

# **SOCIALIZATION AND MAPPING OF OYSTER FINDERS' CHARACTERISTICS IN THE EFFORTS TO MANAGE THE KRUENG CUNDA WATER ENVIRONMENT, LHOKSEUMAWE CITY**

**Ekamaida<sup>1\*</sup>, Dewi Kumala Sari<sup>2</sup>**

<sup>1</sup>Program Agribisnis Fakultas Pertanian, Universitas Malikussaleh, Aceh Utara, 24355, Indonesia

<sup>2</sup>Program Agribisnis Fakultas Pertanian, Universitas Malikussaleh, Aceh Utara, 24355, Indonesia

E-mail: [ekamaidai@unimal.ac.id](mailto:ekamaidai@unimal.ac.id)<sup>1\*</sup>, [dewi.kumalasari@unimal.ac.id](mailto:dewi.kumalasari@unimal.ac.id)<sup>2</sup>

Received :01 October 2025

Published :18 December 2025

Revised :20 October 2025

DOI :<https://doi.org/10.54443/irpitage.v5i3.4423>

Accepted : 30 November 2025

Publish Link :<https://radjapublika.com/index.php/IRPITAGE/>

## **Abstract**

Coastal communities in Lhokseumawe City are highly dependent on aquatic resources, one of which is through oyster harvesting. This activity has become part of the community's traditions and lifestyle, utilizing natural resources in a simple way and has been passed down from generation to generation. This community service program was conducted to identify the social characteristics of oyster gatherers and encourage sustainable oyster management in the Krueng Cunda area. The methods used included outreach and a questionnaire survey. Data were obtained through interviews and direct observation with 30 residents who were gathering oysters at several coastal locations in Lhokseumawe. Descriptive analysis was conducted to describe the general profile of oyster gatherers. The results showed that most oyster gatherers were of productive age and the majority were women. This activity is carried out with simple tools and is heavily influenced by tidal conditions. In addition to serving as a source of income, oyster gathering also has social and cultural value because it is carried out collectively and passed down within families. This condition reflects the close relationship between the community and the coastal environment. Therefore, efforts are needed to manage oysters sustainably while improving the welfare of coastal communities.

***Keywords: Marine Resource Sustainability, Coastal Communities, Oyster Seekers, Characteristics.***

## **INTRODUCTION**

Coastal areas hold a strategic position in supporting the social and economic life of the community. Most residents in this area depend on the potential of marine and aquatic resources for their livelihoods, whether through fishing, cultivation, or the use of non-fish marine products such as oysters (*Ostrea* sp.). Oyster-fishing has been part of the traditional economic system of coastal communities in Indonesia and persists today, including in Lhokseumawe City, as a primary or supplementary livelihood for coastal households. Lhokseumawe City, located on the north coast of Aceh Province, boasts a rich coastal ecosystem with considerable potential. Its geographic location, influenced by shallow waters, river estuaries, and mangrove forests, makes it a natural habitat for marine life such as oysters. Oyster harvesting is common in several coastal villages, particularly in the districts of Muara Satu, Banda Sakti, and Blang Mangat. This activity is still carried out traditionally using simple tools and often involves family members, particularly women.

According to Ellis (2000), demographic structure is a key factor in the livelihood strategies of coastal communities, which generally live under economic pressure and environmental change. The success of sustainable coastal resource management is determined by the level of knowledge, education, and community well-being, which can have a direct impact on community productivity and well-being (Syamsuddin et al., 2020; Dahuri, 2019). Furthermore, the lifestyle of coastal communities in Indonesia tends to be family-based, with women playing a significant role in household economic activities (Satria, 2015). Therefore, environmental outreach and education efforts are crucial to foster collective awareness in maintaining the sustainability of aquatic environments as oyster habitats. This outreach approach will be more effective if accompanied by mapping the social characteristics of oyster foragers and community behaviors regarding environmental management. Through this mapping, a comprehensive picture of the distribution of fishing activities, community social conditions, and the potential and challenges in environmental management can be obtained. Dahuri (2018) emphasizes that the

integration of social and ecological mapping is a crucial foundation for implementing community-based resource management strategies.

