



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

**REPORT**

**REPORT ON SOCIAL-ECONOMIC ASPECTS AND LOCAL FISHERS  
INSTITUTIONAL FROM TWO COASTAL VILLAGES OF WEST  
KALIMANTAN**

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## 1. Activity Objectives

This activity aims to assess fisher's socio-economic aspects and institutional conditions on the coast of West Kalimantan, especially in the Padang Tikar II Village (Kubu Raya Regency) and Dusun Besar Village (North Kayong Regency).

## 2. Methodology

The activity was carried out in October 2021 in two locations: Padang Tikar II Village (Kubu Raya Regency) and Dusun Besar Village (North Kayong Regency), considering that both villages are large fishing villages. In this activity, data collection is obtained through:

- Direct interview
- Structured interviews (questionnaires)
- Observation
- Literature study

The number of fishers who became respondents in this study was 30 fishers in Padang Tikar II Village, Batu Ampar District, Kubu Raya regency, with 100 active fishers. Meanwhile, the number of fishers in Dusun Besar village, Maya Island District, Kayong Utara Regency who became respondents was 20 fishers with 90 active fishers.

## 3. Results

### 3.1. Survey Location Overview

Geographically, Padang Tikar II Village and Dusun Besar Village are 1318.4 Ha and 244.69 Ha, respectively. Both are coastal villages of West Kalimantan with population characteristics dominated by fishers who depend on marine products. The population of Padang Tikar II Village is 4163 people with the number of family heads as many as 1138 families, while the population of Dusun Besar Village is 4007 people with the number of family heads as many as 1119 families. The composition of Padang Tikar II Village population-based on livelihood is shown in Table 1.

Table 1. The composition of the population of Padang Tikar II Village by livelihood

No.	Type of jobs	Padang Tikar II Village		Dusun Besar Village	
		Quantity (individual)	%	Quantity (individual)	%
1	Farmer	540	33.4	652	56.5
2	Farm laborers	437	27.0	-	-
3	Civil servants	46	2.8	6	0.5
4	Craftsmen	15	0.9	-	-
5	Breeders	17	1.1		
6	Fishers	379	23.5	467	40.5
7	Fisherman workers	152	9.4	-	-
8	Entrepreneur	30	1.9	28	2.4

Table 1 shows that the number of fishers in Padang Tikar II Village is 23.5% of the total village population. The fishers of Dusun Besar Village are 40.5% of the total population, the most after the farmers.

### 3.2. The Fishers Profile

Based on age (Figures 1 and 2), fishers in Padang Tikar II Village are dominated by fishers aged 51-60 years, which is 44%, and in Dusun Besar Village, fishers aged 31-40 years, which is 46%.

