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Financial Feasibility Analysis of Crab (*Portunus pelagicus*) Fishing Business in Pasir Limau Kapas District, Rokan Hilir Regency

Analisis Kelayakan Finansial Usaha Penangkapan Kepiting Rajungan (Portunus pelagicus) di Kecamatan Pasir Limau Kapas Kabupaten Rokan Hilir

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Abstract

Pasir Limau Kapas District is a coastal area in Rokan Hilir Regency, known for its unique character as a center for traditional fishing. Crab production in this District in 2018 was recorded at 486 tons, then increased to 512 tons in 2019, and 527 tons in 2020. In 2021, there was a slight decrease to 498 tons due to extreme weather that affected fishing strength, but it increased again to 538 tons in 2022. This study was conducted in February 2025 at Pasir Limau Kapas District, Rokan Hilir Regency, aiming to calculate the investment, total costs, income, and profits, and to analyze the financial feasibility of the crab fishing business. The method used in this study was a survey method with a total of 35 crab fishermen as respondents. The study results indicated that the average investment spent by fishermen was IDR 17,430,722.69. Total costs are IDR 92,105,356.14/year, revenue is IDR 104,996,571.43/year, and profit is IDR 12,891,215.29/year. The chopped crab fishing business demonstrates good economic feasibility. With an R/C Ratio of 1.14, this business generates revenues greater than the costs incurred. The return on investment (ROI) of 14% indicates that this business provides moderate profits compared to the total costs incurred. The payback period (PPC) of 1.35 years, or approximately 1 year and 4 months, is relatively fast, allowing fishermen to recover their initial investment relatively quickly. Although it does not generate significant profits, this business can be a sustainable source of livelihood for fishermen because it meets the required business feasibility parameters.

Keywords: Financial Feasibility, Crab, Fishing Business

Abstrak

Kecamatan Pasir Limau Kapas merupakan salah satu kecamatan pesisir di Kabupaten Rokan Hilir yang memiliki karakter khas sebagai sentra penangkapan ikan tradisional. Produksi rajungan di Kecamatan ini pada tahun 2018 tercatat sebesar 486 ton, kemudian meningkat menjadi 512 ton pada tahun 2019, dan 527 ton pada tahun 2020. Tahun 2021 mengalami sedikit penurunan menjadi 498 ton akibat cuaca ekstrem yang mempengaruhi kekuatan penangkapan, namun kembali meningkat menjadi 538 ton pada tahun 2022. Penelitian ini dilakukan pada bulan Februari 2025 bertempat di Kecamatan Pasir Limau Kapas Kabupaten Rokan Hilir dengan tujuannya menghitung berapa investasi, total biaya, pendapatan, keuntungan, dan menganalisis kelayakan finansial usaha penangkapan kepiting rajungan. Metode yang digunakan dalam penelitian ini adalah metode survei dengan jumlah responden

sebanyak 35 orang nelayan kepiting rajungan. Adapun hasil penelitian yang diperoleh yaitu investasi yang dikeluarkan nelayan rata-rata sebesar Rp 17.430.722,69. Total biaya Rp 92.105.356,14/tahun, penerimaan Rp 104.996.571,43/tahun dan keuntungan Rp 12.891.215,29/tahun. Usaha nelayan kepiting rajangan menunjukkan kelayakan ekonomi yang cukup baik. Dengan nilai R/C Ratio 1,14, usaha ini menghasilkan penerimaan yang lebih besar dari biaya yang dikeluarkan. Tingkat pengembalian investasi (ROI) sebesar 14% menunjukkan bahwa usaha ini memberikan keuntungan yang moderat dibandingkan dengan total biaya yang dikeluarkan. Periode pengembalian modal (PPC) selama 1,35 tahun atau sekitar 1 tahun 4 bulan tergolong relatif cepat, sehingga nelayan dapat memperoleh kembali modal awal dalam waktu yang tidak terlalu lama. Meskipun tidak menghasilkan keuntungan yang sangat besar, usaha ini dapat menjadi sumber mata pencaharian yang berkelanjutan bagi nelayan karena memenuhi parameter kelayakan usaha yang diperlukan.