## **LITERATURE REVIEW**

### **1. Coastal Communities and Dependence on Marine Resources**

Coastal communities generally have a strong attachment to the aquatic environment as their primary source of livelihood. This dependence stems from traditional economic systems that directly utilize marine resources, both through fishing and the collection of marine life such as oysters (*Ostrea* sp.). According to Dahuri (2019), the utilization of coastal resources encompasses not only economic aspects but also social and cultural aspects of the local community.

### **2. The Role of Women in Coastal Household Economic Activities**

The social structure of coastal communities is generally family-based, with each member playing a role in supporting the household's needs. Satria (2015) explains that women in coastal areas make significant contributions to economic activities, both as foragers of wild foods and as entrepreneurs in seafood processing. In the context of oyster fishing, women are often the primary actors because this activity can be carried out simultaneously with childcare and other domestic activities.

### **3. Coastal Community Livelihood Strategy**

The concept of livelihood strategy is crucial for understanding the work patterns and livelihood strategies of coastal communities. Ellis (2000) states that livelihood strategies are influenced by demographic factors, education level, access to resources, and environmental conditions. In oyster-fishing communities, limited economic capacity and a lack of alternative employment options make oyster gathering a viable livelihood option that can be passed down through generations.

### **4. Community-Based Resource Management**

Natural resource management in coastal areas needs to be directed towards a community-based approach, where communities play a key role in preserving and sustainably utilizing the environment. Dahuri (2018) emphasized that successful community-based management can be achieved through the integration of local knowledge with collective awareness of environmental sustainability.

## **METHOD**

This community service activity was carried out in the coastal areas of Lhokseumawe City, Aceh Province. The focus of the implementation was on several villages known to have quite intensive oyster fishing activities, namely Ujong Blang Village, Pusong Lama Village, Muara Sungai Cunda, and Muara Sungai Loskala in Banda Sakti District. In these areas, the majority of residents depend on oyster fishing for their livelihood. The activity location is approximately 20 km from the Malikussaleh Reuleut University Campus in North Aceh Regency, where the community service team is based.

The approach used included surveys, outreach, participatory discussions, and the distribution of educational materials tailored to be easily understood by the community. The target population consisted of individuals directly involved in oyster harvesting. A total of 30 respondents were selected purposively, taking into account their experience and active involvement in the activity. Primary data collection was conducted through structured questionnaire-based interviews and field observations, while secondary data were obtained from literature, government agencies, and previous research. The collected data were analyzed descriptively to describe the social patterns and characteristics of oyster harvesters, including age, gender, education level, marital status, number of dependents, and experience in oyster harvesting. This approach was used to formulate solutions tailored to the conditions and needs of partners in the field.

## **RESULTS AND DISCUSSION**

Lhokseumawe City is a coastal area in Aceh Province with abundant marine and fisheries potential. Coastal areas play a vital role, ecologically, socially, and economically, for the surrounding communities. For coastal communities, the sea and its resources are the primary source of daily necessities. Coastal resources play a significant role in supporting the economic sustainability of coastal communities in Indonesia. Oysters (*Crassostrea* sp.) are one of the economically valuable commodities found in coastal areas, contributing to increased community income. The characteristics of oyster-fishing communities along the coast of Lhokseumawe City demonstrate demographic characteristics that reflect the general socioeconomic conditions of coastal communities. Variables

such as age, gender, education level, marital status, number of dependents, and experience in oyster-fishing influence their economic activity patterns and livelihood strategies.

### Characteristics Based on Age

**Table1.**Respondent characteristics based on age

No	Respondent Age (Years)	Amount	Percentage %
1	20 – 30	8	26.67
2	31- 40	14	46.67
3	41- 50	5	16.66
4	≥51	3	10
Amount		30	100

Source: primary data (processed), 2025

Table 1 shows that the majority of respondents were aged between 31–40 years (46.67%), indicating that oyster gathering activities are dominated by the productive age group. This group has strong physical abilities and sufficient experience to carry out field activities. Respondents aged 20–30 years (26.67%) are the younger generation who are starting to get involved in this traditional work, while the age group ≥51 years (10%) are still active due to social and economic ties to the work. This condition indicates that oyster gathering activities are passed down across generations and remain as part of the culture of coastal communities. The table above can also explain that the respondents' ages can be categorized as productive.

