JPB JURNAL PENGABDIAN BANGSA

Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

UTILIZATION OF GILLNET CATCHES FISHERMEN OF MATANG RAYEUK VILLAGE , NUSANTARA FISHERIES PORT, EAST ACEH

Muhammad [1*] , Junaidi M. Affan [1] , Rizwan [1] , Razali [2] , Wulan Agustri [3] , Syamsul Rizal [3] , Zulfan [4] , Syarifuddin [5] , Zulkarnain [6]

[1] Utilization of Fisheries Resources , Marine, FKP Syiah Kuala University , Indonesia
[2] Mechanical Engineering Study Program , Faculty of Engineering, Syiah Kuala University , Indonesia
[3] Marine Science , FKP Syiah Kuala University , Indonesia
[4] Sociology Study Program , Faculty of Social and Political Sciences, Syiah Kuala University , Indonesia
[5] Law Study Program , Faculty of Law, Syiah Kuala University , Indonesia
[6] Physics Study Program , Faculty of Mathematics and Natural Sciences, Syiah Kuala University , Indonesia

Article Info:

Received 1 April 2024 \ Revised 04 April 2024 | Accepted 5 April 2024
Email correspondence: muhammad@usk.ac.id

ABSTRACT

The purpose of this community service is to determine the composition of the main and by-catch of gill nets and the size of the catch. This community service was carried out during April 2023 at PPN Idi Rayeuk, Matang Rayeuk Pedawa Puntong Village, East Aceh Regency. The data collection method used was obtained from primary data (surveys and interviews) which included the type, quantity, size, and weight of the gill net catch and secondary data can be obtained from scientific references books, journals, theses and theses). The data analysis used was catch composition analysis and catch size analysis. The results of the community service show that the composition of the main catch of gill nets at a mesh size of 1 ¼ inches is tembang fish, at a mesh size of 2 inches is ribbon fish and at a mesh size of 3 inches is Kapasan/kerot-kerot fish and kwee. The bycatch results at 1¼ inch mesh size are jackfruit seed fish (upeneus moluccensis), kurisi (nempiterus hexodon), petek (leiognathus equulus), yellow scad (Atule mate), saurida (Saurida undosquamis), Swanggi (Priacanthus hamrur), sea bream (Psettodes erumei), parang-parang (chirocentrus dorab), tetengkek (megalaspis cordyla) and layur (trichiurus Sp.A). Next, at a mesh size of 2 inches, namely talang fish (scomberoides tala), diles (johnius carouna), petek (leiognathus equulus), bulan-bulan (Megalops cyprinoides), parang-parang (chirocentrus dorab), biji nangka (upeneus moluccensis), kurisi (nempiterus hexodon), kwee (carangoides armatus), tetengkek (megalaspis cordyla), gerot-gerot (Pomadasys kaakan), kerong-kerong (Terapon Jarbua), and alu-alu (Sphyraena genie). Then at the mesh size of the 3 inches, namely the Kapasan/Kerot-Kerot fish (Pomadasys argenteus), Talang (Scomberoides tala), Petek (Leiognathus equulus), Kuro (Polydacctylus microstoma), Diles (Johnius carouna), Parang-Parang (Chirocentrus dorab), Tenggiri (Scomberomorus Commerson), Kapas (Gerres filamentosus), and Tetengkek (Megalaspis cordyla). The catch at the mesh size of 1¼ and 2 inches is said to be not yet suitable for fishing, while the mesh size of 3 inches is said to be suitable for fishing.

Keywords : Gill Net, PPN Idie Rayeuk, Fish

JPB JURNAL PENGABDIAN BANGSA
Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

A. INTRODUCTION

East Aceh Regency is one of the regencies of Nanggroe Aceh Darussalam Province, located geographically between 4•09'21.08"5•06'02.16" North Latitude and 97•15'22.07"97•34'4722" East Longitude. The area of East Aceh Regency is 6,040.60 Km2 (East Aceh Regency Marine and Fisheries Service, 2020). Regulation of the Minister of Marine Affairs and Fisheries of the Republic of Indonesia Number 18/PERMENKP/2014 concerning the Division of WPP-RI, East Aceh WATERS are in WPP 571 which directly faces the Malacca Strait (KKP, 2018). According to Emmanuel et al. (2008) gillnets are rectangular nets that stretch vertically (due to the presence of weights and floats) in the waters and will block fish so that fish are caught in the net. According to Kazi et al. (2011), gillnets are also a very popular fishing tool among traditional fishermen due to their simple construction and relatively low investment costs. Gillnets are also a highly selective fishing tool, capable of catching only catches that match the target size.

The gill nets found along the coast of Matang Rayeuk Pedawa Puntong village are called meneng nets. The nets used by fishermen on the coast of Matang Rayeuk Pedawa Puntong village have several types of mesh sizes. The mesh sizes used are 1 1/4 inches, 2 inches, 3 inches, and 5 inches. One of the fishing gear used on the coast of Matang Rayeuk Pedawa Puntong village is the gill net, which is the livelihood of local fishermen. The use of gill net fishing gear on the coast of Matang Rayeuk Pedawa Puntong village is still quite simple. Gill net fishermen usually carry out fishing operations in the morning at 6:00 a.m. The catch obtained by the fishermen is intended for sale (trade) and consumption.

