



GILLNET FISHING GEAR ASSEMBLY MANAGEMENT FOR COASTAL FISHERMEN

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Abstract

The success of fishing is influenced by several factors, namely knowledge about the fishing ground, fish behavior, fishing methods and techniques, and the fishing gear used. Gill nets (gill nets) are environmentally friendly fishing gear, protect marine habitats, and can be developed as fishing gear on a commercial scale. However, not all fishermen can make gill nets. Service activities are carried out aiming to provide education to fishermen in the form of activities to design, assemble, operate surface gill nets. Community service activities were carried out in Kampung Jawa, Banda Sakti District, North Aceh Regency using the Focus Group Discussion (FGD) method and demonstrations. Gillnet has good prospects to be developed as a commercial fishing gear because raw materials are easy to obtain and can be used independently or in groups. This community service activity shows a success rate of 96%, this is shown by the ability of coastal fishermen to easily make GillNet and to do it in groups. Every stage of community service activities can be followed properly, even fishermen hope that this activity can be continued by making other fishing gear. Through this activity, it is hoped that fishermen will have the knowledge, skills and attitudes in running capture fisheries entrepreneurship, especially gill nets, considering that gill net fishing gear has a great opportunity to be developed in the coastal area of Lhokseumawe City.

Keywords: *Assembly, GillNet, fish.*

1. INTRODUCTION

Lhokseumawe City has a coastal area of 2,236 km² and 1,731 fishermen consisting of 1,251 permanent fishermen, 270 main sambal fishermen and 210 additional part-time fishermen. The need for fishing gear from gill nets (GillNet) is very high considering that most fishermen do deep sea fishing in areas less than 10 km from the coast. This is due to limited fishing facilities such as motorized boats.

Capture fisheries business is carried out by using a fleet of boats and fishing gear that are adapted to the fishing grounds and fishing objectives. Gill nets are a type of fishing gear used by coastal fishermen, consisting of circular gill nets, bottom gill nets and surface gill nets which are operated during the day and at night (Tawari, 2013). Bottom gill nets are an effective fishing gear for demersal fish and are selective for catches (Setiawati et al., 2015).

Along with the development of technology and science today, efforts to create fishing gear that are environmentally friendly are being encouraged by the government, one of which is the Gillnet fishing gear. Gill Net fishing gear has the potential to be developed, because so far Gill Net fishing gear has been imported from outside at a higher price.

The business of fishing using gill nets is no longer a new technology for fishermen, this is because the material is easier to obtain, technically easy to operate and cheap, economically and within reach of fishermen, and more selective in terms of the size of the fish caught. Dermawati et al (2019). Fish that are larger or smaller than the mesh size can be caught in the gill net without

having to penetrate into the mesh. estimated according to the size of the fish to be caught (Pondaag et al., 2018).

Communities living on the coast generally catch fish in the simplest way, still using trawl nets and cantrang fishing gear. Regulation of the Minister of Maritime Affairs and Fisheries No 2/2015 concerning the Prohibition of the Use of Trawl and Seine Nets Fishing Equipment. Fishing gear that is not environmentally friendly, namely fishing gear that does not have a low level of selectivity, catches endangered species, has high by-catch and discard and has a negative impact on biodiversity (Nanlohy 2013). Making GillNet is relatively easy and requires a low cost so fishermen can develop it into a fishing gear business opportunity. However, not all fishermen can do this, so they have to buy it at a higher price in traditional markets.

By looking at the proportion of yields it can be said that the fishing gear is environmentally friendly because it is seen from several parameters, namely the proportion of main catch and bycatch, utilization of bycatch and the proportion of fish worth catching. Summary of the results of the assessment of the level of environmental friendliness of gillnet fishing units (Rofiqah et al 2019). General gill nets produce much higher catch biomass than millennium nets due to the smaller size of the nets. Thus, this fishing gear is considered selective for catching mackerel (Alinda et al, 2007).

2. IMPLEMENTATION METHOD

2.1 Service Location

Community service activities are carried out in the Gampong Jawa Lama, Lhokseumawe City, with the consideration that the community has a dominant occupation as fishermen. and also as a coastal area that has a large number of traditional fishermen, the production potential of Gill Net fishing gear is very strategic in the distribution and marketing of these products.