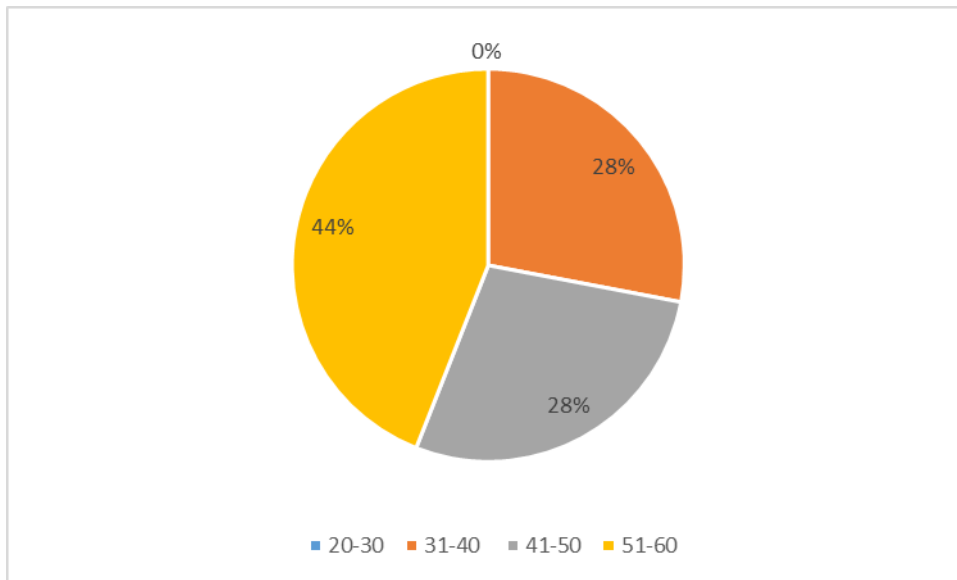


Figure 1. Composition of fishers by age (years) in Padang Tikar II Village

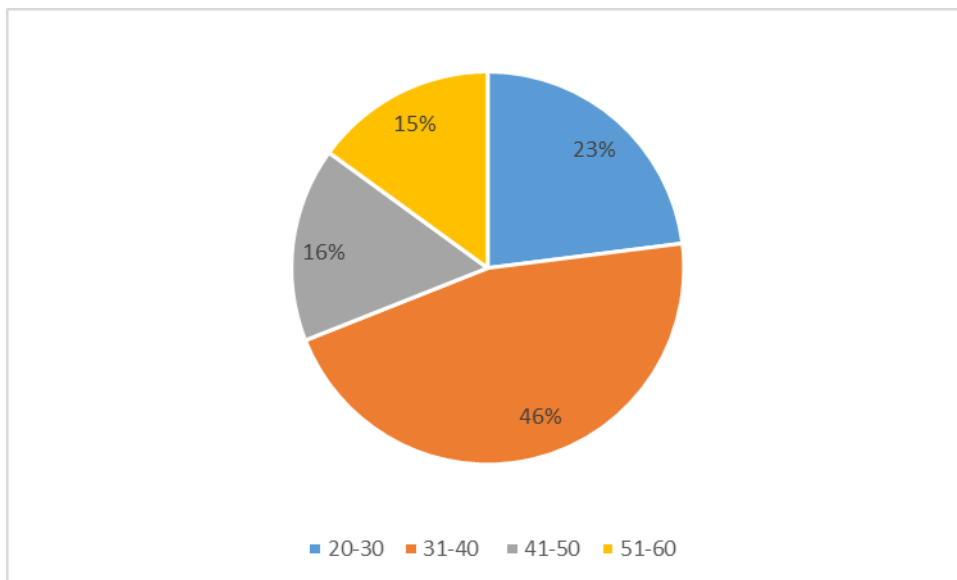


Figure 2. Composition of fishers by age (years) in Dusun Besar Village

In terms of education level, most of the respondents had a low level of education (elementary school): 83% in Padang Tikar II Village, and 77% in Dusun Besar Village (Figures 3 and 4). This condition can affect the slow knowledge of fishers in accepting innovations or changes.

One way to overcome this is through continuous efforts to socialize and educate fishers on innovations or changes implemented in their environment.