The catch with gill net fishing gear on the coast of Matang Rayeuk Pedawa Puntong Village is meneng fish (Tembang), gantup fish (jackfruit seeds), tuwih fish (kurisi), gapah fish (kapas), cirik fish (pepetek) and so on. The total catch carried out in the waters of Matang Rayeuk Pedawa Puntong is estimated at 10-50 kg in one catch. Information on the types of catches from gill nets operated in the morning is still very limited, however this information is very much needed by fishermen to develop gill nets in the local village . Seeing the current condition with the absence of community service regarding the analysis of gill net catches *on* the coast of Matang Rayeuk Pedawa Puntong Village, the researcher feels the need to carry out community service related to the analysis of the gill net catches . The catch data obtained by local fishermen is also not recorded, because the catch is directly sold by fishermen without recording the catch.

JPB JURNAL PENGABDIAN BANGSA
Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

Gillnet Fishing Equipment

Gillnets are a type of fishing gear made from rectangular netting with the same mesh size as the main net (Marthasuganda, 2008). Gillnets are passive fishing gear. Passive fishing gear usually targets active organisms, while active fishing gear targets passive organisms (Mardiah *et al* ., 2016). Gillnets *are* the most common fishing gear and are widely used in both developed and developing countries. Gillnets *can* be used for catching pelagic and demersal fish, from small vessels to large industrial vessels. *Gillnets* are efficient, inexpensive, and easy to handle. However, many *gillnets* are lost at sea during fishing (Grimaldo *et al.*, 2020). *Gillnet* use is divided into three areas: surface waters, midwaters, and bottom waters. The construction of *the gillnet* fishing gear consists of a net body, line, weight and float (Tangke, 2011).

Gillnets are one type of fishing gear widely used by fishermen, ranging from circular gillnets, bottom gillnets, and surface gillnets that are operated during the day and night. Fishing efforts using gillnets are no longer a new technology for fishermen, this is because the materials are easier to obtain, technically easy to operate and cheap, economical and affordable for fishermen, and more selective about the size of the fish caught (Tawari, 2013, Dermawati *et al* , 2019). Gillnets are a type of fishing gear made of rectangular net material with the same mesh. The number of meshes in the long direction (*mesh length / ML)* is much more than the number of meshes in the vertical direction (*mesh depth* / MD). At the top it is equipped with several floats *and* at the bottom it is equipped with several sinkers *so* that the presence of two opposing forces allows the gillnet to be installed in the fishing area in an upright position (Hantadari, 2013).

Gillnet is a fishing tool that has a general rectangular shape with parts of the tool consisting of the main net, upper ris rope, lower ris rope, float *and* sembar rope. Net material consisting of *mesh size* , thread size , net color, haging ratio and net height are factors that determine fishing efficiency. *Gillnet* is used to catch large fish species including salmon, *cord* , mackerel, sardines, crabs, sharks, tuna, shrimp and so on. Drift gillnet is *basically* the same as gillnet , but there is a difference in the way it is operated in the fishing area. The success of fishing in a waters with passive gillnet fishing gear is not only influenced by the number of fish that pass through the net but also by the movement of fish migration (Syofyan *et al* , 2010).

Gillnet Fishing Gear Operating Techniques

Gillnet fishing gear works by blocking the direction of fish movement. *Gillnets,* when viewed from their construction, are simple fishing gear and are quite affordable for fishing communities. *Gillnets,* which are categorized as nets, have a simple construction such as a ris line, a net body, a weight, and a float. In narrow waters such as rivers, *gillnets* are operated without floats; they are simply tied to logs or trees around the waters (Rohadi *et al* ., 2020). According to Wijayanti *et al.*, (2012), before carrying out fishing operations, fishermen first determine the *fishing ground* area ,

JPB JURNAL PENGABDIAN BANGSA
Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

namely in the odorless swamp area, because usually there are no fish in odorous areas. Choose an area that is free of plants such as water hyacinth and algae, because they can interfere with the fishing process and can even damage the net. The operating procedure for gillnets is as follows:

1. *Setting* : After determining the intended fishing area, the boat will stop, then the net can be lowered starting from the marker buoy, then from one end and followed by the net body to the other end of the net. The *setting* process is carried out for 1-2 hours. *Setting* depends on the number of net meters owned; the more net meters owned, the longer it will take;
2. *Immersing* is the process of soaking or leaving the net in water . The *immersion* process is carried out overnight or depending on the fishing area and the target fish.
3. *Hauling* : After the net is lifted from the water overnight, the fishermen then retrieve their catch one by one, usually called mitil by local fishermen. Some fishermen also collect their catch at home, depending on the quantity. Hauling takes *longer* than *setting* because the fishermen also clean the net of dirt.

The operation of gillnet fishing gear consists of setting the fishing gear , soaking it , and hauling *it* . The operation of *gillnet* fishing gear is intended to catch pelagic fish such as tuna, mackerel, scad, mackerel, selanget, petek (Setiawati et al., 2015), selar and serai (Hendrik, 2012), manyung, julung-julung, lamadang, parang-parang (Rijal, 2008).

Gillnet Catch Results

The types of fish that are entangled in the mesh, for example, sardines, kites, mackerel, etc. form a school and it can be said that each individual is almost the same size. Types of fish such as sharks, una which have very large bodies that cannot possibly get entangled in the net mesh or fish such as *flat fish* which have a wide flat body shape , making it difficult to get caught in the net, these fish will be caught by getting entangled (Sudirman and Mallawa, 2012). According to Anggita (2020) *gillnet* fishing gear tends to catch a variety of fish so that many types of fish are caught with dominant sizes or various sizes. *Gillnet* fishing gear is a rectangular net, has the same mesh size in each net body, the width of the net is shorter when compared to the length of the net so that the number of meshes towards the width is less than the number of meshes towards the length. The number of fish caught is related to the season and fishing efforts carried out by fishermen including the number of boats and the number of days at sea. In addition, the length of the net and the number of crew can also affect the amount of fish production (Setiawati *et al,*. 2015).

