



Financial Analysis of Surface Gillnet Business at Sadeng Coastal Fishing Port, Gunungkidul Regency, Yogyakarta-Indonesia

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ABSTRACT

Surface gillnet is a fishing gear operated on the sea water surfaces and the fishing target is small pelagic fish. Surface gillnet is productive fishing gear with a percentage of 35% of the total number of fishing gear at Sadeng Coastal Fishing Port (CFP). The purposes of this study were to analysed the financial aspects of gillnet fisheries business (investment, costs, revenues, and profits) and the business feasibility study of gillnet business. The sampling method to gathered respondents was using census method. The data used was primary data obtained from observation and interviews. The data analysis method of business feasibility study used Nett Present Value (NPV), Internal Rate of Return (IRR), Return to Cost (R/C) Ratio, and Payback Period (PP) analysis. The investment gillnet business is 56,509,523 IDR per year. Total costs with an average of 140,741,966 IDR per year, revenue with an average of 195,410,381 IDR per year. The profit earned by gillnetter is 54,668,416 IDR per year. The results of the business feasibility analysis of the surface gillnet business are NPV obtained of 136,873,357 IDR, IRR value is 14%, R/C ratio value is obtained at 1.39. Meanwhile, the Payback Period is 2.58 which means the time required in returning investment capital is 2 years 6 months. Based on the results of the feasibility analysis the business activity is feasible and profitable to be develop in Sadeng area, Gunungkidul, Yogyakarta.

Keywords: Financial analysis, Business Feasibility, Surface Gillnet, Sadeng Coastal Fishing Port

1. Introduction

Sadeng Coastal Fishing Port (CFP) is a fisheries center in Gunungkidul Regency and is classified as a type C fishing port. Fisheries activities in Sadeng CFP are fish auction, fish trading and fishing business. Sadeng area is directly adjacent to the Indian Ocean. This is become the potency of fishery resources diverse Sadeng sea waters. Sadeng CPP has a role as supporting the development of marine fisheries in Yogyakarta Province. Capture fisheries business operations in Sadeng PPP are carried out using several fishing gears that are adjusted to the fishing target. The use of fishing gear varies from active and passive fishing gear. According to Ayu *et al.* (2017), the fishing gear used by local fishermen of Sadeng Coastal Fishing Port i.e., troll line, bottom longline, purse seine, longline, gillnet, and trap. The target catches in Sadeng CPP based on the data are Little tuna (*Thunnus sp*), Kawakawa (*Euthynnus affinis*), Grouper (*Epinephelus sp*), Skipjack (*Katsuwonus pelamis*), Mackerel (*Rastrellinger sp*), Snapper (*Lutjanus sp*), Giant sea catfish (*Arius thalassinus*), Yellow stripes scad (*Selaroides sp*), Hairtail (*Trichiurus savala*), and other fish species. The surface gillnet is a net fishing gear in general that has a main component in the form of net webbing with meshes of the same size.

The fishing process requires fishing gear in supporting the success of fishing trip. Surface gillnet fishing gear in Sadeng CPP has a local name which is called "Jaring Tongkol". This fishing gear is the type of one-layer net webbing made of PA (polyamide) material. The construction of the surface Gillnet is rectangular and the meshes have the same size. The main components of surface gillnet fishing gear are the net body, buoy, float rope, head rope, sinker, upper head rope and foot rope (Alwi *et al.* 2020). Changes in fishing volume production and prices affects the value of fishing production. This will have impact to the fishermen income. Unpredictable fishing production depends on several factors i.e. weather, season, fishing grounds, trip length and so on. Fish prices are depending on the demand of the community. It is expected that surface gillnet fishermen in Sadeng CFP get information related to factors that can advance the capture fisheries business with this fishing gear.