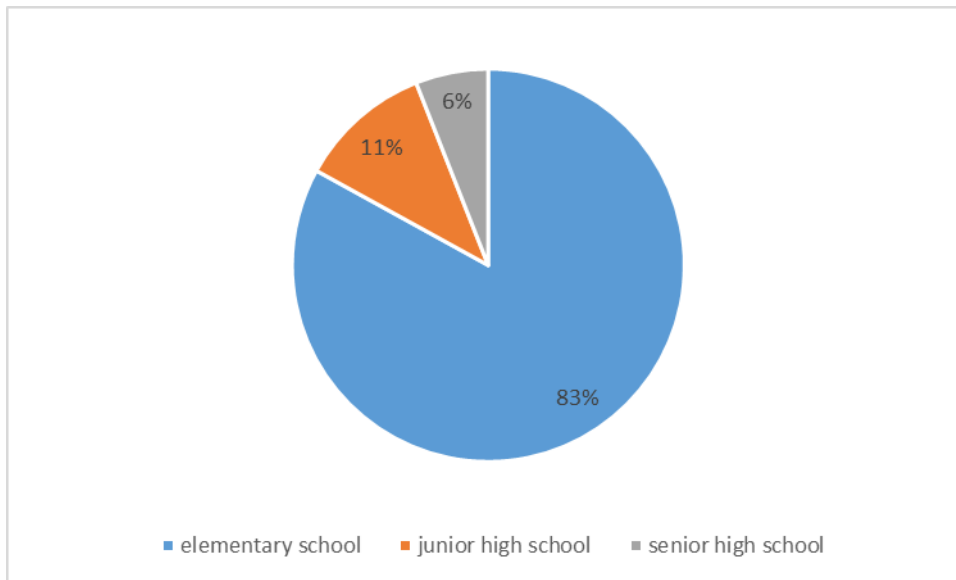


Figure 3. Composition of fishers by education status in Padang Tikar II Village

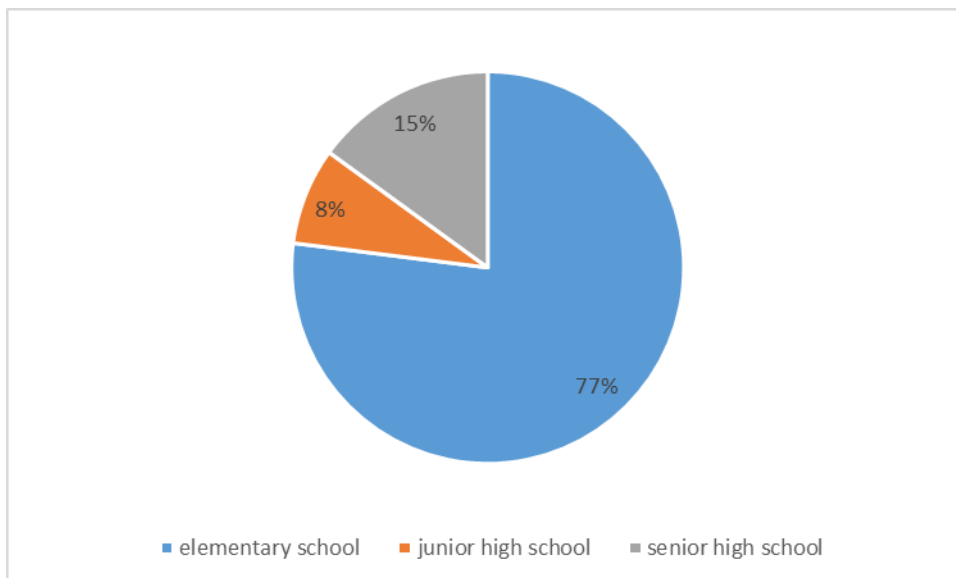


Figure 4. Composition of fishers by education level in Dusun Besar Village

### 3.3. Fishery Business and Fisherman Business Experience

Shrimp catching business in the coastal waters of West Kalimantan has been carried out for a long period by the community in Padang Tikar II Village and Dusun Besar Village, where this is evidenced by the experience of fishers in their business, most of them are more than 10 years. This condition proves that there is no need to doubt the expertise and skills of fishers in mastering fishing gear, fleet, weather, and shrimp catching season. With long experience in their activities, these fishers can understand the potential and problems often faced in the field and already know how to solve them.

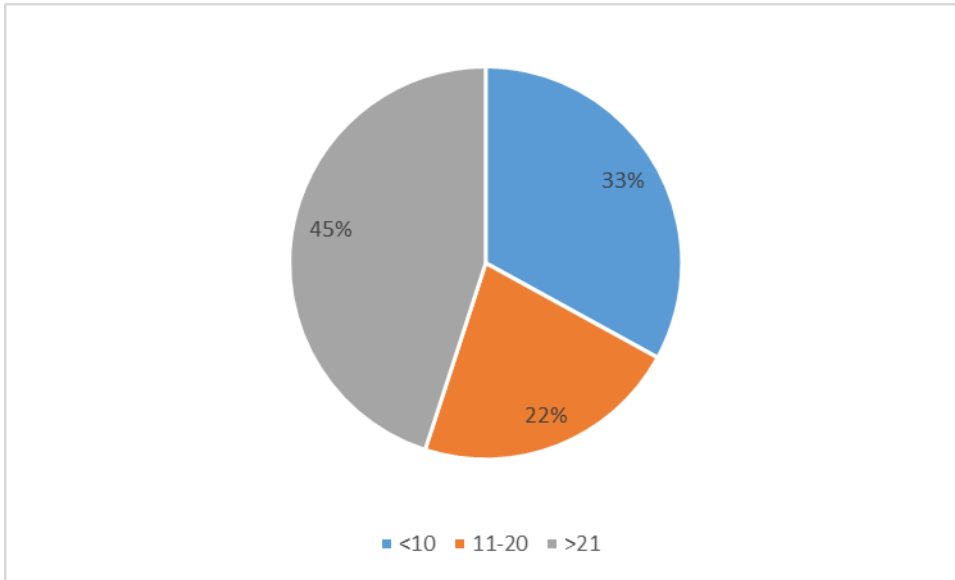


Figure 5. Composition of fishers in Padang Tikar II Village based on experience (years)