JPB JURNAL PENGABDIAN BANGSA
Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

B. SERVICE METHOD

Time and Place

This community service program was conducted in April 2023 at the PPN (National Land Agency) in East Aceh Regency . A map of the community service location can be seen in the image below:

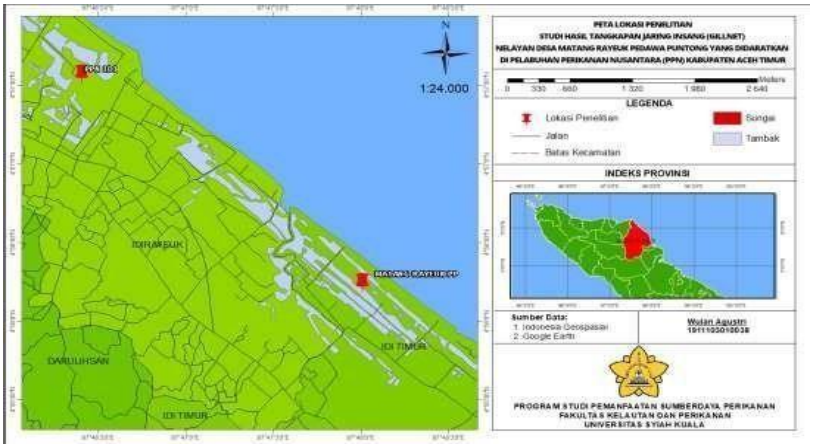

Figure 3.1 Map of Community Service Locations

Tools and materials

The tools and materials used for this service are presented in the following table : Table 3.1 Tools

Tool No.	Amount	Function
1. Stationery	1 Package	To record the results of the community service catch
2. Camera	1 Unit	For documentation of the object of devotion
3. Laptop	1 Unit	To process data

JPB JURNAL PENGABDIAN BANGSA
Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

4.	Weighing and Meter	1 Unit for measuring and weighing fish

Method of collecting data

This community service was conducted in the coastal area of East Idi District , East Aceh Regency, Aceh Province. The method used in this community service was a field survey. According to Najir (2012), the survey method is a community service conducted to obtain existing factors or symptoms and seek actual information, whether on political, social, or economic issues of a group or region. The types of data used in this community service are primary and secondary data. Primary data collection was conducted through direct observation in the field. Primary data collected included the type, quantity, size, and weight of the gillnet catch. Meanwhile, secondary data is comparative data to support the community service results. Secondary data can be obtained from scientific references such as (books, journals, theses and dissertations) related to the gillnet fisheries unit (Atharis, 2008).

Tabel 3.2 Data Primer dan Data Sekunder

No	Jenis Data	Metode
1.	Primer	
	a. Jumlah komposisi hasil tangkapan	Observasi dan Wawancara
	b. Pengukuran Panjang total dan bobot hasil tangkapan	Observasi
2.	Sekunder	
	a. Ukuran layak tangkap	Studi pustaka diambil dari *Fishbbase*

To collect catch data, a sampling of the number of vessels was conducted. A total of six vessels were sampled, consisting of two vessels using gillnets with a mesh size of *1* 1/4 inches, two vessels using gillnets with a mesh size *of* 2 *inches* , and two vessels using gillnets with *a mesh size of* 3 inches. All data was recorded and analyzed.

Analysis of Catch Composition

Before analysis, the catch is first identified to determine the common and Latin names of the fish caught. This identification can be done using a fish identification book. After identification, the data can be processed using Microsoft Excel to determine the composition of the gillnet catch. The data can then be presented in tabular form and discussed in detail .

JPB JURNAL PENGABDIAN BANGSA
Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

descriptive.

Catch Size Analysis

Catch size analysis was conducted to determine the total length interval of each fish species. To calculate the number and interval of length classes, the following formula was used (Usman 2011): K = 1 + 3.3 log n

Information :

K = Number of Classes

N = Number of Individuals i = Class Interval

$i = \frac{R}{K}$

R = Largest value (length) - smallest value (length)

C. RESULTS AND DISCUSSION

Composition of Catch Results

Research that has been conducted on coastal fishermen in Matang Rayeuk Pedawa Puntong village, obtained catch results using gillnets with mesh sizes of 1 ¼ inches, 2 inches and 3 inches. The types of fish obtained are tembang fish (Sardinella gibbosa), jackfruit seeds (upeneus moluccensis), kurisi (nempiterus hexodon), petek fish (leiognathus equulus), yellow scad (Atule mate), Swanggi (Priacanthus hamrur), tetengkek (megalaspis cordyla), saurida (Saurida undosquamis), sea bream (Psettodes erumei), parang-parang (chirocentrus dorab), layur (trichiurus Sp.A), talang (scomberoides tala), diles (johnius carouna), bulan-bulan (Megalops cyprinoides), kwee (carangoides armatus), gerot-gerot (Pomadasys kaakan), kerong-kerong (Terapon Jarbua), alu-alu (Sphyraena genie), cotton/kerot-kerot (Pomadasys argenteus), moon-month (Megalops Cyprinoides), mackerel (Scomberomorus Commerson), kuro (Polydacctylus microstoma), cotton (Gerres filamentosus).