Surface gillnet fishing business can be influenced by the season, weather conditions and sea waves in the south coast area are high. If it is not possible for fishermen to carry out their activities in the form of fishing, then fishermen do not go to sea or do not carry out fishing operations. This water condition affects the immersing time in the operation of gillnet fishing gear differently between the north coast of Java Sea and the south coast of Java Sea. The north coast of Java Sea generally leaving the fishing gear overnight in the immersing process, meanwhile on the south coast only does the immersing process for 1 to 1.5 hours. High seawater wave conditions affect fishing catches, because fish target will be difficult to predict then affected

the total fishing volume couldn't be maximized (Khalifianur *et al.* 2017). This affects fishermen's income to fluctuate. Therefore, a business analysis is needed to determine the business and financial feasibility of the fishing business, especially in surface gillnet fishing gear at Sadeng. The purposes of this study were analyzed the financial aspects including capital, costs, revenues, and profits from surface gillnet fishing gear at Sadeng fishing base. Then, analyze the business feasibility of surface gillnetter by calculating the R/C Ratio, NPV, IRR, and PP values.

2. Research Method

2.1 Types and method of data collections

The type of data used in this research is primary data which was data obtained directly from the main source through interviews, observation and documentation. The data includes capital investment, fishing costs, depreciation costs, fishing production value, fishing gear specification, fishing area, and fishing gear operation methods. The sampling method to gathered respondents is the census method. The number of respondents in this study is 21 fishermen at Sadeng CFP. The fishing fleets are outboard engine boat with a size of 1-2 GT. The census method is used because the population of local fishermen at Sadeng is small. According to Ratnasari and Sutjahjo (2021), the census method is to take samples from the entire population using a questionnaire as a data collection aid. This is done because the population is below 100, so it is better to do the census method which is used as the subject being studied as well as the respondent providing information.

2.2 Data analysis method

Financial Analysis

Analysis of financial aspects in a fishing business is very important to find out the costs. The analysis of financial aspects, which consists of fishing business costs, income and profits that will be processed and analysed using the formulas are as follows:

Total Cost

$$TC = FC + VC \dots \dots \dots (1)$$

Whereas:

TC : Total Cost

FC : Fixed Cost

VC : Variable Cost

Revenue

$$TR = Q \times P \dots \dots \dots (2)$$

Whereas:

TR : Total Revenue

Q : Catch

P : Price

Profit

$$\Pi = TR - TC \dots \dots \dots (3)$$

Whereas:

Π = Profit

TR = Total Revenue

TC = Total Cost

Gillnet Business Feasibility Study

The business feasibility study analysis is calculated using the discounted method by calculating the value of several indicators, i.e.:

R/C Ratio

According to Hadi and Gunawan (2024), the formula for calculating the R/C ratio is as follows:

$$R/C \text{ Ratio} = \frac{TR}{TC} \dots \dots \dots (4)$$

Whereas:

TR : Total Revenue

TC : Total Cost

The assessment criteria are:

R/C Ratio > 1, then the business is profitable and worth continuing;

R/C Ratio < 1, then the business is loss-making and not worth continuing; and R/C Ratio = 1, then the business at break-even point

Net Present Value (NPV)

According to Saputra *et al.* (2016), the NPV calculation formula is as follows:

$$NPV = \sum_{t=1}^n \frac{Cft}{(1+k)^t} - I_0 \dots\dots\dots (5)$$

Whereas:

NPV : Net Present Value (IDR)

n : Project Age

t : Project Year

Cft : Cash flow a year in period t

I₀ : Initial investment value in year 0 (IDR)

k : Interest rate or discount rate (%)

The criteria are as follows:

NPV > 0, then the investment will be profitable / feasible;

NPV < 0, then the investment is not profitable / not feasible, and NPV = 0, then the business is in a state of BEP (*Break Even Point*).

Internal Rate of Return (IRR)

According to Arumtyas *et al.* (2023), the IRR formula is as follows:

$$IRR = i_1 + \frac{NPV_1}{NPV_1 - NPV_2} (i_1 - i_2) \dots\dots\dots (6)$$

Whereas:

i₁ : 1st interest rate

i₂ : 2nd interest rate

NPV₁ : NPV at interest rate i₁

NPV₂ : NPV at interest rate i₂

A business concluded to be feasible if, IRR > discount rate, while a business categorized to be unfeasible if IRR < discount rate.