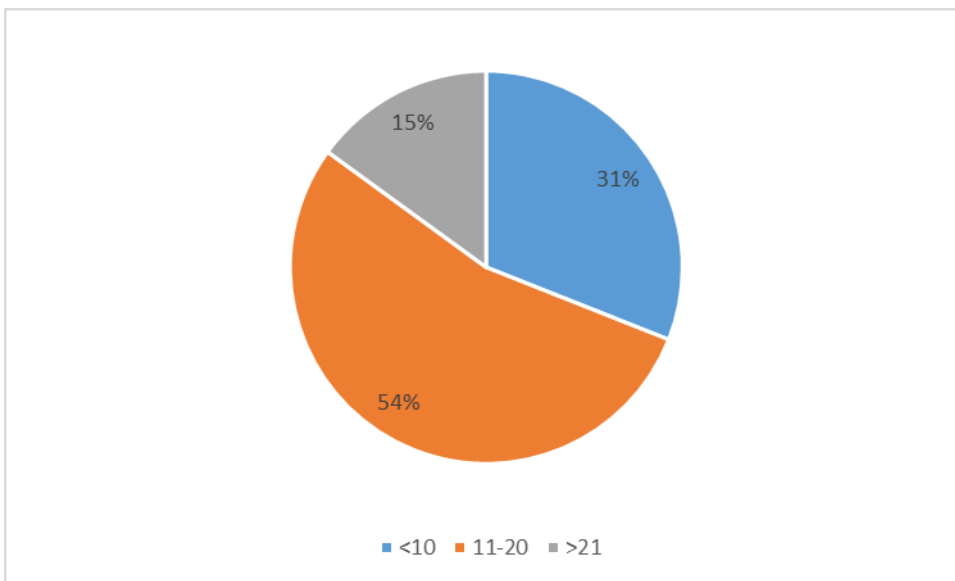


Figure 6. Composition of fishers in Dusun Besar Village based on experience (years)

### 3.4. Diversity of Fishing Gears

Based on fishing gear ownership, most fishers in Padang Tikar II Village use trammel net to catch shrimp, 55% of the total respondents, followed by the use of tidal traps (jermal) about 28% of the existing fishers (Figure 7). The fishers use trammel net because the fishing gear does not require high cost, environmentally friendly, saves fuel, and relatively easy to operate. On the other hand, the cost needed to own tidal traps are very high and require many workers to manage this fishing gear and its catch. Based on the interviews, it is also known that fishers generally use traditional boats and equipment when fishing at sea. Most fishers in Padang Tikar II Village use motorboats with an engine power of 10 GT.



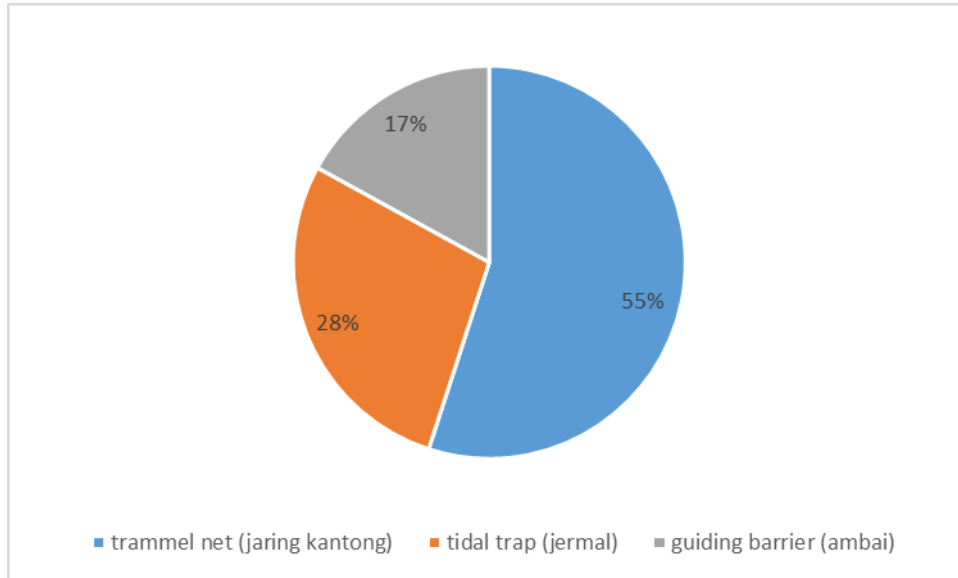


Figure 7. Composition of fishers by type of fishing gear used in Padang Tikar II Village

Most fishers in Dusun Besar Village use Mini Trawl (lampara) to catch shrimp, which is 69% of the total respondent (Figure 8). According to fishers, they use mini trawl due to the low cost, save fuel, and is relatively easy to operate. Based on the interviews, it is also stated that fishers generally use boats and traditional equipment when catching shrimp. Most of the fishers in Dusun Besar Village operate a motorboat with an engine power of 10 GT.