The type, quantity and composition of the catch from gillnets with a mesh size of 1 ¼ inches can be seen in table 4.1.

Table 4.1 Results of 1 ¼ inch Gill Net Catch

No	Name Fish	Name Local	Name Scientific	Htu/ Hts	Amount (tail)	Percentage
1	Song	Meneng	*Sardinella gibbosa*	Htu	131	26%
2	jackfruit seeds	Hang up	*upeneus moluccensis*	Hts	124	25%
3	Chairs	Tuwih	*nempiterus hexodon*	Hts	88	18%
				Hts	33	7%
			7			
				Hts	17	3%

JPB JURNAL PENGABDIAN BANGSA
Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

4	Stingray fish	Characteristics	*leiognathus equulus*	Hts	88	18%
5	mackerel	Fish	*Alue Matae*			
	yellow	banana				
6	Saurida fish	Spurs	*Saurida undosquamis*			
7	Swanggi	Arafit	*Swanggi*	Hts	12	2%
8	Flatfish	Siblah	*Psettodes erumei*	Hts	2	0%
9	Machetes	Blideng	*chirocentrus dorab*	Hts	2	0%
10	Thumbs up	Turok	*megalaspis cordyla*	Hts	6	1%
11	Screen	Cuale	*trichiurus Sp.A*	Hts	1	0%
	Amount				**504**	**100%**

In Table 4.1, it can be seen that the most caught catch in the 1 ¼ inch mesh size is tembang fish (26%) with the number of fish caught 131, then biji nangka fish (25%) with the number of fish caught 124, kurisi fish (18%) with the number of fish caught 88, petek fish (18%) with the number of fish caught 88. However, the main catch of the 1 ¼ inch gill net is only Tembang fish, so it can be said that the main catch of the 1 ¼ inch gill net was obtained at 25.99% and the bycatch was obtained as much as 74.01%. This shows that the bycatch was caught more than the main catch. The types along with the number and composition of the catch of the 2 inch mesh gill net can be seen in table 4.2.

Tabel 4.2 hasil tangkapan jaring insang berukuran 2 inci

No	Nama Ikan	Nama Lokal	Nama Latin	Htu/ Hts	Jumlah (ekor)	Persentase
1	Talang	Taleng	*scomberoides tala*	Hts	102	17%
2	Delis	Belama	*johnius carouna*	Hts	114	19%
3	Petek	Cirik	*leiognathus equulus*	Hts	93	15%
4	Layur	Cuale	*trichiurus Sp.A*	Htu	100	16%
5	Ikan bulan-Bulan	Ikan Bulan	*Megalops cyprinoides*	Hts	28	4%
6	Parang-parang	Blideng	*chirocentrus dorab*	Hts	28	4%
7	Biji nangka	Gantup	*upeneus moluccensis*	Hts	15	2%
8	Kurisi	Tuwih	*nempiterus hexodon*	Hts	16	3%
9	Kwee	Rambe	*carangoides armatus*	Hts	12	2%
10	Tetengkek	Turok	*megalaspis cordyla*	Hts	92	15%
11	Gerot-gerot	Tok tok	*Pomadasys kaakan*	Hts	4	1%
12	Kerong-kerong	Sikirong	*Terapon Jarbua*	Hts	4	1%
13	Alu-alu	Boh ubi	*Sphyraena genie*	Hts	4	1%
14	Ikan sebelah	Siblah	*Psettodes erumei*	Hts	2	0%
	Jumlah				**614**	**100%**

Table 4.2 shows that the most common catch in a 2 inch mesh size is delis fish (19%) with 114 fish caught , then there are

JPB JURNAL PENGABDIAN BANGSA
Vol 3 No 2 Tahun 2024, pp. 1 – 19 | ISSN: 2964-1772 | DOI: https://doi.org/ 10.61992/jpb.v3i2.105

Talang fish (17%) with a total of 102 fish caught, hairtail fish (16%) with a total of 100 fish caught, petek fish (15%) with a total of 93 fish caught, tetengkek fish (15%) with a total of 92 fish caught. However, the main catch of the 2-inch gill net is only hairtail fish, so it can be said that the main catch of the 2-inch gill net was 16.29% and the bycatch was 83.71%. This shows that more bycatch was caught than the main catch. The types along with the number and composition of the catch of the 3-inch mesh gill net can be seen in table 4.3.

Tabel 4.3 hasil tangkapan jaring insang berukuran 3 inci

No	Nama Ikan	Nama Lokal	Nama Ilmiah	Hts/ Hts	Jumlah	Persentase
1	Kapasan/ kerot-kerot	Siri	*Pomadasys argenteus*	Htu	108	19%
2	Ikan kapas	Gapah	*Gerres filamentosus*	Hts	30	5%
3	Talang	Taleng	*scomberoides tala*	Hts	54	9%
4	Petek	Cirik	*leiognathus equulus*	Hts	123	21%
5	Kuro	Seulangen	*Polydacctylus microstoma*	Hts	45	8%
6	Kwee	Rambe	*carangoides armatus*	Htu	62	11%
7	Diles	Belama	*johnius carouna*	Hts	108	19%
8	Parang-parang	Bliding	*chirocentrus dorab*	Hts	5	1%
9	Tenggiri	lamahan	*Scomberomorus Commerson*	Hts	26	5
10	Tetengkek	Turok				
	Jumlah					

Distribution of Gill Net Catch Size

The distribution of catches from gillnets with a mesh size of 1 ¼ inches can be seen in the table . 4.4. Table 4.4 Distribution of Gill Net Catch Results with 1¼ Inch Mesh Size .