Payback Period (PP)

According to Nabila *et al.* (2022), the payback period calculation formula is as follows:

$$Payback\ Period = n + \frac{a-b}{c-b} \times 1\ year \dots\dots\dots (7)$$

Whereas:

n : The last year when cash flow has not covered the initial investment

a : Total initial investment

b : Total cumulative cash flow in year n

c : Total cumulative cash flow in year n + 1

The PP criteria based on the Payback Period are:

Payback Period < 3 years, return on capital is classified as fast;

Payback Period 3 years < Payback Period < 5 years is classified as medium; and Payback Period > 5 years, the rate of return on capital is classified as slow rate.

3. Result and Discussion

3.1 Research location

Sadeng Coastal Fishing Port is located in Sadeng Bay. Which is bordering between Songbanyu Village and Pucung Village, GiriSubo District, Gunungkidul Regency. Sadeng Fishing Port location coordinates are 110°52'32"BT and 8°12'30"LS. This place is one of the centers of capture fisheries economic activities in Gunungkidul Regency. There are many fisheries activities in Sadeng CPP. Sadeng Beach Fishing Port is classified as a type C fishing port. Capture fisheries activities in Sadeng CPP consists of fishing, fish trading, and fisheries business. According to Ariyanto *et al.* (2020), Sadeng sea waters is a potential fishery area, this is because Sadeng is directly adjacent to the Indian Ocean and have diverse fishery resources. Sadeng CPP has a role as supporting the development of marine fisheries in Yogyakarta Province. According to Dermawati *et al.* (2019), the operation of surface gillnets uses motorboats and is classified as passive fishing gear.



Fig. 1- Research Area

3.2 Gillnet specification

Fishing Boat

The fishing boat of the surface gillnet fishery at Sadeng is outboard motorboat or local name called "Jukung". Boat length ranges from 9 to 12.8 meters, the boat width ranges from 1.10 to 1.35 meters. The boats used by surface gillnet fishermen are 1-2 GT. The engine brands used are Yamaha and Suzuki which have a power of 15 PK. The boat is made from fiberglass. It is because the material has a long durability against the high wave of Southern Java Sea. The advantages of boats with fiberglass materials are easy to maintenance and has affordable price.

Surface Gillnet Construction

Based on the results of research at Sadeng Coastal Fishing Port with surface Gillnet fishing gear consisting of buoys having a length of 5 cm with a diameter of 3 cm made of PVC material with a total of 70 pieces. Sinkers have a weight of 15 grams made of tin metal with a total of 120 pieces. The buoy rope and head rope have a length of 45 m with a diameter of 0.4 cm using PE (*Polyethylene*) material. The sinker rope and foot rope length are 45 m long with a diameter of 0.2 cm using PE (*Polyethylene*) material. The netting length is 45 m with a diameter of 0.03 cm and made of PA (*Polyamide*) material. The mesh-size of this surface gillnet fishing gear is 2.25 inch.

Surface Gillnet Fishing Ground and Operation Methods

Surface gill net fishing gear operations at Sadeng Coastal Fishing Port is in WPP 573 which covers the southern Java Sea waters. The fishing ground that becomes the location of surface gill net fishing is different for each trip. The distance from the fishing base to the fishing ground is 4-7 miles from the coastal line. The fishing time needed by fishermen to reach the fishing ground is around an hour to 1.5 hours. According to Nurani *et al.* (2021), fishing areas and fishing seasons are closely related to fluctuations in fish catches. Uncertain catches can be caused by fishermen not knowing the potential points for fishing operations, so fishermen explore the waters which results in increased operational costs.

The operation method of the surface gillnetter is including several steps, as follows:

a. Preparation

Preparation is a very important stage carried out by fishermen before carrying out fishing trips. Preparation is done before the fishermen leave for the fishing ground. Preparation step starts by checking the condition of the boat, engine condition, and fishing gear. Fishing gear is arranged with the aim to avoid the net entangled during the setting process, if it is entangled it can hinder the fishing process and can endanger fishermen. The boat owner also prepares supplies to be taken to sea such as food, drinks, cigarettes, ice, and fuels. Then the boat departs from the fishing base at 16:00. Travel time to reaches the fishing ground is about 30 minutes to 1 hour with a boat speed of around 12-14 knots. The determination of the fishing ground is based on the experience of the fishermen to predict the sea water conditions.