### Respondent Characteristics Based on Gender

**Table2.**Respondent Characteristics Based on Gender

No	Respondent Gender	Amount	Percentage %
1	Woman	28	93.33
2	Man	2	6.67
Amount		30	100

Source: primary data (processed), 2025

The data in Table 2 shows that female respondents dominated at 93.33%, while males only made up 6.67%. This situation illustrates that oyster gathering on the coast of Lhokseumawe City is an economic activity dominated by women. This work is considered flexible and can be done alongside household responsibilities. Meanwhile, men typically play a role in transporting and selling the catch. Women's dominance in this activity reflects their important role in supporting the family economy while preserving local traditions.

### Respondent Characteristics Based on Education Level

**Table 3.**Respondent Characteristics Based on Education Level

No	Respondents' Education Level	Amount	Percentage %
1	Didn't finish elementary school	13	43.33
2	Elementary School	10	33.33
3	JUNIOR HIGH SCHOOL	4	13.34
4	SENIOR HIGH SCHOOL	3	10
Amount		30	100

Source: primary data (processed), 2025

The majority of respondents had an education level of less than elementary school (43.33%) and elementary school (33.33%), while junior high and high school graduates accounted for 13.34% and 10%, respectively. This indicates that the education level of oyster-fishing communities is still relatively low. Poor access to education in coastal areas, coupled with family economic factors, has led some to choose to work from a young age. However, their extensive work experience has given them extensive local knowledge of water conditions and traditional oyster-fishing techniques.

### Respondent Characteristics Based on Marital Status

**Table 4.**Respondent Characteristics Based on Marital Status

No	Marital statusRespondents	Amount	Percentage %
1	Marry	29	96.67
2	Not married yet	1	3.33
Amount		30	100

Source: primary data (processed), 2025

Table 4 shows that the majority of respondents were married (96.67%), while only 3.33% were single. This indicates that oyster fishing is generally carried out by individuals with dependent families. Marital status influences economic motivation because the catch is used to meet household needs. The involvement of spouses and family members in this activity also strengthens the values of mutual cooperation and togetherness in coastal communities.

### Respondent Characteristics Based on Number of Dependents

**Table 5.**Respondent Characteristics Based on Number of Dependents

No	Number of DependentsRespondents	Amount	Percentage %
1	1-5	24	80
2	6-10	6	20
Amount		30	100

Source: primary data (processed), 2025

Table 5 shows that the majority of respondents have 1 to 5 dependents (24 people) in their families (80%), while 6 respondents (20%) have more than 6 to 10 dependents. This relatively large number of dependents indicates a significant economic burden. This situation is one of the factors encouraging people to remain active in oyster fishing as their primary source of income. The role of women in this activity is also very important, as most of them help supplement family income through oyster fishing.

### Respondent Characteristics Based on Oyster Business Experience

**Table 6.**Respondent Characteristics Based on Oyster Business Experience

No	Business ExperienceRespondents	Amount	Percentage %
1	<10	9	30
2	≥10	21	70
Amount		30	100

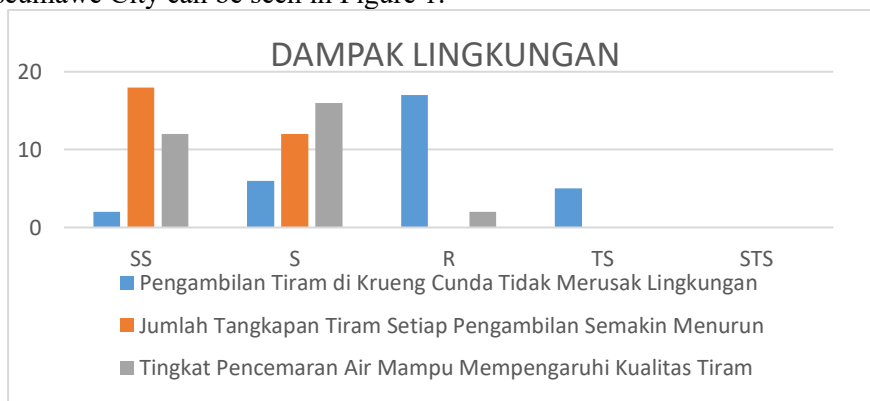
Source: primary data (processed), 2025

Table 6 shows that 70% of respondents had 10 years or more of oyster-fishing experience, while 30% had less than 10 years of experience. This finding suggests that most coastal communities have been engaged in this profession for generations. Long-term experience provides skills in identifying potential oyster locations, understanding tidal patterns, and increasing search efficiency.