No	Nama Ikan	Nama Lokal	Nama Ilmiah	Panjang Rata-rata	Bobot Rata-rata
1	Tembang	Meneng	*Sardinella gibbosa*	8,45	33,03
2	Biji nangka	Gantup	*upeneus moluccensis nempiterus hexodon*	7,21	44,02
3	Kurisi	Tuwih		7,01	41,64
4	Ikan petek	Cirik	*leiognathus equulus*	10,21	35,50
5	Selar kuning	Ikan pisang	*Atule mate*	6,09	27,57
6	Saurida	Jalu	*Saurida undosquamis*	21,11	94,47
7	Swanggi	Arafit	*Priacanthus hamrur*	9,20	42,50
8	Ikan sebelah	Siblah	*Psettodes erumei*	15,50	69,50
9	Parang-parang	Blideng	*chirocentrus dorab*	18,00	260,00
10	Tetengkek	Turok	*megalaspis cordyla*	16,83	98,33
11	Layur	Cuale	*trichiurus Sp.A*	47,00	75,00

According to table 4.4 above , it can be seen that the catch from the gillnet with a mesh size of 1 ¼ inches with the largest average weight is the parang-parang fish with an average weight of 260.00 grams, followed by the tetengkek fish with an average weight of 98.33 grams. Meanwhile, the catch with the largest average length at a mesh size of 1 ¼ inches is the ribbon fish with an average length of 47.00 cm.

The distribution of catches from gillnets with *a* mesh size of 2 inches can be seen in table 4.5.

Table 4.5 Distribution of Gill Net Catch Results , Mesh Size 2 Inch.

No	Fish Names	Name Local	Latin Name	Long Average	Weight Average
1	gutter	gutter	*scomberoides tala*	18.91	130.47
2	Diles	Belama	*Johnius Carouna*	16.53	95.07
3	Pepetek	Characteristics	*leiognathus equulus*	14.34	89.40
4	Screen	Cuale	*trichiurus Sp.A*	57.51	211.10
5	Months	Month	*Megalops cyprinoides*	22.92	129.64

6	Parang-machete	Blideng	*chirocentrus dorab*	22.29	17.42
7	Jackfruit seeds	Hang up	*upeneus moluccensis*	11.06	51.00
8	Chair	Tuih	*nempiterus hexodon*	18.93	119.68
9	Kwee	Rambe	*carangoides armature*	14.50	70.00
10	Thumbs up	Turok	*megalaspis cordyla*	14.88	116.25
11	Gerot- gerot	Knock-knock	*Pomadasys kaakan*	16.50	60.00
12	Kerong-kerong	Sikirong	*Jarbua Terapon*	17.25	90.00
13	Alu- alu	Sweet potato	*Sphyraena genie*	31.50	223.75
14	Flatfish	Siblah	*Psettodes erumei*	24.00	102.50

According to Table 4.5 above, it can be seen that the catch of the 2-inch mesh net (gillnet) with the largest average weight is the alu-alu fish with the largest average weight of 223.75 grams, followed by the ribbon fish with an average weight of 211.1 grams. The catch with the largest average length in the 2-inch mesh net was obtained for ribbon fish with an average length of 57.51 cm.

The distribution of catches from gillnets *with* a mesh size of 3 inches can be seen in table 4.6.

Table 4.6 Distribution of Gill Net Catch Results , Mesh Size 3 Inch

No	**Fish Names**	**Local Name**	**Scientific Name**	**Long Average**	**Weight Average**
1	Kapasan/kerot-rot	Siri	*Pomadasys argenteus*	22.31	265.35
2	cotton fish	Gapah	*Gerres filamentosus*	16.65	162.50
3	gutter	Taleng	*scomberoides tala*	28.19	307.25
4	Petek	Characteristics	*leiognathus equulus*	15.45	99.64
5	Kuro	Seulangen	*Polydactylus*	17.69	219.77

			microstoma		
6	Kwee	Rambe	*carangoides armatus*	21.89	270.00
7	Diles	Belama	*Johnius Carouna*	23.28	231.11
8	Machetes	Blideng	*chirocentrus dorab*	23.52	260.00
9	mackerel	Anuek page	*Scomberomorus Commerson*	33.02	289.09
10	Thumbs up	Turok	*megalaspis cordyla*	19.22	90.00

According to Table 4.6 above, it can be seen that the catch of gillnet with a mesh size of 3 inches which has the largest average weight is Talang fish with the largest average weight of 307.25 grams, followed by mackerel with an average weight of 289.09. The catch with the largest average length in the 3 inch mesh was obtained in mackerel with an average length of 33.02 cm.

D. DISCUSSION

Composition of Catch Results

According to Firnanda (2019) states that the composition of the catch is the target of a particular species that is the target of the catch and species that are not the target of the catch of the total number of catches. The composition of the catch is analyzed descriptively by distinguishing the main catch and bycatch. In line with the service Wita (2019) states that the main catch (HTU) is the catch of the main target (main target) of the catch, while the bycatch (HTS) is the catch that is not the target species (by-catch). The catch caught during the service using gill net fishing gear in Matang Rayeuk Pedawa Puntong Village was obtained 22 types of fish and can be seen in tables 4.1, 4.2 and 4.3 the number of catches that were most caught at the mesh size of 1 ¼ inches there are 2 types of fish with a number exceeding 100 or > 10% of the total catch, namely tembang fish as many as 131 and jackfruit seed fish as many as 124. Furthermore, the most common catches caught in the 2 inch mesh size were 3 types of fish with a number exceeding 100 or > 10% of the total catch , namely 114 delis fish , 102 talang fish and ribbon fish .

as many as 100 fish. Then the most caught catch in the 3-inch mesh size was 3 types of fish with a number exceeding 100 fish or > 10% of the total catch, namely petek fish as many as 123 fish, Kapasan kerot-kerot fish as many as 108 fish and diles fish as many as 108 fish.