2.2 Production method

To make GillNet requires tools and materials in the form of ropes and nets which can be obtained in traditional markets, as follows:

Strap Material:

1. Lifeline
2. Top rise rope.
3. Weight rope
4. Lower rise rope.
5. Back side rope
6. Rope buoy sign.

Lifebuoy.

1. Material : Plastic Y-3 .
2. Thickness/diameter: 30 mm, Length: 40 mm, Width: 30 mm
3. Distance between buoys: 100 mm.
4. Number of buoys: 36 pieces

Ballast .

1. Material: Tin.
2. Shape: Cylinder.
3. Size Thickness / diameter: 5 mm, Length: 10 mm.
4. Distance between ballast: 56 mm.
5. Number of buoys: 72 pieces



Net (Webbing)

1. Net Body Material: PA Monofilament No. 0.35
2. Mesh size: 114.3 mm (4.5 inches)
3. The size of the net
4. Number of meshes in the flat direction: 640 meshes
5. number of meshes in the vertical direction: 35 meshes

Techniques for Making Gill Net Fishing Equipment

1. Determine Hanging Ratio
2. Cut one piece of webbing into two or several parts in a horizontal direction to get webbing according to the design.
3. Provide 2 x 36.00 meter long rope and buoy rope plus 1 meter to make the webbing and the connection between the nets. stretch this rope between the two poles then pulled.
4. Provide a 39.76 meter long rise rope plus 1 meter each with the same treatment as the rise rope.
5. Insert the top rope into the eye of the net at the very top edge, one other thread is inserted into the float using a sack needle.
6. Assemble the top rope and buoy rope into one by tying the double nylon thread. the distance between the buoys is 100 cm and the total number of buoys is 36 pieces.
7. Insert one thread of bottom line / weight rope into the meshes on the bottom edge, and one other thread is inserted into the 8 ballast holes using a needle or other tool, the distance between the weights is 56 cm and the total number of weights is 72 pieces
8. Measure the ris rope to be used by pulling the end of the rope in the middle so it doesn't get tangled
9. Tie the ends of the ris ropes so they don't unravel.
10. Tie one end of the rope to the stake/pole, then pull the other end firmly and release it with a jolt so that the rope doesn't get tangled or entangled in the pull after it's installed.

3. RESULTS AND DISCUSSION

3.1 Implementation of Activities

Entrepreneur training activities and training for making/assembling Gill Net fishing gear as well as assistance for Gill Net fishing gear businesses are carried out in stages and systematically as a solution to creating Gill Net fishing gear in Gampong Jawa Lama Lhokseumawe City as follows:

- a. Providing entrepreneur training, practical entrepreneurship training is also useful for balancing theory and practice so that it can develop an entrepreneurial spirit in the people of Gampong Jawa Lama, Lhokseumawe City. so that it is expected to increase people's motivation for entrepreneurship.
- b. Providing training on making/assembling Gill Net fishing gear, Improving the skills of small fishermen in making environmentally friendly fishing gear and workshops, Supporting sustainable fisheries management development programs, Increasing catch production which will have an impact on improving the welfare of fishermen, Reducing and eliminating the use of prohibited fishing gear by the government such as trawls, etc. and the aim of this training is also to make fishermen more skilled in making environmentally friendly fishing gear, to maintain the sustainability of aquatic ecosystems both in sea waters and inland public waters (rivers) for now and in the future, to restore availability of fish resources in marine waters and inland public waters.



Figure 1 Demonstration of Gill Net assembly for Coastal Fishermen

- c. Development of business management and marketing. Marketing management training includes promotion management, product pricing management, distribution management and marketing.
- d. Business development assistance. Business assistance activities are carried out on an ongoing and structured basis to ensure the sustainability of the Gill Net fishing gear business. In this case, an approach will be made with the community and related parties so that the Gill Net fishing gear business players have easy access to capital and develop a partnership program.

3.2 Partner Participation

Partners are directly involved in all stages of the service activities which are a series of agribusiness activities training in the manufacture/assembly of Gillnet Fishing Gear, starting from the procurement of raw materials (planning, purchasing, and supply of main raw materials and supporting raw materials), the process of making/assembling the tools catch Gillnet), distribution to product marketing. Business development and assistance will involve village officials.