Kata kunci: Kelayakan Finansial, Kepiting Rajungan, Usaha Penangkapan

1. Introduction

Pasir Limau Kapas District is one of the coastal districts in Rokan Hilir Regency, known for its unique character as a center for traditional capture fisheries. This region covers 669.63 km² and has a population of around 35,000 people, the majority of whom work as fishermen. Geographically, this District is located in the northeastern part of Rokan Hilir Regency and directly borders the Malacca Strait, giving it direct access to potential fishing grounds. The coastal ecosystem of Pasir Limau Kapas District consists of mangrove forests, estuaries, and coastal waters, which are important habitats for various species of economically important fish and crustaceans. The uniqueness of the fishing community in this area lies in the strong local wisdom of fishing practices known as pantang larang, which indirectly plays a role in resource conservation. The social structure of the fishing community in Pasir Limau Kapas District still adheres to a patron-client system where tokeh (trader collectors) have a central role in financing and marketing the catch. The welfare level of fishermen's households in Panipahan Darat, Pasir Limau Kapas District, Rokan Hilir Regency, is categorized as moderate (Pasir Limau Kapas District, 2025).

Capture fisheries production in Pasir Limau Kapas District accounts for approximately 25-30% of the total capture fisheries output in Rokan Hilir Regency. The volume of capture fisheries production in this District reached 9,638 tons in 2023, with a production value of around IDR 312 billion. The primary commodities from this region include shrimp, crab, pomfret, mackerel, and fourfinger threadfin, all of which possess high economic value. The fishing fleet in Pasir Limau Kapas District is predominantly composed of small vessels (3-10 GT) and traditional fishing gear, such as gillnets, traps, longlines, and sondong. Seasonal dynamics, oceanographic conditions, and fisheries management policies significantly influence fluctuations in capture fisheries production in this area. Compared to other coastal sub-districts in Rokan Hilir Regency, Pasir Limau Kapas Sub-district exhibits a higher level of resource sustainability due to its relatively selective and environmentally friendly fishing practices (Department of Fisheries and Maritime Affairs of Rokan Hilir Regency, 2024).

The production of blue swimming crabs in Pasir Limau Kapas District shows a positive trend, even though seasonal dynamics and ecological factors influence fluctuations. The production of blue swimming crabs in this District in 2018 was recorded at 486 tons, then increased to 512 tons in 2019, and 527 tons in 2020. In 2021, there was a slight decrease to 498 tons due to extreme weather affecting fishing intensity, but it increased again to 538 tons in 2022. The peak season for blue swimming crab fishing in Pasir Limau Kapas waters occurs from April to June, with the highest productivity at a depth of 10-15 meters. The production value of crabs in this sub-district in 2022 reached IDR 43 billion, with the selling price of crabs at the fishermen's level ranging from IDR 75,000 to 120,000/kg, depending on the size and condition. The crab stock in the Pasir Limau Kapas waters remains in moderate condition, with a utilization rate of 65-70% of its sustainable potential, allowing for limited business development with proper management (Department of Fisheries and Maritime Affairs of Rokan Hilir Regency, 2024).

Blue swimming crab fishing efforts in the Pasir Limau Kapas District are primarily carried out by traditional fishermen using outboard motorboats with a capacity of 3 to 5 gross tons (GT). The main fishing gear employed includes collapsible traps and bottom gillnets, which are operated at depths ranging from 5 to 20 meters. Fishing trips for blue swimming crabs in this area typically occur daily, lasting approximately 8 to 12 hours. During each trip, fishermen generally deploy between 50 and 200 traps or 5 to 8 gillnets, yielding an average catch of 8 to 15/kg.

2. Material and Method

2.1. Time and Place

This research was conducted in February 2025 in the Pasir Limau Kapas District of Rokan Hilir Regency.

2.2. Methods

The method employed in this study is the survey method. According to Fikriarini (2023), the survey method is used to gather facts about symptoms and to obtain accurate information in the fields of fisheries, social sciences, and economics from groups involved in the fisheries industry. The survey method is designed to collect data from specific natural settings; however, this study implemented various data collection techniques, such as distributing questionnaires, conducting structured interviews, and other methods that differ from experimental treatments.

2.3. Procedures

The respondents in this study comprised 350 crab fishermen. Furthermore, Arikunto (2019) explained that if the sample size is less than 100, the entire population should be used as the research sample. However, if the sample size exceeds 100 individuals, a selection of 10-15% or 15-25% may be appropriate. Based on this guidance, the researcher selected 10% of the 350 crab fishermen, resulting in a sample of 35 crab fishermen who will serve as respondents in the study. In this research, the selection of respondents was conducted using simple random sampling.

