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THE ECONOMIC ASPECT OF FISHING OF FLYING FISH (*Decapterus spp.*) IN BELAWAN OCEAN FISHERY PORT OF NORTH SUMATRA PROVINCE

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ABSTRACT

This research took place at the Belawan Ocean Fishery Port, which is part of the administrative area of Medan City, North Sumatra. The present study aims to analyze the costs, benefits and level of financial viability of the fishing business of Flying Fish in Belawan Ocean Fishery Port and to examine problems and recommendations for developing the fishing business of Flying Fish in Belawan Ocean Fishery Port. The sample in this study was determined using accidental sampling technique. The results of research observations show that the fishing results of Belawan fishermen per trip are 2,311 kg with an average selling price of IDR 23,833 / kg. The net income of a fishermen's employer is IDR 23,200,000 with an average total production cost of IDR 14,833,333, an average investment cost of IDR 48,055,555, and an R/C benefit value of 1.46. To increase the potential for the development of the fishing business of Flying Fish in Belawan Ocean Fishery Port, it can be done by improving the fishing technology and must have adequate infrastructure and also be accompanied by a good fish supply and fish distribution system.

Keywords: *fishing, fishermen, sampling accidental, trip, investmen, benefit*

INTRODUCTION

The Belawan Ocean Fishery Port (BOFP) is one of two Ocean Fishery Ports (OFP) located in the Sumatra region besides Bungus Ocean Fishery Port in Padang City. BOFP is located in the Medan Belawan area which is the administrative area of Medan City, North Sumatra. Medan City is one of the areas with the largest marine fishing yields in North Sumatra Province. Medan Belawan District is one of the districts located in Medan City, North Sumatra. The boundaries of Medan Belawan District are as follows: in the north it is directly adjacent to the Strait of Malacca; in the south is bordered by Medan Labuhan District; in the west and east is bordered by Deli Serdang Regency. The area of Medan Belawan District is about 21.82 km². According to data from the Agriculture and Maritime Affairs Office of Medan City in 2009, the fishing production of Medan City was 70,898 tons. The fishing operation area is located in three districts, namely: Medan Marelan, Medan Labuhan and Medan Belawan Districts (Saptanto 2012).

Decapterus spp. or also known as flying fish, is a small pelagic fish resource that plays a major role in the economic sector of fishermen in Belawan OFP because it has high potential and economic value (Latukonsina 2010). The most dominant result of fishing in 2007 was flying fish, amounting to 3,724 tons (Ismy et al. 2014). Fishermen catch flying fish ranging in size from small to large (7.1 cm - 29.8 cm in length). Small flying fish are generally caught using quay tools, while medium to large fish are caught using purse seine, payang, gill net and hook (Najamuddin 2004 in Latukonsina 2010).

Whether the fishing business of flying fish provides economic benefits for fishermen is not known, therefore it is important to conduct a study of the economic aspect to determine the factors that contribute to the economic aspects of fishing business of flying fish in Belawan port. Economic aspects can be used to determine the level of profit and feasibility of the fishing business of flying fish in the area. The purpose of carrying out research in Belawan Ocean Fishery Port is to analyze the costs, benefits and level of financial viability of the fishing business of flying fish in Belawan Ocean Fishery Port.

METHOD

The population in this research is all fishermen employers in the Urban Village of Belawan Bahari of Medan Belawan District. This research is based on a pre-research survey by Stefanus (2018) which results in the consideration that according to the data obtained from the Urban Village of Belawan Bahari, the number of fishermen employers is unknown and accidental sampling techniques are used to determine the sample in this research.

Data were collected using observation method (direct observation techniques) and survey method. In this research, this method is administrated to fishermen in the Urban Village of Belawan Bahari of Medan Belawan District, Medan City. Data collected in the form of primary data and secondary data. Primary data were obtained by conducting interviews, using a questionnaire as a research aid. Secondary data is data obtained from the results of literature studies, documentation and official publications from various related agencies such as the Central Statistics Agency, the Urban Village of Belawan Bahari, and the data is sourced from research journals and library books related to this research.

RESULTS AND DISCUSSION

The results of research observations show that the overall results of the fishing business of Belawan fishermen per trip are 2,311 kg with an average selling price of IDR 23,833 / kg. The net income of fishermen employers is IDR 23,200,000 with an average total production cost of IDR 14,833,333 and an average investment cost of IDR 48,055,555. The average production costs, investment costs, production, and income can be seen in Table 1.

Table 1. Average Production Cost, Investment Cost, Fishing Result and Income of Fisherman Employer of Flying Fish per trip.

