of Pontianak, experts from Coastal and Marine Resources Management office of Pontianak, researchers from Research Institute for Fish Resources Enhancement, researchers from Fisheries Research Centre.
- 2.3 The meeting was opened by Mrs. Yayan Hikmayanti, S.Si, M.Si (The Head of the Fisheries Research Centre) who in her speech conveyed her concern about the degradation of the critical habitat of fishes as well as fishing practice using destructive gears, resulting the decline of fish resource production. In order to overcome this problem, management efforts that integrate fish stock and habitat management are needed to ensure the sustainability of fish stocks. The fisheries refugia concept known as a novel approach in fisheries management can be adopt to manage shrimp fisheries in West Kalimantan.
- 2.4 The Head of Marine and Fisheries Agency of West Kalimantan Province in her speech stated that she welcomed the fisheries refugia concept to be adopted in West Kalimantan through project implementation. The West Kalimantan has 3.2 million hectares of marine and coastal and around 20% of the area has been designated as a conservation area.

- 2.5 Prof. Dr. Ngurah Wiadnyana as National Scientific Focal Point of Indonesia Fisheries Refugia Project conveyed that the implementation of the refugia fisheries project activities is currently hampered due to the Covid 19 pandemic. The research team were not be able to conduct activities such as data collecting, meeting with fishermen and other stakeholders in West Kalimantan due to restriction during the covid pandemic. Therefore, through this virtual meeting, communication and collaboration are carried out with related agencies in West Kalimantan to achieve the output of the project.
- 2.6 The first day (16th February 2021) meeting was beginning with a presentation about fisheries refugia concepts and critical habitat by researcher of RIFE (Astri Suryandari, MSi), followed by a presentation about research results on critical habitat of white shrimp in West Kalimantan by Dra. Adriani Sri Nastiti, MS. She explained that based on research conducted in 2015, the coastal waters of West Kalimantan are potential habitat for Penaeid shrimp such as white shrimp. The result of the research showed that coastal area with mangrove ecosystem along south West Kalimantan is nursery habitat for juvenile of white shrimp. Based on the research results, the nursery refugia sites for white shrimp is coastal ecosystem in the southern part of West Kalimantan, namely Padang Tikar, Teluk Batang, and Ketapang. The current scientific data that needs to be completed for designation of fisheries refugia sites of white shrimp in West Kalimantan is the spawning ground. Therefore, through the virtual meeting, important information and input will be obtained related to spawning areas of the white shrimp.
- 2.7 The Head of Fisheries Agency of Kubu Raya District presented about the trends production of shrimp, variety of fishing gears for shrimp as well as threats faced by shrimp fisheries in Kubu Raya District. The other presentation from the Marine and Fisheries Agency of Kayong Utara, also mentioned about the threats to shrimp stocks and their critical habitat that comes from destructive fishing and diversion of mangroves to pond land. According to the Marine and Fisheries Agency of Kayong Utara, central of white shrimp fishing ground is in Pulau Maya, in Kayong utara.
- 2.8 The agenda for the second day of the meeting (17 February 2021) was a presentation from the Coastal and Marine Resources Management office (M. Husnul Aini, S.St.Pi., ME) regarding the current status of coastal ecosystem conditions on the coast. West Kalimantan, followed by a marine scientist from Tanjung Pura University (Arie Antasari Kushadiwijayanto) who explained the bathymetry and oceanography conditions in the South Coast of West Kalimantan; Presentation from Shrimp Scientists (Drs. Bambang Sumiono, MS) on Biological Characteristics, Life Cycles and Critical Habitats of Penaeid Shrimp and information about The variations of fishing gears for Peneid shrimp on the South Coast of West Kalimantan was delivered by Reza Alnanda, S.Pi., M.Si from Department of Fishing Technology, Pontianak Polytechnic.