According to Maldi (2015) the dominant fish species caught by gill nets are katun-kapotak, diles, layur, kwee, petek, selar, tetengkek, and bulan-bulan, so it is likely that delis, layur, and petek fish are the fish species that are often caught by gill nets even though they are not the main catch. The influence of high and low catches in the operation of a fishing gear can be influenced by several factors such as the length of the fishing trip, fishing area, boat size, and the length and size of the mesh used (Lisna et al,. 2018). The main catches in the coastal gill nets of Matang Rayeuk Pedawa Puntong Village at a mesh size of 1 ¼ inches are tembang fish, at a mesh size of 2 inches are layur fish, and at a mesh size of 3 inches are kapasan kerot-kerot and kwee fish. Furthermore, the most common bycatch caught in the 1 ¼ inch mesh size is jackfruit seed fish and kurisi fish, in the 2 inch mesh size is delis fish and talang fish, and in the 3 inch mesh size is petek fish and delis fish.

Distribution of Gill Net Catch Size

The distribution of catch sizes is divided into two categories: fish length and fish weight. Both indicators are used to determine the size of a species. Fish length is measured using a meter, while fish weight is measured using a digital scale. Fish length measurements are performed on all types of catch. Meanwhile, gonad maturity to determine catchable size refers to fishbase. Based on the catch results, the most common catches in the 1 ¼ mesh size were obtained two types of fish: tembang fish with an average length of 8.45 cm and an average weight of 33.03 grams, and kurisi fish with an average length of 7.21 cm and an average weight of 44.02 grams. Furthermore, the most caught fish in the 2-inch mesh size were 3 types of fish, namely: delis fish with an average length of 16.53 cm and an average weight of 95.07 grams, talang fish with an average length of 18.91 cm and an average weight of 130.47 grams, and ribbon fish with an average length of 57.51 cm and an average weight of 211.10 grams. Then the most caught fish in the 3-inch mesh size were 3 types .

The fish are: petek fish with an average length of 15.45 cm and an average weight of 99.64 grams, Kapasan kerot-kerot fish with an average length of 22.31 cm and an average weight of 265.35 grams, and diles fish with an average length of 23.28 cm and an average weight of 231.11 grams.

Based on the interval class of the main catch on the mesh size of 1 ¼ inches, namely tembang fish with an average length of 8.45 cm in the interval class of 6.6-8.1 cm with the number of fish caught in the length interval of 65 fish. While the size of the fish when it first experienced gonad maturity (maturtiy) was 12.8 cm, based on this the tembang fish caught did not meet the criteria for being worthy of being caught. Furthermore, the interval class on the mesh size of 2 inches was ribbon fish with an average length of 57.51 cm in the interval class of 61.13-67.71 cm, with the number of fish caught in the length interval of 49 fish. While the size of the fish when it first experienced gonad maturity (maturtiy) was 50.6 cm, based on this the ribbon fish caught had met the criteria for being worthy of being caught. Then the interval class at the 3 inch mesh size is the Kapasan Kerot-Kerot fish, where the Kapasan Kerot-Kerot fish has an average length of 22.31 cm in the interval class of 23.88-26.34 cm, with the number of fish caught in the length interval being 30. While the size of the fish when it first experienced gonad maturity (maturtiy) was 18 cm, based on this, the Kapasan Kero-Kerot fish caught have met the criteria for being suitable for capture.

Based on the interval class of the overall bycatch net mesh size, namely kurisi fish with an interval class of 6.36-7.03 cm with a frequency of 32 fish , yellow trevally with an interval class of 5.59-6.17 cm with a frequency of 21 fish, saurida fish with an interval class of 16-19.75 cm with a frequency of 7 fish, talang fish with an interval class of 19.36-21.94 cm with a frequency of 20 fish, diles fish with an interval class of 15.62-17.42 cm with a frequency of 36 fish, petek fish with an interval class of 15.70-16.23 cm with a frequency of 40 fish, bulan-bulan fish with an interval class of 18-20.08 cm with a frequency of 12 fish, parang-parang fish with an interval class of 13-19.23 cm with a frequency of 13 fish, biji nangka fish with an interval class of 9-10.64 cm with a frequency of 9 fish, katun fish with an interval class of 15.62-17.42 cm with a frequency of 36 fish, petek fish with an interval class of 15.70-16.23 cm with a frequency of 40 fish, bulan-bulan fish with an interval class of 18-20.08 cm with a frequency of 12 fish, parang-parang fish with an interval class of 13-19.23 cm with a frequency of 13 fish, biji nangka fish with an interval class of 9-10.64 cm with a frequency of 9 fish, cotton fish with an interval class of 15.62-17.42 cm with a frequency of 36 fish. 17.43-18.23 cm with a frequency of 8 fish, mackerel fish with an interval class of 34.32-37.14 cm with a frequency of 12 fish, tetengkek fish with an interval class of 19.02-20.52 cm with a

frequency of 5 fish. kuro fish with an interval class of 14-16.14 cm with a frequency of 22 fish, talang fish with an interval class of 27.19-30.91 cm with a frequency of 23 fish, gerot-gerot fish with an interval class of 17.38-20.06 cm with a frequency of 2 fish, kerong-kerong fish with an interval class of 16-17.00 cm with a frequency of 2 fish, alu-alu fish with an interval class of 32.02-33.02 cm with a frequency of 2 fish, flathead fish with an interval class of 24.02-27.03 cm with a frequency of 1 fish. Based on the composition of the catch that has been obtained, the number of catches that are suitable for fishing and not suitable for fishing can be seen in Figures 4.1, 4.2 and 4.3