2.3. Data Analysis

The data analysis used in this study is an analysis to calculate investment in fishing businesses using the formula (Rahabeat, 2019):

$$TI = MT + MK$$

Where:

IT = Total investment (IDR)
MT = Fixed capital (IDR)
MK = Working capital (IDR)

Next, analyze the total costs, revenue, and profit using the formula: Total cost that is: TC = TFC + TVC

Where:

TC = Total cost
TFC = Total fixed cost
TVC = Total variable cost

Acceptance: TR = PQ

Where:

TR : Total income (IDR)
P : Product price (kg)
Q : Total sales (IDR/kg)

Benefits: $\pi = TR - TC$

Where:

π = Profit
TR = Total revenue
TC = Total cost

Then, to determine the feasibility of a fishing business, use the formula Rahabeat (2019), including: Revenue Cost of Ratio (R/C): R/C = TR/TC

Where:

RCR = Revenue cost ratio
TR = Total revenue or receipts
TC = Total cost (fixed cost)

Return on Investment (RoI): $ROI = \frac{\text{Profit}}{\text{Total cost}} \times 100\%$

If RoI < 1, then the fishing business is not feasible. If RoI = 1, then the fishing business is feasible. Furthermore, if RoI > 1, then the fishing business is very feasible to be attempted. Payback Period of Capital (PPC): $PPC = \frac{TI}{JI}$x period

Where:

PPC = Payback Period of Capital
IT = Total investment

JI = Profit

Period= length of time of business

Decision criteria: If the value of the payback period is greater than the economic life, then the investment is rejected. Suppose the value of the payback period < economic life, then the investment is accepted. The payback period method assesses that if the payback period is shorter than the maximum time required, the project is accepted. Vice versa, if the payback period is greater or longer than required, then the investment is rejected (Rahabeat, 2019).

3. Result and Discussion

Pasir Limau Kapas District is one of the Districts in Rokan Hilir Regency, Riau Province. Geographically, it is a fragment of the Pasir Limau Kapas District. The area of Pasir Limau Kapas District is around ± 669.63 Km². Pasir Limau Kapas District comprises eight administrative areas, including seven villages and one District, all situated in the coastal region. Pasir Limau Kapas District borders North Sumatra Province to the north, Kubu District to the south, North Sumatra Province to the west, and the Strait of Malacca to the east. The population of Pasir Limau Kapas District is 37,679, comprising 19,412 male residents and 18,267 female residents.

Table 1. Population in Pasir Limau Kapas District based on gender

No	Gender	Number (of Souls)
1	Man	19,412
2	Woman	18,267
Amount		37,679

The blue swimming crab is a high-value fishery commodity and a mainstay for coastal fishermen in various regions of Indonesia, including Pasir Limau Kapas District, Rokan Hilir Regency. This commodity has a high selling value for both domestic and export markets, especially in the form of processed crab meat. The condition of the blue swimming crab fishing business in this region reflects the dynamics of the small-scale capture fisheries sector, which is influenced by various technical, social, economic, and ecological factors. The blue swimming crab fishing fleet in Pasir Limau Kapas District is dominated by small to medium-sized vessels. Based on the data obtained, the majority of fishermen (24 of 35 respondents) operate vessels with a size of more than 3 GT (Gross Tonnage), while 11 fishermen use vessels measuring 3 GT. These vessels are generally made of wood with traditional designs that have adapted to local water conditions, with fleet prices ranging from IDR 8,000,000.00 to 10,000,000.00. The physical characteristics of the crab fishing fleet off the coast of Sumatra range from 6-12 meters in length, 1.5-3 meters in width, and 0.7-1.2 meters in depth. These vessels generally use 15-30 hp diesel engines, allowing them to travel approximately 5-15 nautical miles from shore. The engines used by fishermen range in price from IDR 2,500,000.00 to IDR 3,000,000.00. The production of crabs caught by fishermen is shown in Table 2.