- a. In the production sector, an evaluation of the ease of supply of raw materials, efficiency will be evaluated at each stage, both from the procurement of raw materials,
- b. The field of management, evaluation of human resource management includes
- c. Marketing field, evaluation of the number of consumer requests, distribution processes, price fluctuations (input and output) and timeliness of marketing.



Figure 2 Participation of Partners in the Gill Net Fishing Gear Assembling activity



3.3 Program Implementation Evaluation

The training activity on assembling GillNet fishing gear was attended by youth and parents in Kampung Jawa Lama, Banda Sakti District, Lhokseumawe City. Gillnet fishing gear has good prospects for development because the raw materials are easy to obtain and can be done independently or in groups.



Figure 3 Involvement of the Young Generation (Fishermen) in Assembling Gill Net Fishing Gear

The empowerment of coastal fishing communities is encouraged to form business groups and be able to seize opportunities in the field of fishing gear assembly (GillNet). This training activity received a positive response from both the fishing community and from Gampong Jawa Lama officials because so far the majority of the fishermen's work is fishing in the sea. The results of the evaluation of the implementation of the service program are presented in Table 1.

Table 1 Results of the Evaluation of the Service Program Implementation

No.	Description	Success (%)
1	Improving the skills of small fishermen in making environmentally friendly fishing gear	95
2	Support sustainable fisheries management development program	97
3	Increasing the production of fishermen's catch so that it has an impact on increasing the welfare of fishermen	98
4	Reducing and eliminating the use of fishing gear that is prohibited by the government such as trawls	98
5	Making fishermen more skilled in making environmentally friendly fishing gear	97
6	Maintaining the preservation of aquatic ecosystems, both sea waters and inland public waters (rivers) for the present and the future,	98

The training supports the KKP's strategic program in developing the marine and fisheries sector. The Ministry of Maritime Affairs and Fisheries has established a strategic program, one of which is measurable fishing, in which in the future fishermen will receive fishing permits which will be given fishing quotas and fishing zoning. Apart from that, Kampung Nelayan Maju also plays a role in planning economic empowerment activities in coastal areas.

By looking at the proportion of yields it can be said that the fishing gear is environmentally friendly because it is seen from several parameters, namely the proportion of main catch and

bycatch, utilization of bycatch and the proportion of fish worth catching. Summary of the results of the assessment of the level of environmental friendliness of the gillnet fishing.

3.4 Influence and Impact of Activities

In Indonesia, there are many environmentally friendly fishing gear used by fishermen, including gill nets. Through this training, it is hoped that participants will understand how to assemble and maintain GillNet fishing gear. The importance of this training activity is carried out so that fishermen can use environmentally friendly fishing gear in fishing activities. for fishermen from Gampong Jawa Lama this training was a very useful activity and one form of effort to increase the quality of productivity as a catch fisherman. Even though previously the fishermen had made fishing gear on their own, the fishermen had attended the training well and it was hoped that this would be sustainable.



Figure 4 Fisherman Groups and Gill Net Fishing Gear

Gillnet's fishing gear assembly activities are focused on product development, increasing cooperation, seizing opportunities to increase income, and empowering the economy of coastal fishermen in Gampang Jawa Lama Lhokseumawe City. The activities produced in this training include:

- a. To improve the skills of coastal fishermen in assembling and repairing nets specifically for gill net fishing gear.
- b. It is hoped that coastal fishermen can diversify their business so that they can get additional income as business actors.
- c. Digital marketing, participants are given training on pricing methods and marketing systems that are more profitable by utilizing digitalization to reach consumers. Marketing can also be done through agents or retailers (Jafaruddin, et. al., 2022).
- d. The training supports the KKP's strategic program in developing the marine and fisheries sector. The Ministry of Maritime Affairs and Fisheries has established a strategic program, one of which is measurable fishing, in which in the future fishermen will receive fishing permits which will be given fishing quotas and fishing zoning. Apart from that, Kampung Nelayan Maju also plays a role in planning economic empowerment activities in coastal areas. BRSDM is committed to supporting the realization of this program by providing knowledge transfer to fishermen.



4. CONCLUSION

- a. The GillNet Fishing Gear Assembly activity has reached its targets and coastal fishing communities have understood the importance of exploiting marine fisheries resources to increase income.
- b. This activity is carried out in the form of technical training and marketing management so that coastal fishing communities can develop GillNet fishing gear products by promoting digital technology innovation.
- c. There is a desire for coastal fishermen in development.

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