No.	Description	Amount
1.	Production Cost (IDR/trip)	14,833,333
	Investment Cost (IDR/trip)	48,055,555
2.	Flying Fish Production (kg/trip)	247
	Fishing Result (kg/trip)	2,311
3.	Income (IDR/trip)	23,200,000
	Revenue (IDR/trip)	55,011,111

From Table 1 it can be seen that the overall average production cost of the fishermen's employers is IDR 14,833,333 to obtain production (fishing results) of flying fish with an

average production of 247 kg, and the average net income received by fishermen employers in Belawan Harbor is IDR 23,200,000. Pujianto et al. (2013) stated that in contrast to other business activities, income in the fishing business is very uncertain due to fluctuating water conditions. Extreme weather such as high waves, wind and rain will affect the income that will be earned. Wismaningrum et al. (2013) stated that income in the fishing business is the value of money obtained from the sale of fish production. This income is influenced by the number of fish caught and the selling price of fish when landed.

Table 2. Average income and production cost that affect the income of fishermen per month.

No.	Description	Minimum	Maxsimum	Average
1.	Income (IDR/mouth)	4.400.000	50.000.000	23.200.000
2.	Production cost (IDR/mouth)	2.000.000	25.000.000	14.833.333

The level of income (income - production costs) per month of fishermen's employers in the Urban Village of Belawan Bahari is the lowest of IDR 4,400,000 and the highest of IDR 50,000,000 with an average of IDR 23,200,000. Production costs per month that are borne by fishermen employers in Urban Village of Belawan Bahari are a minimum of IDR 2,000,000 and a maximum of IDR 25,000,000 with an average of IDR 14,833,333 per month.

Profit/loss analysis aims to determine the amount of profit or loss from the business being managed. A profitable business will have a greater revenue value than total expenditure (Effendi, I., & Oktariza, W. 2006). The following is the formula for the profit/loss analysis.

$$\begin{aligned} \text{Profit} &= \text{Revenue} - (\text{Total fixed costs} + \text{Total variable costs}) \\ &= 417,600.000 - (267,000,000 + 18,360,000) \\ &= \text{IDR } 132,240,000 \end{aligned}$$

The results of the above analysis explain that within 1 month the fishing business using the Small Pelagic Purse Seine in Belawan Ocean Fishery Port will generate a profit of IDR 132,240,000. The results of this calculation can be compared with the Profit Value for fishing business in Toboali District of IDR 45,920,515. This value shows that the profit from fishing business using drift gillnet in Toboali District is lower than fishing business using the Small Pelagic Purse Seine in Belawan District. Johannes et al. (2015) argued that a business activity benefits if TR (Total Revenue) > TC (Total Cost). Suadi et al. (2013) stated that net profit is the

profit obtained from auction revenue less total costs. The profit earned by fishermen is influenced by the number of fish caught, the number of fishing trips, the type of fish caught, and the selling price of the fish.

R / C analysis is an analytical tool to determine a business's relative profit over the course of the year against the costs spent in that activity. A business is said to be feasible if the R / C is greater than 1 ($R / C > 1$). This illustrates that the higher the R / C value, the higher the profitability of a business will be (Effendi, I., & Oktariza, W. 2006). The following is the formula for calculating the revenue/cost ratio.

$$\begin{aligned} R/C &= (\text{Total Revenue}) / (\text{Total Fixed Costs} + \text{Total Variable Costs}) \\ &= 417,600,000 / (267,000,000 + 18,360,000) \\ &= 1.463414634 \end{aligned}$$

From the calculation of R/C, it is known that the fishing business using the Small Pelagic Purse Seine is considered feasible because the R/C value is greater than 1, which is 1.4. The R/C value of 1.4 means that for every production cost incurred in the amount of IDR 1000.00, a revenue of IDR 1,400.00 will be obtained. The results of this calculation can be compared with the Net Value of Revenue/Cost Ratio for fishing business in Toboali District of 1.47. This value states that the fishing business with drift gillnet in Toboali District is feasible, where the Revenue/Cost Ratio in Belawan District is lower.