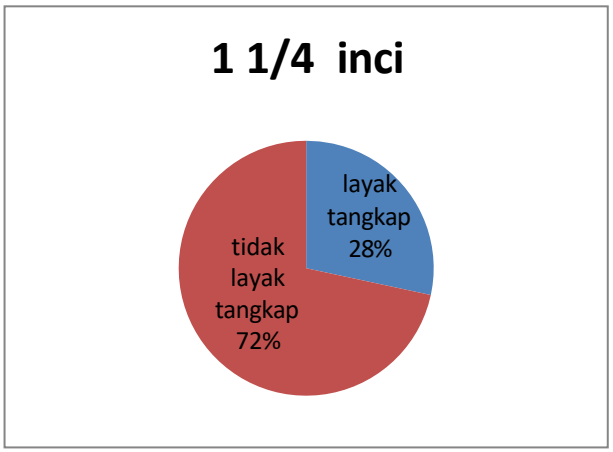

Figure 4.1 Catch Results of Fishing Nets Suitable for Catching and Not Suitable for Catching

Gills Size 1 ¼ Inch

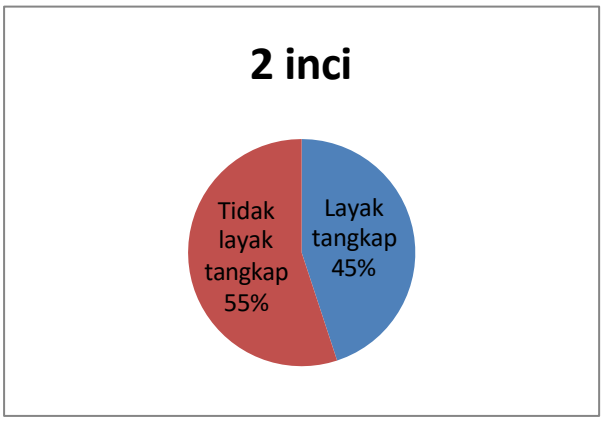

Figure 4.2 Catch Results of Fishing Nets Suitable for Catching and Not Suitable for Catching

2 Inch Gills

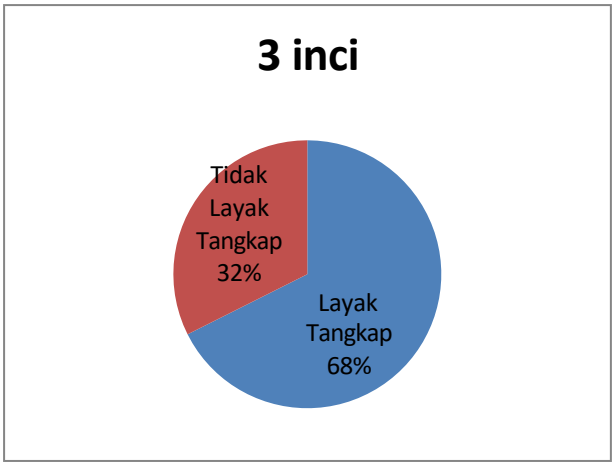

Figure 4.3 Results of Catches of Suitable and Unsuitable Fish from 3 - Inch Gill Nets

The gill net catch in the waters of Matang Rayeuk Pedawa Puntong Village can generally be categorized as unsuitable for fishing, while the 3-inch mesh size is considered suitable for fishing. Figure 4.1 shows that 28% of the catch is suitable for fishing and 72% is unsuitable for fishing. Figure 4.2 shows that 45% of the catch is suitable for fishing and 55% is unsuitable for fishing. Figure 4.3 shows that 68% of the catch is suitable for fishing and 32% is unsuitable for fishing.

Conclusion

1. Utilization of the composition of the main catch of gill nets with a mesh size of 1 ¼ inches is tembang fish with an average weight of 33.03 grams, then the main catch in 2 inch gill nets is ribbon fish with an average weight of 211.10 grams, then the main catch in gill nets with a mesh size of 3 inches is Kapasan/kerot-kerot fish with an average weight of 265.35 grams and kwee fish 270.00 grams.
2. The bycatch results at a mesh size of 1 ¼ inches are jackfruit seed fish 44.02 grams, kurisi fish 41.64 grams, petek fish 35.50 grams, yellow scad fish 27.57 grams, saurida fish 27.57 grams, goyang eye fish 42.50 grams, sea bream 69.50 grams, parang-parang fish 260.00 grams, tetengkek fish 98.33 grams and hairtail fish 75.00 grams. Furthermore, at a mesh size of 2 inches, namely talang fish 130.47 grams, delis fish 95.07 grams, petek fish 89.40 grams, bulan-bulan fish 129.64 grams,

17.42 grams of parang-parang fish, 51.00 grams of jackfruit seed fish, 119.68 grams of kurisi fish, 70.00 grams of kwee fish, 116.25 grams of tetengkek fish, 60.00 grams of gerot-gerot fish, 90.00 grams of kerong-kerong fish, and 223.75 grams of alu-alu fish. Then at a mesh size of 3 inches, namely 162.50 grams of katun fish, 307.25 grams of talang fish, 99.64 grams of petek fish, 219.77 grams of kuro fish, 231.11 grams of diles fish, 260.00 grams of parang-parang fish, 289.09 grams of mackerel fish, and 90.00 grams of tetengkek fish.