b. Setting

The net setting stage is carried out by fishermen after they find the location of the fishing ground. Fishermen at Sadeng CPP generally use compass or GPS on a phone-cell in order to determine the fishing ground. Generally, the location of the fishing ground where the surface gill net is operating has moderate sea wave conditions. If there is a current at the time of setting the net, the direction of the current and the bow of the boat must be known, then the net is lowered in the water with the net position remains transverse. The lowering of the net is done simultaneously with ballast in the form of stones and buoys that are held together and then spread. The setting process takes about 20-30 minutes, depending on the number of pieces in one unit of surface gill net fishing gear.

c. Immersing

The immersion stage of the net is a stage that is carried out after the net is lowered properly on the surface of the water. The surface gill net is left or immersed at the surface of the water for approximately 1 hour and 1.5 hours. The immersing stage is carried out to wait for the target fish to become entangled in the body of the net.

d. Hauling

The hauling stage takes about 4 hours because the process also releases the target fish which is then placed in a storage area such as styrofoam. The withdrawal of the net starts with the withdrawal of the mark buoy and ballast. Furthermore, when pulling the net, it must point to the mark buoy, and then be pulled together as during net lowering. The marking buoy and net weights are raised and placed inside the boat. The process when pulling the net must be done carefully and precisely because if there is a mistake in pulling the net, it can break the net webbing. The net is pulled and arranged neatly inside the fishing boat, this is to facilitate the next operation process.

Fishing Season and Catch of Surface Gillnet

The surface gill net fishing season consists of the lean season which occurs for 3 months from December to February with an average of 10 fishing trips. The regular season occurs in March-April and October-November with an average of 28 fishing trips. While the peak season occurs from May to September with an average fishing trip of 75 trips. The catch of surface gill net is dominated by pelagic fish species such as little tuna (*Euthynnus sp.*) is 40.8%, blue mackerel fish (*Scomber australasicus*) percentage is 39.7%, mackerel (*Rastrelliger sp.*) as much as 19.36%. According to Nurani *et al.* (2021), fishing areas and fishing seasons are related to fluctuations in fish catches volume. Uncertain fishing catches can be caused by fishermen that unable to find the potential area while fishing operations, so fishermen explore wider sea area which is increasing fishing costs.

3.3 Financial Aspect of Surface Gillnet

The surface gillnet financial analysis consists of capital investment, total cost, revenue, and profit. Investment capital is the main aspect in starting capture fisheries business activities for smooth production. Capital that must be spent in the surface gillnet fishery is the purchasing of boats, fishing gear, engines and other equipment needed in fishing operations. The investment cost of fishing gear depends on the number of pieces of net webbing used in one unit of surface gillnetter. Surface gill net fishermen at Sadeng use an average of 15-20 pieces net webbing. The price of one piece of fishing gear is 650,000 IDR to 850,000 IDR. Based on the results of data analysis that has been done, the average investment value of surface gill net fishing business is 56,509,523 IDR per year. The lowest investment cost per year is 44,000,000 IDR and the highest investment cost is 68,000,000 IDR. The value of investment spent can be influenced by several factors, namely the size of the ship, the size and brand of the engine. The surface gill net fishing fleet at PPP Sadeng uses outboard motorboats with fiberglass material. The engines used are Yamaha and Suzuki brands with an engine power of 15 PK. According to Manurung *et al.* (2023), the capital spent at the beginning of the fishing business is used for investment in several facilities such as boats, fishing gear, and other equipment. Capital for investment is expected to increase the effectiveness and efficiency of the fishing process, to gain optimal profits.

Table 1- Investment of Surface Gillnet at Sadeng CFP

No	Investment	Minimum (IDR)	Maximum (IDR)	Average (IDR)
1.	Fishing boat	1,000,000	29,000,000	22,976,190
2.	Fishing gear	10,000,000	12,500,000	10,690,476
3.	Fishing engine	15,000,000	30,000,000	22,842,857
Total Average Investment				56,509,523

Source: Research data, 2024.