Table 2. The average production of crab caught by fishermen

No	Component	Average production (kg)		Price (IDR kg^{-1})	
		Season	Out of Season	Season	Out of Season
1	Production (kg $trip^{-1}$)	11	3	60,000	70,000
2	Production (kg $month^{-1}$)	239	68	60,000	70,000
3	Production (kg $year^{-1}$)	1.433	272	60,000	70,000

Data obtained from fishermen in Pasir Limau Kapas District in 2025 presents a picture of the dynamics of crab production caught by local fishermen. Table 2 reveals a significant difference between catches during the season and off-season, reflecting the characteristics of the crab biological cycle and the influence of environmental factors on fishing activities. During the season, Pasir Limau Kapas fishermen can produce an average of 11 kg of blue swimming crab in one trip. This figure contrasts with conditions during the off-season, which average only 3 kg/trip, indicating a decrease in productivity of up to 72.7%. This dramatic difference certainly has substantial economic implications for fishermen. When accumulated in monthly calculations during the season, fishermen can collect an average of 239 kg/month, far exceeding the results outside the season, which only reach 68 kg/month. The transformation of this figure into annual calculations further emphasizes the gap, with production reaching 1,433 kg during the season compared to only 272 kg during the off-season.

This seasonal fluctuation phenomenon is likely influenced by the crab reproductive cycle, oceanographic conditions such as water temperature, salinity, and nutrient availability, as well as crab migration patterns influenced by the season. Local fishermen have adapted to this pattern and intensified fishing efforts when the peak season arrives to maximize their income. Market mechanisms try to compensate for the scarcity of supply during the off-season with price increases. During the season, the price of crab is set at IDR 60,000/kg, while during the off-season, the price increases to IDR 70,000/kg. This price dynamic reflects the basic economic principle of supply and demand, where product scarcity tends to drive up prices. However, this 16.7% price increase has not been able to fully compensate for the decrease in production volume, which reached 72.7%. If we calculate the fishermen's gross monthly income from crabs, they have the potential to earn around IDR

14,340,000 during the season (239 kg x IDR 60,000), while their income drops drastically to around IDR 4,760,000 during the off-season (68 kg x IDR 70,000). This difference in monthly income amounts to IDR 9,580,000, representing a decrease of 66.8%. This reduction is certainly significant for the economic well-being of fishermen's households.

When calculated over an annual cycle, the gross income from crabs during the season amounts to approximately IDR 85,980,000 (1,433 kg x IDR 60,000). In contrast, during the off-season, it is only about IDR 19,040,000 (272 kg x IDR 70,000). This annual income gap amounts to IDR 66,940,000, a significant figure that necessitates effective economic adaptation strategies for fishermen to navigate low-income periods during the off-season. These strategies may include diversifying income sources, cultivating crabs as an alternative to traditional fishing, implementing preservation techniques to maintain the market value of catches during peak season, and developing value-added processed products. These data highlight the economic vulnerability of fishermen to seasonal fluctuations and their dependence on natural resources that are often unpredictable. This situation underscores the importance of sustainable management of crab resources, as over-exploitation during the season can threaten crab populations in the long term. Implementing effective conservation policies, such as minimum catch size restrictions, protecting egg-laying female crabs, and establishing a fishing ban during the critical spawning period, will help maintain the sustainability of swimming crab stocks while ensuring the livelihoods of fishermen.

Understanding the production and economic patterns of crabs can serve as a foundation for developing targeted assistance programs for fishermen, particularly to address the income disparity between the fishing season and the off-season. Initiatives such as weather index-based insurance for fishermen, specialized savings schemes, and communal cold storage facilities can help mitigate the economic risks faced by crab fishermen in the Pasir Limau Kapas District. According to Afra & Nuraeni (2025), seasonal fluctuations in crab production are closely linked to the biological cycles and reproductive behaviors of crabs. During specific periods, crabs migrate to deeper waters to spawn, while at other times, they move to shallower waters to forage. Environmental factors such as water temperature, salinity, and food availability also influence the abundance and distribution of swimming crabs in a body of water. This seasonal variation indicates the need for adaptive management strategies to ensure the sustainability of swimming crab stocks. Seasonal closure during the spawning period can be a management option to maintain the sustainability of the blue swimming crab population. Monthly production data shows that during the peak season, fishermen can produce an average of 239 kg of blue swimming crab per month, while during the off-peak season, production only reaches 68 kg/month. This figure indicates a very significant productivity difference with a ratio of approximately 3.5:1 between the peak and off-peak seasons.