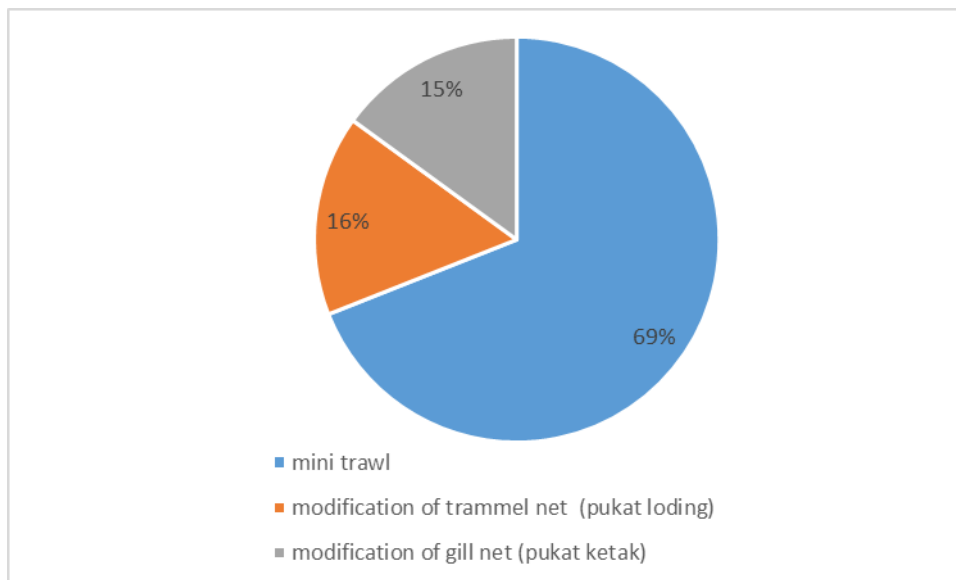


Figure 8. Composition of fishers by type of fishing gear used in Dusun Besar Village






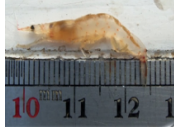
The higher shrimp catches are obtained around July – October each year, while the season with few catches occurs in January – June every year. Around November – January, most of the fishers in the two villages did not carry out fishing activities due to bad weather, strong winds, and high sea waves. As an alternative livelihood, fishers work on the land, such as maintaining boats

and fishing gear, farming, or working in other sectors, such as construction workers, fishpond workers, or farm workers.

### 3.5. Economic Value of Shrimp Resources

Shrimps are the main catches of fishers in Padang Tikar II Village and Dusun Besar Village, obtained using several types of fishing gear such as tidal traps, trammel nets, and mini trawls. The following table shows the economic value of various shrimp landed in several collectors in Padang Tikar II Village and Dusun Besar Village.

Table 2. The economic value of various shrimp at the collector in Padang Tikar II Village and Dusun Besar Village.

No.	Shrimp's Scientific name	Shrimp's Local Name	Picture	Shrimp Price (Rp/kg)	
				Padang Tikar II Village	Dusun Besar Village
1.	<i>Penaeus merguensis</i> , <i>Penaeus indicus</i>	Udang wangkang		50,000	55,000
2.	<i>Metapenaeus tenuipes</i>	Udang T / sudu		30,000	35,000
3.	<i>Parapenaeopsis hungerfordi</i>	Udang merah		6,000	4,000
4.	<i>Metapenaeus brevicornis</i>	Udang kuning		15,000	15,000
5.	<i>Metapenaeus elegans</i>	Udang dogol		35,000	35,000
6.	<i>Acetes</i>	Udang rebon		4,000	-

A fisherman usually sells his catch to collectors who live close to his residence in marketing their catch. The yield of various types of shrimp is directly sold to the collectors freshly. For certain kinds of shrimp, such as mantis shrimp (ketak), the price in a live condition is higher than dead. In simple terms, the flow of shrimp marketing in Padang Tikar II Village and Dusun Besar Village is shown in Figure 9.

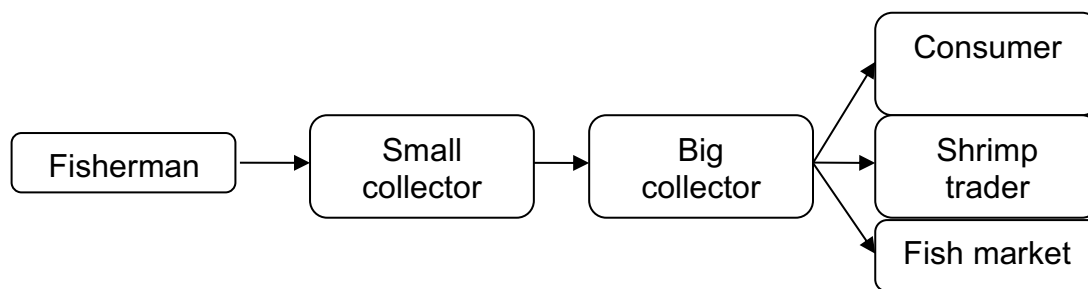


Figure 9. Marketing flow of shrimp catches in Padang Tikar II Village and Dusun Besar Village

### 3.6. Fishing Ground

Shrimp fishing by fishers from Padang Tikar II Village and Dusun Besar Village is mostly carried out along the coast, not far from the fishers's residence (less than 5 miles). This condition occurs because:

- 3.6.1. The operating hours of shrimp fishers in the two villages are daily (one-day fishing) around 2-8 hours, depending on the catch.
- 3.6.2. The fishing gear operated in shallow waters, such as trammel net, mini trawl, tidal traps, and guiding barrier.
- 3.6.3. Most of the fishing fleet used are motorboats with small engine power (less than 10 GT)
- 3.6.4. Saving on fuel usage and logistical supplies.