Table 2 - Fixed Cost of Surface Gillnet at Sadeng CFP

Fixed Cost Type	Minimum (IDR/Year)	Maximum (IDR/Year)	Average (IDR/Trip)	Average (IDR/Year)
Maintenance Cost	1,650,000	3,070,000	20,930	2,337,571
Depreciation Cost	14,000,000	32,000,000	223,257	24,904,365
Sea Alms	300,000	300,000		300,000
Total Fixed Cost			244,187	27,541,936

Source: Research data, 2024.

Table 3 - Variable Cost of Surface Gillnet at Sadeng CFP

No.	Variable Cost	Minimum (IDR/Year)	Maximum (IDR/Year)	Average (IDR/Trip)	Average (IDR/Year)
1.	Operational Cost	38,752,000	60,003,000	417,762	46,664,667
2.	Crew Wages	51,526,200	118,650,000	595,971	65,727,848
	Total Variable Cost			1,013,733	112,372,515

Source: Research data, 2024.

Table 4 - Total Cost of Surface Gillnet at Sadeng CFP

No.	Total Cost	Minimum (IDR/Year)	Maximum (IDR/Year)	Average (IDR/Trip)	Average (IDR/Year)
1.	Fixed Cost	16,815,000	34,726,667	244,187	27,541,937
2.	Variable Cost	96,237,000	160,912,000	1,013,733	113,200,029
	Total			1,257,920	140,741,966

Source: Research data, 2024

Fixed costs are costs incurred periodically and the amount is constant, no matter the total of fishing effort. Fixed costs in the surface gill net fishing business consist of maintenance costs with an average per year of 2,337,571 IDR. The purpose of maintaining fishing facilities is to maintain their quality and performance of the capital i.e. boat, engine, and fishing gear. This is to extend the technical year of fishing facilities. The average depreciation cost per year is 24,904,365 IDR and the cost of sea alms is 300,000 IDR per year. Based on the results of the data analysis that has been done, the average result of fixed costs per year is 27,541,936 IDR. Maintenance carried out by surface gillnet fishermen at Sadeng CPP includes boat patching, boat cleaning, and oil changes for boat engines. Depreciation costs can be influenced by the investment price and the economic life of the type of capital investment.

Variable costs are costs incurred by a business and the nominal amount is influenced by the amount of production. The higher the volume of production activities, the higher the variable costs and vice versa. The surface gill net fishing business at Sadeng CFP incurs variable costs consisting of the cost of fishing supplies, fuels, and crew wages. The average cost of supplies per year is 46,664,667 IDR and the average crew wages incurred is 65,727,848 IDR. Based on the results of data analysis obtained, variable costs per year incurred amounted to 112,372,515 IDR. The most variable cost incurred is fuel, because it is related to the distance of the fishing ground along fishing trip.

Total cost in capture fisheries is the overall cost of a capture fisheries business. Total cost is the accumulation of fixed costs and variable costs. The total cost of surface gill net fishing business at PPP Sadeng is 140,741,966 IDR per year while the average income per trip is 1,257,920 IDR. Changes in total costs incurred by fishermen are influenced by variable costs. This is because variable costs change in value according to changes in the volume of fishing production, and the operational needs of the surface gillnet fishing business. According to Maulana *et al.* (2020), total cost is the cost obtained from the sum of fixed costs and variable costs. Changes in total costs can be influenced by variable costs. This is because variable costs will change according to the volume of production and fishing business activities.

Table 5 - Revenue of Surface Gillnet at Sadeng CFP

Season	Average (Trip/Season)	Minimum (IDR/Year)	Maximum (IDR/Year)	Average (IDR/Trip)	Average (IDR/Year)
Low	8	4,500,000	8,700,000	779,952	6,604,190
Regular	28	24,737,000	39,760,000	1,117,333	31,707,381
Peak	75	130,900,000	209,440,000	2,099,762	157,098,810
Total Revenue				3,997,047	195,410,381

Source: Research data, 2024.