3. MEETING NOTES

Based on the results of the discussion, several important points could be noted,

- 3.1** The southern part of West Kalimantan which are Padang Tikar, Teluk Batang, and Ketapang has been identified as nursery area for white shrimp. Based on the assessment, The Padang Tikar Bay (Kubu Raya District) is potential area for fisheries refugia site especially focus on nursery refugia.
- 3.2** The West Kalimantan Province has established a marine space zoning plan since 2019 where marine conservation areas have been determined based on previous studies, therefore determining the location of fisheries refugia is expected to be in accordance with the predetermined conservation areas so as to minimize conflicts and efforts.
- 3.3** The southern part of West Kalimantan (Kubu Raya, Kayong utara & Ketapang district) consist of mangrove ecosystem and seagrass ecosystem. There are conservation area in Kayong Utara District consist of core zone (15,350 ha), utilization zone (31,228 ha) sustainable fisheries zone (65,755 ha), and other zones (3,411 ha) with target conservation for penaeid shrimp, dolphins and mangroves.
- 3.4** Oceanographic characteristics of the south coast in West Kalimantan are influenced by the North Natuna Sea and the Java Sea. The coastal water in West Kalimantan is influenced by freshwater from big rivers which make low salinity (15 ppt). Meanwhile, the bathymetry conditions are characterized by shallow and wide with the influence of the dominant river.
- 3.5** The penaeid shrimp has a short lifecycle (1-2 year) with high mortality and can be spawn more than one times a year (multiole spawning, 100,000-200,000 eggs). The white shrimp (*Fenneropenaeus* spp) are school during the day while tiger prawn are individual and mostly caught at night.
- 3.6** The fishing gears used to catch shrimp in West Kalimantan are trammel net, lift net, push net and trawl. Currently, fishermen are still found using destructive fishing gears to catch shrimp.
- 3.7** The fishing area for shrimp in southern part of West Kalimantan are located in Sepuk Laut, Tanjung Bunga, Sepuk Mangkala, Padang Tikar, Kubu, Rasau, Kuala Karang, Sungai Nibung, Sungai Kakap, dan Teluk Pakedai, Teluk Batang, Dusun Besar (P. Maya), Teluk Sukadana, Pelapis.
- 3.8** The research team lead by Dra. Adriani, MS, will conducted survey to West Kalimantan in orders to gather data and information regarding spawning area of shrimp (*Fenneropenaeus* spp) and fishermen perception on establishing fisheries refugia site in West Kalimantan. The survey will be conducted after all team have completed the covid-19 vaccination.
- 3.9** The working group team for establishing Fisheries Refugia in West Kalimantan consisting of researchers, experts, local government, academics/university, and related institutions will be established and legalized formally to support project implementation.

- 3.10**The stakeholder meeting in West Kalimantan will be conducted soon after the condition (regarding covid19 outbreak) are safe and all the team have completed the vaccination process.
- 3.11**The national guidelines for establishing and operating fisheries refugia will be developed after all the data and information for fisheries refugia establishment is completed.

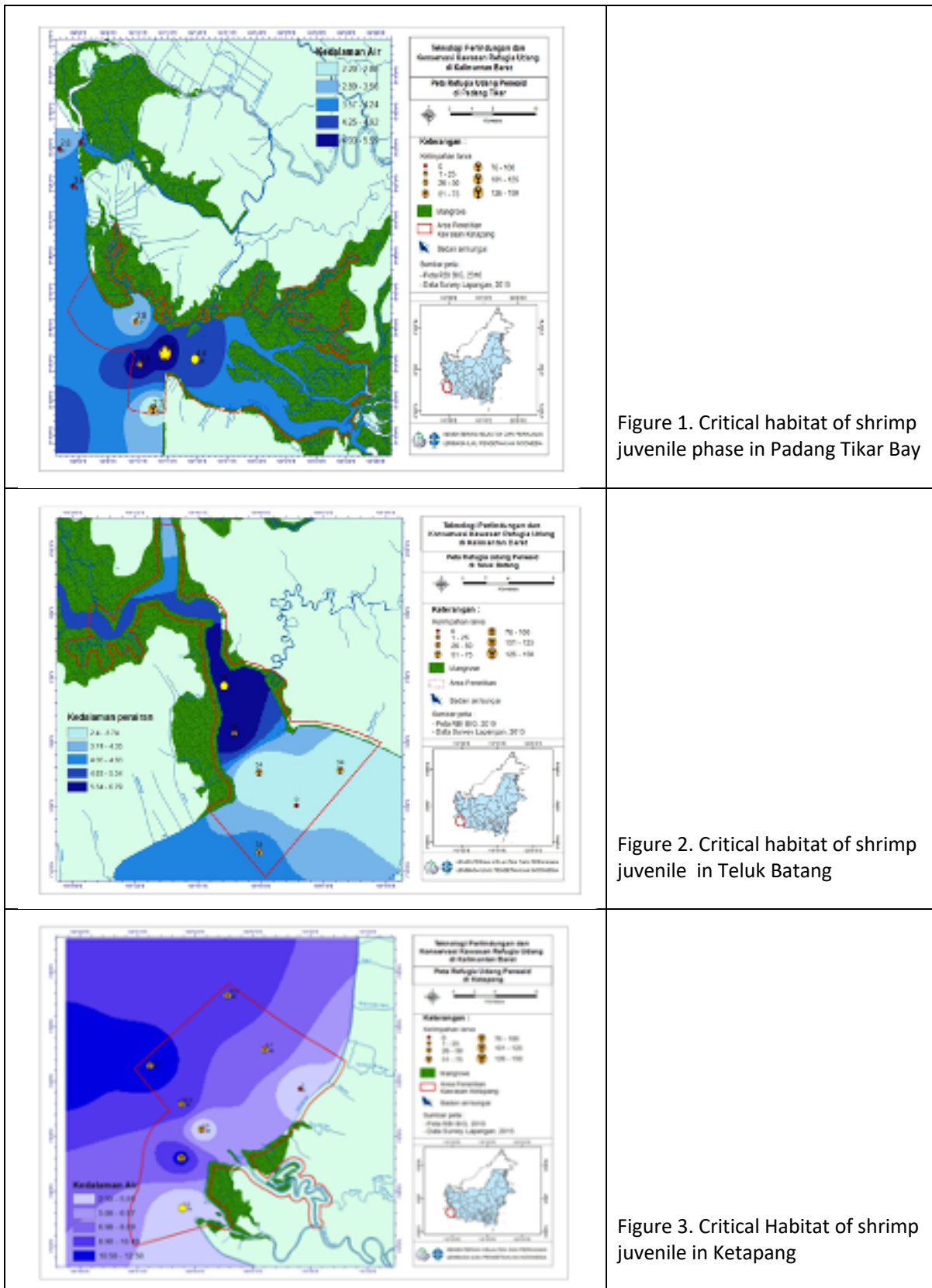
Annex.1.
List of Participant attending consultative meeting