Shrimp fishing areas for fishers in Padang Tikar II Village and its surroundings are carried out along the coastal waters of Kubu Raya which include: Padang tikar Strait, Padang Tikar sea channel, Tanjung Bunga, and towards the sea within 5 km from the mouth of the Ambarawa river to the south. Meanwhile, the shrimp fishing areas for fishers in Dusun Besar Village are carried out along the coastal waters of Dusun Besar to Penebang Island. The fishing area along the coastal waters of Dusun Besar is dominated by mini trawl because the fishing gear is designed to carry out fishing operations in shallow waters with a depth of about 4 – 7 m. Around Penebang Island, the fishing gear operated by fishers is the modified trammel nets for deep waters (> 10 m), in terms of the local name called pukak Loding.

### 3.7. Fishers' Perception of Shrimp Resources

The perception of fishers from Padang Tikar II Village and Dusun Besar Village on shrimp resources around their waters shows that most fishers know the condition of shrimp resources in these waters. They understand the fishing season, fishing locations, shrimp resources with high economic value, the fishing gear, and also shrimp habitat. Fishers also find that the shrimp catch is declining, and the shrimp fishing area is getting farther away from the waters of West Kalimantan due to water pollution (28%), as shown in Figure 10. According to local fishers, besides pollution, the factors that caused the decline of shrimp catch are the mangrove areas' conversion into ponds, and fishing gear that is not environmentally friendly, such as trawls and tidal traps.

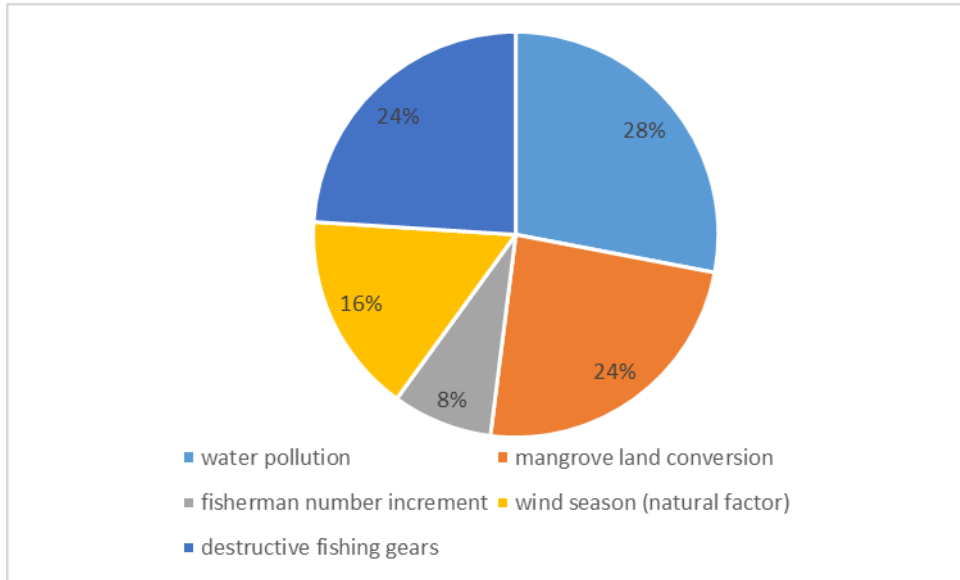


Figure 10. Fishers' perceptions of the factors causing the decline in shrimp catch in the coastal waters of West Kalimantan

Most of the respondents agreed that there is a limited utilization of the coastal waters of West Kalimantan, 67% of the total respondents (Figure 11). It means that the utilization of shrimp resources can be carried out according to a comprehensive study concerning the natural conditions in the sea, the location of the limited utilization area (fisheries refugia area), the shrimp spawning time, or local wisdom that exists in the community.