3. Utilization of main and by- catch can be used by fishermen and coastal communities to improve the community's economy.

E. Bibliography

Anggita, T., Zamdial. NE Herliany. 2020. Analysis of Fishing Efforts Using Gill Nets in the Pasar Bawah Capture Fisheries Center, Manna, South Bengkulu. Enggano Journal, 5(3):548-565.

Atharis, Y. 2008. The level of fishermen's satisfaction with the provision of services for their seafaring needs at the Bugus Ocean Fisheries Port (PPS), West Sumatra. [Thesis] Bogor Agricultural University, Bogor.

Dermawati, Muhamad, P., & Najamuddin, N., 2019. Analysis of Construction and Catch Results of Surface Gill Nets in the Waters of Maros Regency, South Sulawesi Province. Journal of IPTEKS Fisheries Resource Utilization, 6(11):44-69.

East Aceh Regency Maritime Affairs and Fisheries Service. 2020. Master plan for the Minapolitan Area of East Aceh Regency. Final Report. CV. Total *Design Engineering* 291 p.

Emmanuel, BE, LO Azeez. 2008. *Gill net selectivity and catch rates of pelagic fish in tropical lagoonal ecosystems. African Journal of Biotechnology* , 7(21):396-3972.

Grimaldo, E., B. Herrmann. N. Jacques. S. Kubowicz. K. Cerbule. B. Su. R. Larsen. J. Vollstad. 2020. *The effect of long-term use on the catch efficiency of biodegradable gillnets. Marine Pollution Bulletin* , 161:1-11.

Hantadari, Z., Asriyanto A. & Purnama, AD 2013. Analysis of Body Circumference and How to Catch Spanish Mackerel (Scomberomoruscommerson) Using Gill Net with Mesh Size 4 Inches and Hanging Ratio 0.56. *Journal of Fisheries Resources Utilization Management and Technology* . 2(3):253-262.

Hendrik. 2012. Analysis of Gillnet Fishing Gear Business in Pandan, Central Tapanuli Regency, North Sumatra. Journal of Fisheries and Marine Affairs. 17(2):28-35.

Kazi, TG 2011. Design and general characteristics of sole fish gill nets of Ratnagiri, Maharashtra. *Indian Journal of Geo-Marine Sciences* , 40(5): 722-724.

Lisna., JM Amelia, Nelwida and M. Andriani. 2018. Environmental Friendliness Level of Gillnet Fishing Gear in Nipah Panjang District, Jambi. Journal of Fisheries and Marine Technology 9 (1): 83-96.

Marthasuganda, S. 2008. Gillnet . Department of Fisheries Resources Utilization and Center for Coastal and Marine Resources Studies. Bogor Agricultural University. Bogor.

Mardiah, R. S., Puspito, G., and Mustaruddin. (2016). Lag Correction *Trammelnet* , Journal of Fisheries and Marine Technology . 7 (1) 1- 10.

Najir, M. 2012. Methods of Community Service. Ghalia Indonesia. Jakarta.

Rohadi, Y., R. Hertati. MN Kholis. 2020. Identification of environmentally friendly fishing gear operating in the Alai River Waters, Tebo Regency, Jambi Province. Journal of Water Management, 4(2):115-133.

Rijal, M. 2008. Composition of Fish Species Caught by Drift Gill Nets in the Liat River, Bangka. BTL. 6(1):23-24.

Setiawati, B., D Wijayanto, and Pramonowibowo. 2015. Analysis of Production Factors of Mackerel (Rastrelliger sp) Catches Using Drift Gillnet Fishing Gear in Ketapang Regency, West Kalimantan. *Journal of Fisheries Resources Utilization Management and Technology*. 4(2): 40-48.

Sudirman, and Mallawa, A. 2012. Fishing Techniques . PT. Rineka Cipta Jakarta.

Syofyan, I., Syaifuddin and F. Cendana. 2010. Comparative Study of Drift Gillnet Fishing Gear for Pomfret in 1999 and 2017 *in* Meskom Village , Bengkalis District, Bengkalis Regency , Riau Province . *Journal Fisheries and Maritime Affairs.* 15(1) 62- 70.

Tawari, RHS 2013. Efficiency of Surface Gill Nets on Catches of Flying Fish (*Decapterus macarelus*) in Kayeli Bay. Amanisal Journal of PSP FPIK Unpatti-Ambon, 2(2):32-39.

Tangke, U. 2011. Analysis of the feasibility of capture fisheries business using *gillnet* and *purse seine* fishing gear in Leihitu District, Central Maluku Regency, Maluku Province. Scientific Journal of Agribusiness and Fisheries (Agrikan UMMU-Ternate), 4(1): 1-13.

Usman, H. Akbar, P. S. 2011. Introduction to Statistics Second Edition . Bumi Aksara. Jakarta.

Wijayanti, A., Ismail and ADP Fitri. 2012. Analysis of Profit Levels of ¾ inch *gillnet* Fishermen (wader nets) and 3 inch gilnet fishermen (charcoal nets) in the Rawapening Waters, Bejalen Village, Ambarawa District , Semarang Regency. *Journal of Fisheries Resources Utilization and Technology* . 1(1) 46- 54.