Table 6 - Profit of Surface Gillnet at Sadeng CFP

No.	Financial Aspect	Minimum (IDR/Year)	Maximum (IDR/Year)	Average (IDR/Trip)	Average (IDR/Year)
1.	Total Revenue	171,856,000	246,195,000	3,997,047	195,410,381
2.	Total Cost	124,178,867	178,005,000	1,257,920	140,741,965
Total Profit				2,739,127	54,668,416

Source: Research data, 2024.

Revenue is the total amount of money obtained by fishermen from selling the fish. Based on the results, the average income of the surface gill net fishery is 195,410,381 IDR per year. The income earned by fishermen each season varies, it can be influenced by several factors, namely season or weather, catch, and fish prices. The price of the main fish catches of surface gill nets, namely tuna and mackerel, has an average price of 5,000 IDR and 16,000 IDR per kg in the peak season, respectively. Fishing seasons consist of lean season, regular season, and peak season. Average income of surface gill nets in the lean season is 779,952 IDR per trip. The average income of gillnets in the regular season is 1,117,333 IDR per trip. Meanwhile, the average income for the peak season is 2,099,762 IDR per trip. The peak season is a season where there is a significant increase in income compared to other seasons. Changes in income earned by fishermen besides being influenced by the season can also be influenced by fish prices. The fluctuations of fishery commodity prices are influenced by the level of demand on the market. The quality of the fish is also become a factor that can affects the price of fishery commodities. The freshness of fish can get higher selling value. According to Dollu *et al.* (2021), income is the rupiah value obtained from the sale of catches. Fishermen's income can be influenced by several factors, namely the amount of catch, the price of fish, the total crew members, and the frequency of fishing trip. The labour factor and experience of fishermen are also indirectly factors in the fishing captured.

Profit is the net income obtained by fishermen from the total of fish selling. The profit obtained by fishermen from gross income minus the total cost of fishing. Average profit from surface gill net fishing is 54,668,416 IDR per year. The profit from capture fisheries was affected by the number of trips, catches volume, fish prices, and the total fishing cost. There is a view of strategies to increasing profits, i.e., operational cost management, maintaining the quality of the fishing catch, and production efficiency. According to Ratung *et al.* (2023), the amount of operational costs incurred significantly affects the profits earned by capture fisheries businesses. Profit is the result obtained from total revenue minus total costs consisting of fixed costs and variable costs. The value of profits obtained by fishing businesses is strongly influenced by the size of the income and expenses of the business itself.

3.4 Business Feasibility of Surface Gillnet

Business feasibility analysis is useful in order to identified the prospects in the capture fisheries business. Then, it can derive recommendation in decisions making regarding the efficiency and effectiveness of the business in the future. The business feasibility of surface gillnet fishery indicators are Net Present Value (NPV), Internal Rate of Return (IRR), Revenue Cost Ratio (R/C Ratio), and Payback Period (PP).

Table 7 – Business Feasibility Analysis of Surface Gillnet Fishing Business at Sadeng CFP

No.	Aspects	Financial	Description
1.	NPV (<i>Net Present Value</i>)	136.873.357 IDR	Feasible
2.	IRR (<i>Internal Rate of Return</i>)	14%	Feasible
3.	R/C Ratio (<i>Revenue Cost Ratio</i>)	1.39	Feasible
4.	PP (<i>Payback Period</i>)	2.58	Feasible

Source: Research data, 2024.

Net Present Value (NPV) analysis is used to calculate and consider the net present value of investment projects in capture fisheries. The NPV value is obtained from the comparison of the amount of cash inflows and cash outflows that have been presented value. The NPV value is calculated with the assumption of an interest rate or discount rate of 6% which is used the Bank Rakyat Indonesia (BRI) rates for small scale enterprise loan. The NPV of surface gillnet business at Sadeng is 136,873,357 IDR. This value indicates that the capture fisheries business provides a net present value of 136,873,357 IDR for 10 years with a discount rate of 6% per year. The NPV is positive, which means that the surface gill net fishery is feasible. According to Nugroho *et al.* (2019), a business with a positive NPV value or more than zero, the higher the profit obtained. It is possible to cover the operational costs incurred, therefore the business is feasible to be continued.