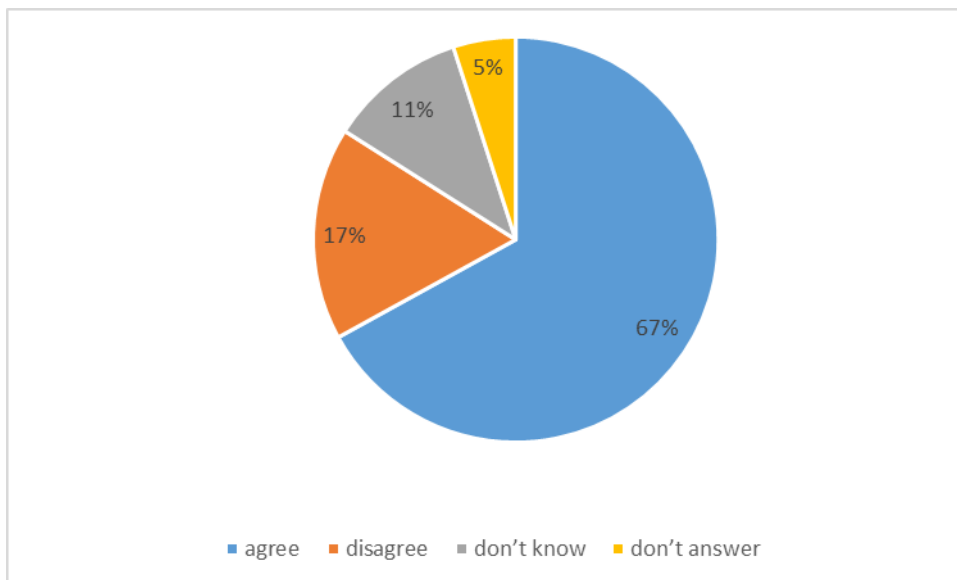


Figure 11. Fishers's perception of the limited use of shrimp resources

The awareness of fishers to preserve the shrimp resources on the coast of West Kalimantan is the primary factor in sustainably managing shrimp resources. It is evidenced by fishers' support to reserve a small portion of their waters as a limited use area with several

requirements agreed upon by fishers (fisheries refugia), as presented in Figure 12. Figure 12 shows that fishers' support to comply with fisheries refugia regulations is relatively high, about 52.3%. It proves that fishers are aware of conserving shrimp resources.

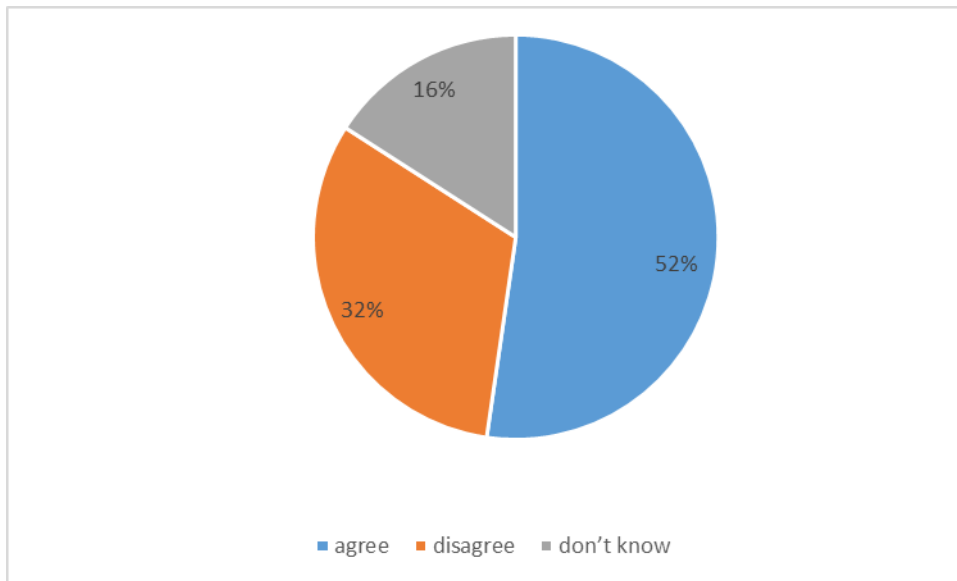


Figure 12. Support of fishers to comply with fisheries refugia regulations set by the government

### 3.8. Local fishing community institutions

The awareness of fishers in the two villages to form fishing community groups is relatively high (59%) because, in groups, fishers can solve problems together (Figure 13).