If accumulated over the course of a year, the total production of blue swimming crabs reaches 1,433 kg during the peak season and 272 kg during the off-peak season. This significant disparity (a ratio of 5.3:1) indicates that the peak season predominantly contributes to the total annual production. Crab production during the peak season can reach 70-80% of the total yearly production. Based on these data, it can be estimated that the crab fishing season in Pasir Limau Kapas District lasts for 6 months, while the off-season lasts for 4 months. The season lasts 6 months, from April to September, and the off-season lasts 4 months, from November to February. In addition to variations in production volume, Table 2 also shows differences in crab selling prices between the peak and off-peak seasons. During the season, the selling price reaches IDR 60,000/kg, while during the off-season, it drops to IDR 70,000/kg. This price difference reflects market dynamics influenced by supply and demand factors (Jurya et al., 2021).

Fishermen's investments in the crab fishing industry encompass all costs associated with starting the business. The primary components of this investment include fishing fleets, propulsion engines, fishing gear, and baskets. The total investment amount varies significantly based on the scale of the business, the technology employed, and the geographical conditions of the fishing area. The initial investment required for a small-scale crab fishing business ranges from IDR 15 million to IDR 45 million, while for a medium-scale business it can reach IDR 100 million. This investment serves as the basic capital for fishermen to conduct fishing operations and determines the long-term efficiency of the business. The primary investment components include fixed capital and working capital spent by fishermen on their ongoing fishing business. Fishermen's investment in the crab fishing business can be seen in Table 3.

Table 3. Average fisherman's investment

No	Investment Components	Capital (IDR)
1	Fixed capital	17,036,722.69
2	Working capital	394,000.00
	Investment (IDR)	17,430,722.69

Table 3 provides a comprehensive summary of the average total investment made by crab fishermen in the Pasir Limau Kapas District in 2025. This total investment comprises both fixed capital and working capital. The average total investment amounted to IDR 17,430,722.69, with fixed capital accounting for IDR 17,036,722.69, or approximately 97.74% of the total investment. In contrast, working capital contributed only IDR 394,000.00, or about 2.26% of the total investment. This disparity highlights a significant barrier to entry for newcomers

aspiring to enter the crab fishing industry. Although the working capital per trip is relatively small compared to fixed capital, its cumulative effect over time can result in a substantial amount, given its recurring nature for each fishing trip. This investment structure underscores the necessity for crab fishermen in the Pasir Limau Kapas District to engage in thorough financial planning, particularly regarding the procurement and maintenance of fixed assets. Efficient cash management is also crucial to ensure the availability of sufficient working capital for the continuity of business operations.

Analyzing total costs, revenues, and profits is a crucial aspect of evaluating the economic performance of a blue swimming crab fishing business. These three components constitute the financial framework of the business and determine the level of economic sustainability for fishermen. A thorough understanding of the cost and revenue structure is essential for improving operational efficiency and maximizing profits. This analysis also aids fishermen in making strategic decisions regarding fishing schedules, selection of fishing gear, and marketing strategies (Leonardo et al., 2021).

Table 4. The average total cost of fishermen

No	Cost Components	Cost (IDR/Year)
1	Fixed Costs	5,425,356.14
2	Variable Costs	86,680,000.00
Total Cost (IDR/Year)		92,105,356.14

Table 4 provides a comprehensive overview of the average costs incurred by crab fishermen in the Pasir Limau Kapas District for one year of operation in 2025. The data reveal that the total annual costs borne by fishermen amount to IDR 92,105,356.14. These costs are categorized into two main types: fixed costs of IDR 5,425,356.14 (5.89%) and variable costs of IDR 86,680,000.00 (94.11%). The stark contrast between fixed and variable costs highlights the nature of the crab fishing business, which is heavily reliant on daily operational activities. The predominance of variable costs, which account for over 94% of the total, indicates that the crab fishing business has a highly flexible cost structure that is responsive to the intensity of fishing activities. This flexibility allows fishermen to significantly adjust operational costs by regulating the frequency and duration of fishing trips, particularly during unfavorable weather conditions or when crab populations are declining. Conversely, the relatively small proportion of fixed costs suggests that the financial burden on fishermen during non-productive periods or lean seasons is minimal, thereby enhancing their economic resilience to seasonal fluctuations and changes in environmental conditions. Income in the crab fishing business is the total value obtained from the sale of the catch, which is calculated by multiplying the number of catches by the selling price. This income is greatly influenced by fishing productivity, quality of the catch, and market conditions.