The Internal Rate of Return (IRR) of the surface gillnet business is 14%. The IRR value is greater than the discount rate of 6%, so it can be interpreted that this surface gill net capture fishery provides a profit and is feasible to continue. The higher the IRR value means that the business provides a profit and the more feasible the business is to continue. According to Zain *et al.* (2016), if the IRR value is greater than the discount factor, it is said that the business is feasible to continue, if it is equal to the discount factor value, it means breaking even, while the IRR value is below the discount factor, the business should be developed.

The calculation of R/C ratio is very necessary in capture fisheries, it is to determine whether the business is profitable or not. R/C ratio shows the amount of revenue obtained from each rupiah spent in capture fisheries. The R/C ratio can be known by comparing the income with the total costs incurred in capture fisheries. Capture fisheries can be measured relative profit level by calculating the R/C ratio, the value of the revenue ratio is used to determine whether the business makes a profit or vice versa. The overall average R/C ratio value obtained from the surface gill net capture fishery is 1.39. If the R/C ratio value is low with a value below 1, then the management of the capture fisheries business is considered less efficient which means it is not financially profitable. According to Safriani *et al.* (2022), if the R/C ratio value is equal to one or even below the value of one, then the capture fisheries business has not made a profit so it needs to be evaluated. The smaller the R/C ratio value, the more likely the fishing business will experience losses.

Payback period analysis is used to determine the length of investment capital turnover, this is to recoup the initial investment capital expenditure using profit as a comparison. Based on the results of data processing that has been done, the average value of the payback period in the surface gill net capture fishery at Sadeng fishing port is 2.58. The value of the payback period means the time required in returning investment capital is 2 years 6 months 28 days. The return on investment capital of surface gill net capture fisheries at Sadeng is relatively fast. According to Arumtyas *et al.* (2023), payback period analysis can be used to determine the period of time in returning capital. Payback period is the ratio between investment capital and profit which results in units of time. The payback period criteria are divided into 3, namely if less than 3 years of eating is categorized as fast, 3 to 5 years is categorized as medium, while more than 5 years can be categorized as slow investment return.

4. Conclusion

Based on the research, the following conclusions can be drawn:

1. The technical aspects of catching business with surface gill net fishing gear at Sadeng Fishing Port consists of fishing vessels, fishing gear construction, operating methods, bait, fishing season and fishing composition. The surface gill net fishing fleet used is an outboard motor boat with a size of 1-2 GT, with an engine size of 15 PK. The basic surface gill net method includes preparation for fishing operations, setting, immersing and hauling. The surface gill net fishing area at Sadeng fishing port is about 4-7 miles with one day fishing; The main species of surface gillnets fishing are kawa-kawa (*Euthynnus sp.*), slengseng (*Scomber australasicus*), and kembung (*Rastrelliger sp.*);
2. Financial analysis of the surface gill net capture fishery at Sadeng Fishing Port requires an average investment of 56,509,524 IDR. The total cost incurred is 140,741,966 IDR per year. The revenue per year obtained is 195,410,381 IDR. The profit obtained is 54,668,416 IDR per year;
3. Business feasibility analysis of surface gillnet fishing business at Sadeng Coastal Fishing Port are feasible and profitable to be developed. The NPV value is 136,873,357 IDR, IRR value is 14%, and the R/C ratio value obtained is 1.39. Meanwhile for the Payback Period is 2.58 (2 years 6 months).

REFERENCES

- Alwi, I. N., R. Y. F. Hutapea, and B. W. Ziliwu. 2020. Specification and Catch of Gillnets in Prapat Tunggal Village. *Aurelia Journal*. 2(1): 39- 46.
- Ariyantono, R. Y., E. Lubis, I. Solihin, and A. B. Pane. 2020. Level of Compliance of Fishing Business Actors with Regulations and Problems at Sadeng Coastal Fishing Port. *Marine Fisheries: Journal of Marine Fisheries Technology and Management*. 11: 169-179.
- Arumtyas, A. E., D. Wijayanto, H. A. Setyawan. 2023. Financial Analysis of Bottom Gillnet Capture Fisheries Business in Cilacap Regency. *Indonesian Journal of Capture Fisheries*. 7(3): 82-88.
- Ayu, P., D. Wijayanto, and F. Kurohman. 2017. Financial feasibility analysis of gillnet capture fisheries business in Sadeng Coastel Fishing Port (PPP), Gunungkidul Regency. *Journal of Fisheries Resources Utilization Management and Technology*. 6(4): 301-309.
- Dermawati, D., M. Palo, and N. Najamuddin. 2019. Construction and Catch Analysis of Surface Gill Nets in the Waters of Maros Regency, South Sulawesi Province. *Journal of Science and Technology of Fisheries Resource Utilization*. 6(11): 44-69.