Payback period (PP) analysis aims to determine the time of return on investment that has been invested in a type of business. In general, the formula used for the payback period analysis is as follows (Effendi, I., & Oktariza, W. 2006):

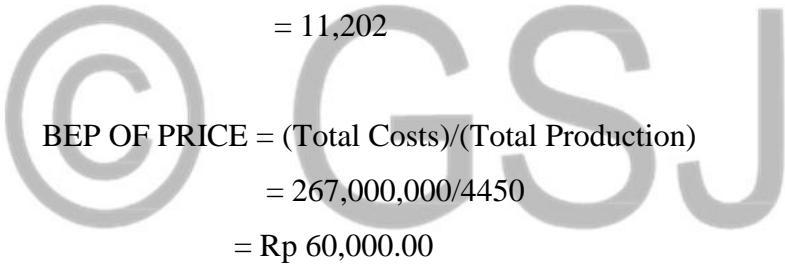
$$\begin{aligned} PP &= (\text{Total Investment} \times 1 \text{ Year}) / \text{Profit} \\ &= (865,000,000 \times 1 \text{ Year}) / 132,240,000 \\ &= 6.541137326 \text{ years} \end{aligned}$$

The results of the PP analysis illustrate that all investment capital for the fishing business using the Small Pelagic Purse Seine will return within 6.5 years. The results of this calculation can be compared with the PP analysis for the fishing business of pelagic fish in Toboali District of

South Bangka Regency for 3.0 years. This value shows that the payback period of fishing business using drift gillnet in Toboali District is shorter than fishing business using Small Pelagic Purse Seine in Belawan District. According to Riyanto (1991) in Kisworo (2013), if the payback period is less than 3 years, the return on venture capital is categorized as quick. The payback period of 3 - 5 years is in the medium return category, and more than 5 years is in the late return category.

Break even point analysis (BEP) is an analytical tool to determine the limit of the production value or production volume of a business to break even point (no profit and no loss). The business is declared feasible if the BEP value of production is greater than the number of units currently being produced. Meanwhile, the BEP of the price must be lower than the prevailing price (Effendi, I., & Oktariza, W. 2006). The following is the formula for determining BEP.

$$\begin{aligned}\text{BEP OF PRODUCTION} &= (\text{Total Costs}) / (\text{Selling Price}) \\ &= 267,000,000 / 23,833 \\ &= 11,202\end{aligned}$$


$$\begin{aligned}\text{BEP OF PRICE} &= (\text{Total Costs}) / (\text{Total Production}) \\ &= 267,000,000 / 4450 \\ &= \text{Rp } 60,000.00\end{aligned}$$

The BEP value of production of 11,202 baskets indicates that the break-even point or the condition of the company not making a profit or not bearing losses will be achieved when the fishing results reach 11,202 baskets. Meanwhile, the BEP value of price of IDR 60,000.00 indicates that the break-even point of the company will be reached when the selling price of fish is IDR 60,000.00 per basket. Break Even Point is a condition where the business does not make a profit and does not bear a loss. So it can be said that a business that reaches a break even point is a business that has achieved equality between the invested capital for the production process and the resulting product income (Rahardi 2007 in Firdaus 2020).

One of the common problems faced by fishermen is fishing technology. The operational area is limited with simple fishing equipment. In addition, the season is also an important factor because fishermen cannot go to sea all the time, especially during the wavy season. This has an

impact on the limited fishing results and is detrimental to fishermen because the monthly income is lower and the income earned during the fishing season will be used up. In addition, fishing ports must have adequate infrastructure coupled with a good fish supply and fish distribution system. Furthermore, there is support from the local government to develop fishing ports for various activities. Things that can be recommended in developing the fishing business of flying fish in Belawan Ocean Fishery Port are:

1. Increased budget for operational supervision. This is important given that 30-50% of fish sales in the middle of the sea are still rampant. The sale of fish in the middle of the sea carried out by fishermen, especially for ships with fish drying platforms, is due to the dissatisfaction felt by fishermen because the bosses raised the price of materials for operational needs.
2. Efforts should be made to minimize the possibility of decreasing fishery resources in the waters of the west coast of North Sumatra by not issuing new fishing licenses, and only extending fishing permits that need to be carried out.
3. Problems that exist in the Belawan Ocean Fishery Port area, such as the inadequate use of the Fish Auction Place (FAP) and the fish market that are not properly organized, need to be resolved, such as there are policy rules that regulate in more detail the operational procedures of FAP and fish markets.
4. Based on the research of Ovra et al. (2018) which shows that the cause of the low number of fishing attempts is that many fishing vessels do not go to sea, this happens because the employer has not extended the validity period of the certificate and the ship's documents have expired, and many document data do not fit such as the size of the ship. and the number of crew members. So that when the supervision is carried out by the Supervision of Marine and Fishery Resources, many ships are stopped and the ships are detained which eventually have to return to the fishing village.

CONCLUSIONS

The results of the analysis of the Small Pelagic Purse Seine fishing unit in Belawan District show that the net profit earned per ship is an average of Rp 23,200,000.00 per one time fishing with a production cost of IDR 14,833,333.00 and a payback period of 6.5 years. . The results of the analysis of investment criteria in Belawan District show that the investment capital is IDR 48,055,555.00 with a benefit value of R / C is 1.46.

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