### **The Behavior of Oyster-Seeking Communities in the Management of the Krueng Cunda Waters, Lhokseumawe City**

A description of the behavior of oyster-fishing communities in efforts to manage the Krueng Cunda water environment, Lhokseumawe City can be seen in Figure 1.



**Figure 1** Community Behavior in Environmental Management

Based on Figure 1, it can be seen that oyster harvesting in Krueng Cunda does not directly damage the environment (the highest “R” category), but irregular harvesting practices related to quantity, size, and timing can affect the structure of the oyster population. The increasingly significant decline in oyster catches with each harvest indicates overfishing that requires better management to maintain oyster stocks so that they continue to function ecologically and economically (Supii, N., & Arthana, I. W, 2020). In addition, water pollution affects oyster quality, because oysters are susceptible to absorbing heavy metals and pollutants that can reduce the quality and safety of oyster consumption and threaten human health (Savitri, YD (2023). Studies by Rismawati (2015) and other related research emphasize the need for sustainable oyster harvesting regulations to maintain ecosystem balance and the sustainability of marine resources and the community's economy.

Furthermore, based on the results of interviews with oyster collectors in Krueng Cunda, it was concluded that oyster harvesting does not directly damage the environment, but irregular harvesting practices in terms of quantity, size, and timing can negatively impact the structure of oyster populations. This condition indicates the need for proper harvesting regulation and management to maintain the sustainability of oyster resources and sustainable ecosystem balance. This outreach activity was based on field surveys that showed a significant decline in oyster catches due to uncontrolled harvesting, although no direct impact on aquatic environmental damage was yet visible. This decline in oyster stocks requires serious attention because it can disrupt the balance of the coastal ecosystem and threaten the sustainability of the livelihoods of coastal communities that depend on oyster utilization in the area. Therefore, sustainable management through the implementation of regulations and supervision of oyster harvesting is essential to ensure ecosystem sustainability and the welfare of the communities involved.



**Figure 2.** Socialization activities with oyster-fishing communities

### **Follow-up**

The results of this study demonstrate the need for comprehensive follow-up measures in environmental management. The primary focus that needs to be strengthened is the empowerment of coastal communities, particularly women who play a dominant role in oyster fishing activities. Because most actors have low levels of formal education, a local skills-based training approach is a relevant strategy. These training programs can be directed at improving the processing capabilities of the catch, from cleaning to innovative processed products such as dried oysters, smoked oysters, or oyster-based snacks. This step not only adds economic value but also encourages the independence of coastal women in supporting their families' finances. From an environmental perspective, the sustainability of oyster fishing activities is highly dependent on the condition of the coastal ecosystem. Increasing public awareness about sustainable management of the environment as an oyster habitat through the implementation of appropriate, measured, and seasonal harvesting regulations. Furthermore, empowerment through oyster cultivation training allows communities to develop environmentally friendly cultivation methods while reducing pressure on natural resources; and strengthening coastal community institutions to manage oyster resources collectively and responsibly. Furthermore, joint monitoring and supervision between the community and the government are needed to ensure the sustainability of aquatic ecosystems. Examples of programs such as the Oyster House innovation in Alue Naga Village, developed by Syiah Kuala University, can be a successful model for community empowerment and sustainable oyster management. Furthermore, institutional strengthening, environmental conservation and local government support are the main keys to realizing sustainable oyster resource management.

### **CONCLUSION**

The oyster-fishing community on the coast of Lhokseumawe City is dominated by women of productive age with low levels of education, married status, and have long experience in oyster fishing, which has been part of the culture and economic source of the family for generations, so this socialization is expected to increase their awareness and capacity in sustainable oyster management in order to achieve ecosystem preservation and improve the economic welfare of coastal communities.

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