- Dollu, E. A., Y. Y. Tell, and F. B. Bolang. 2021. Feasibility Analysis of Mini Purse Seine Capture Fisheries Business in Kokar Waters, Northwest Alor District, Alor Regency, East Nusa Tenggara Province. *Indonesian Aquatic Journal*. 6(1): 1-7.
- Hadi, A. N., and K. I. Gunawan. 2024. Business Feasibility Analysis of Seaweed Farmers (Case Study in Tanjungsari Hamlet, Kupang Village, Jabon District, Sidoarjo Regency). *Musyrtari Journal: Balance Sheet of Management, Accounting, and Economics*. 4(2):175-189.
- Manurung, Y., A. N. Bambang, and H. A. Setyawan. 2023. Financial analysis of Gillnet capture fisheries business at PPI Tanjungbalai Asahan, North Sumatra. *Indonesian Journal of Capture Fisheries*. 7(1): 1-6.
- Maulana, I., E. Yulinda, and R. Hendri. 2020. Analysis of Sea Fishing Business with Gillnet in Panipahan, Pasir Limau Kapas District, Rokan Hilir Regency, Riau Province. *Journal of Coastal Socio-Economics*, 1(2): 30-38.
- Nabila, D. C., S. Aryani, and M. D. R. Idawicaksakti. 2022. Business Design and Feasibility of Opening an Ipap. Store in Depok City. *Scientific Journal of Management, Economics, and Accounting*: 6(3), 635-651.
- Nugroho, R., D. Wijayanto, and I. Setyanto. 2019. Financial analysis of gillnet fisheries in Pemalang Regency, Central Java. *Journal of Fisheries Resources Utilization Management and Technology*. 8(2): 34-43.
- Nurani, T. W., P. I. Wahyuningrum, M. Iqbal, N. Khoerunnisa, G. B. Pratama, and E. A. Widiarti. 2021. Dynamics of Skipjack and Tongkol Fishing Season in Palabuhanratu Waters. *Marine Fisheries: Journal of Marine Fisheries Technology and Management*. 12(2): 149- 160.
- Ratnasari, S. L., dan G. Sutjahjo. 2021. Pengaruh Gaya Kepemimpinan, Budaya Organisasi, Motivasi, Dan Lingkungan Kerja Terhadap Kinerja Pegawai. *Jurnal Manajemen, Organisasi dan Bisnis*. 1(4): 593-602.
- Ratung, A. A. H., S. Suharyanto, and C. Nainggolan. 2023. Financial Analysis of Small Fisherman's Hand Line Fishing Business in Kupang City. *Journal of Applied Marine and Fisheries*. 6(1): 87-95.
- Safriani, I., L. Sara, and N. Alimina. 2022. Study of Gill Net Fishing with Different Shortening in the Waters of Tompo Pasi Waemputtang South Poleang, Bombana. *Journal of Fisheries Science and Innovation*. 6(1): 36-43.
- Saputra, P. D. D., D. Wijayanto, and B. B. Jayanto. 2016. Financial Feasibility Analysis of Gillnet Capture Fisheries Business at Tanjungsari Fish Landing Base (PPI) Pemalang Regency. *Journal of Fisheries Resources Utilization Management and Technology*. 5(4): 157 166.
- Zain, H. N., I. Triarso, and T. D. Hapsari. 2016. Financial Feasibility Analysis of Surface Gillnet Fishery in Banyutowo Fish Landing Base, Pati Regency. *Journal of Fisheries Resources Utilization Management and Technology*. 5(1): 162.