No	Name	Title	Organization
1.	Mrs. Yayan Hikmayani	The Head of Fisheries Research Centre	Fisheries Research Centre (FRC)
2	Mrs. Herti Herawati, M.M	The Head of Marine and Fisheries Agency of West Kalimantan Province	Marine and Fisheries Agency of West Kalimantan Province
3	Mr. Ngurah Wiadnyana	NSTFP	FRC
4.	Mr. Aulia Riza FARhan	NFP	MMAF
5	Mr. Krismono	Researcher	Research Institute for Fishes Resource Enhancement (RIFE)
6.	Mr.Agung Adi Wibowo	Staff of fisheries agency	Marine and Fisheries Agency of West Kalimantan Province
7	Mr.Fauzan Amrullah	Staff of fisheries agency	Marine and Fisheries Agency of West Kalimantan Province
8	Ms.Vita Fitriana Mayasari	Staff of Coastal and Marine Resources Management office	Coastal and Marine Resources Management office of Pontianak
9	Mr. M. Husnul Aini	Coastal and Marine Resources Management office	Coastal and Marine Resources Management office of Pontianak
10	Mr. Prio Sambodo	Staff of Coastal and Marine Resources Management office	Coastal and Marine Resources Management office of Pontianak
11	Mr.Kholqi Azam Rizaldi	Staff of Coastal and Marine Resources Management office	Coastal and Marine Resources Management office of Pontianak
12	Ms.Carissa Paresky Arisagy	Staff of Coastal and Marine Resources Management office	Coastal and Marine Resources Management office of Pontianak
13	Mr.Riyan Denestianto	Staff of Coastal and Marine Resources Management office	Coastal and Marine Resources Management office of Pontianak
14	Mr.Muhamad Wahyu Al Hadi	Staff of Coastal and Marine Resources Management office	Coastal and Marine Resources Management office of Pontianak
15	Mr. Bambang Ardiansyah,	Staff of fisheries agency	Marine and Fisheries Agency of West Kalimantan Province
16	Mr. M. Gandhi	Staff of fisheries agency	Marine and Fisheries Agency of West Kalimantan Province
17	Mr.Widodo, SPi	Staff of fisheries agency	Marine and Fisheries Agency of West Kalimantan Province
18	Mr.Hendra	Staff of fisheries agency	Marine and Fisheries Agency of Kayong Utara District
19	Mr.Ainurrahman	Head divison of capture fisheries	Fisheries Agency of KubuRaya District
20	Ms. Dian Oktaviani, MSi	Researcher	FRC
21	Mrs.Endang Sriyati		FRC
22	Mrs. Adriani Sti Nastiti,MS	Researcher/ Survey coordinator for West Kalimantan	Research Institute for Fishes Resource Enhancement (RIFE)

23	Mrs. Astri Suryandari	Researcher	RIFE
24	Mr.Arip Rahman ,	Researcher	RIFE
25	Mrs.Puput Fitri Rachmawati	Researcher	FRC
26	Mrs. Sri Turni Hartat, MS	Researcher	FRC
27	Mr.Andrias S. SamuSamu	Researcher	FRC
28	Mr.Mujianto	Researcher	RIFE
29	Mr. Bambang Sumiono	Researcher	
30	Mrs.Sri endah Purnamangingtyas	Researcher	RIFE
31	Mr.Nanang Widarmanto	Researcher	RIFE
32	Mrs.Diah Ika Kusumaningtyas,	Researcher	RIFE
33	Mr.Edita Eka Prasetya	Administration staff	RIFE
34	Mr.Hendra Saefullah	Administration staff	RIFE
35	Mr.Reza Alnanda	Lecturer	Department of Fishing Technology, Pontianak Polytechnic.
36	Mr. Lukas Wibowo	Lecturer	Department of Fishing Technology, Pontianak Polytechnic.
37	Mr. Arie Antasari Kushadiwijayanto	Lecturer	Tanjung Pura University
38	Mr. Dwi Imam Prayitno	Lecturer	Tanjung Pura University
39	Mr. Risiko	Lecturer	Tanjung Pura University
40	Mrs. Mega Sari Juane	Lecturer	Tanjung Pura University
41	Mrs.Fitri	Administration staff	RIFE
42.	Mrs. Aira Zata Isma	Administration staff	RIFE
43	Mrs. Della	Administration staff	RIFE

Annex.2.

Location of critical habitat of white shrimp in Padang Tikar bay, Teluk Batang and Ketapang.



Annex.3.
Documentation of Consultative Meeting for Establishing Fisheries Refugia In West Kalimantan.