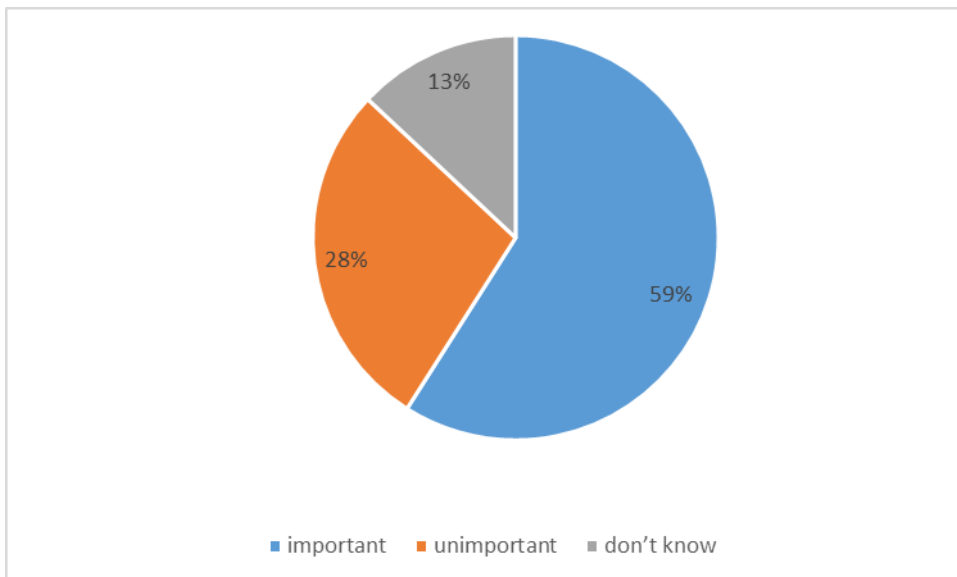


Figure 13. Awareness of fishers about the importance of fishing groups

Basically, in Padang Tikar II Village and Dusun Besar, fishing groups were formed based on a shared desire to have easy access to the provision of aid, such as fishing gear, fishing fleets, and cold storage from government. The fishers are members of the Joint Business Group (Kelompok Usaha Bersama, KUB) which assisted by the local marine and fisheries service officer. For example, in Padang Tikar II Village there is a KUB “Yakin Usaha” established in 2011 and is a forum for trammel net fishers’ groups. Meanwhile, in Dusun Besar Village, a “Mina Bahari” group was founded in 2015 and is a forum for Gillnet fishers’ groups.

#### Appendix 1. Names of respondents at the survey site

No.	Name	Job	Village
1	Apit	Fisher	Ambarawa
2	Amin	Fisher	Sungai Besar
3	Iwan	Fisher	Sungai Besar
4	Abdullah	Fisher	Rasau
5	Supriyadi	Fisher	Padang Tikar II
6	jainol	Fisher	Sukamaju
7	Bakri	Fisher	Ketapang
8	Ainen Hasin	Fisher	Padang Tikar II
9	M. Idris	Fisher	Padang Tikar II
10	Beni	Fisher	Padang Tikar II
11	Amir	Fisher	Padang Tikar II
12	Karmin	Fisher	Padang Tikar II
13	Sudarmin	Fisher	Padang Tikar II
14	Madris	Fisher	Padang Tikar II
15	Fadli	Fisher	Padang Tikar II
16	Reri	Fisher	Padang Tikar II
17	Aryadi	Fisher	Padang Tikar II
18	Solikin	Fisher	Padang Tikar II
19	Didin Bahari	Fisher	Padang Tikar II
20	Asrori	Fisher	Padang Tikar II

21	Benny P.R.	Fisher	Padang Tikar II
22	Sunarto	Fisher	Padang Tikar II
23	Darman	Fisher	Padang Tikar II
24	Lie Ju Kia	Fisher	Padang Tikar II
25	Andi	Fisher	Padang Tikar II
26	Salise	Fisher	Padang Tikar II
27	Suhaji	Fisher	Padang Tikar II
28	Aseng	Fisher	Padang Tikar II
29	Supriyadi	Fisher	Padang Tikar II
30	Janol	Fisher	Padang Tikar II
31	Bakri	Fisher	Padang Tikar II
32	Ainen Hasan	Fisher	Padang Tikar II
33	M. Idris	Fisher	Padang Tikar II
34	Amir	Fisher	Padang Tikar II
35	Robi A.	Fisher	Dusun Besar
36	Pendi	Fisher	Dusun Besar
37	Heli Karya	Fisher	Dusun Besar
38	Dang	Fisher	Dusun Besar
39	Sidik	Fisher	Dusun Besar
40	Samsudin	Fisher	Dusun Besar
41	Ata	Fisher	Dusun Besar
42	Hermanto	Fisher	Dusun Besar
43	Silis	Fisher	Dusun Besar
44	Udin	Fisher	Dusun Besar
45	Aleksander	Fisher	Dusun Besar
46	Tinus	Fisher	Dusun Besar

47	Meydi	Fisher	Dusun Kecil
48	Dodi	Fisher	Dusun Kecil
49	Jani	Fisher	Dusun Kecil
50	Entul	Fisher	Dusun Kecil
51	Wudi	Fisher	Dusun Kecil
52	Sopian	Village headman	Dusun Kecil
53	Hendra	Village headman	Dusun Besar
54	Keramto	Village headman	Dusun Besar
55	Ajun	Shrimp collector	Dusun Besar
56	Asin	Shrimp collector	Dusun Besar
57	Acuh	Shrimp collector	Dusun Besar



Appendix 2. Documentations of Survey Activities 11 – 18 October 2021