The income of crab fishermen in Indonesia varies significantly depending on the season. Factors influencing fishermen's income include the size and quality of the crabs, prevailing market prices, and the marketing channels utilized. Larger crabs (greater than 10 cm) and female crabs that have not yet laid eggs typically command higher prices in the market, particularly for export purposes. In contrast, smaller crabs or those in a post-molting condition are generally sold at lower prices in the local market. The income earned by fishermen is presented in Table 5.

Table 5. Average fishermen's income

No	Component	Average production (kg)		Price (IDR/kg)		Receipts (IDR)		Total Revenue (IDR)
		Season	Out of Season	Season	Out of Season	Season	Out of Season	
1	Trip	11	3	60,000	70,000	651,428.57	216,000	867,428.57
2	Month	239	68	60,000	70,000	14,331,428.57	4,752,000	19,083,428.57
3	Year	1.433	272	60,000	70,000	85,988,571.43	19,008,000	104,996,571.43

Table 5 presents comprehensive data on the average income of crab fishermen in the Pasir Limau Kapas District, highlighting the dynamics of the fisheries economy influenced by seasonal factors. Based on data collected in 2025, it is evident that crab fishing activities experience significant fluctuations between the peak season and the off-season. During the peak season, fishermen typically undertake an average of 11 fishing trips, yielding production results of IDR 651,428.57/trip at a selling price of IDR 60,000/kg. Conversely, during the off-season, the frequency of fishing trips decreases drastically to only three trips, resulting in an income of IDR 216,000 /trip, despite an increase in the selling price to IDR 70,000/kg. This phenomenon illustrates that although prices rise during the off-season in response to supply scarcity, the price increase does not sufficiently compensate for the significant decline in production volume. From a monthly perspective, fishermen produce an average of 239 kg of crab during the peak season, generating an income of IDR 14,331,428.57/month.

In contrast, during the off-season, productivity plummets to only 68 kg/ month, resulting in an income of IDR 4,752,000. The disparity in monthly income, which reaches nearly 10 million, reflects the high volatility of fishermen's earnings, which are heavily dependent on seasonal factors. This situation underscores the importance of adaptive financial management strategies for fishermen to navigate the extreme income fluctuations between peak and lean seasons.

Annually, the productivity of crab fishermen reaches 1,433 kg during the peak season, generating a revenue of IDR 85,988,571.43. In contrast, during the off-season, productivity drops to only 272 kg, resulting in a revenue

of IDR 19,008,000. The total annual revenue amounts to IDR 104,996,571.43, with the peak season contributing 81.9% of this total. This significant reliance on the peak season highlights the economic vulnerability of fishermen to changes in seasonal patterns, which may arise from climate change or other ecological factors.

The profit from the crab fishing business is calculated as the difference between total revenue and total costs incurred. This profit serves as a key indicator of the business's success and provides a foundation for fishermen to either continue or expand their operations. The profit margin in the crab fishing industry typically ranges from 20% to 40% of total revenue, depending on operational efficiency and market conditions. Various factors can influence this profit, including fluctuations in market prices, changes in operational costs (particularly fuel), and government policies regarding the management of crab resources. Fishermen with direct access to the market or established relationships with exporters generally achieve higher profits than those who sell their catch through intermediaries (Zamdial et al., 2023). The average profit of crab fishermen is presented in Table 6.

Table 6. Average fisherman's profit

No	Profit Components	Total (IDR Year^{-1})
1	Reception	104,996,571.43
2	Total cost	92,105,356.14
Profit (IDR Year^{-1})		12,891,215.29

Table 6 provides a comprehensive overview of the profitability of the crab fishing business operated by fishermen in the Pasir Limau Kapas District in 2025. The data presented indicates that the average crab fisherman in this area generates an annual net profit of IDR 12,891,215.29. This figure represents the difference between the total revenue of IDR 104,996,571.43 and the total operational costs of IDR 92,105,356.14, resulting in a profitability margin of approximately 12.28% of total revenue. This margin suggests that the crab fishing business continues to offer positive economic value for fishermen, despite a relatively moderate level of profit. Further analysis reveals that the annual profit of IDR 12,891,215.29 translates to an average monthly income of about IDR 1,074,267.94. This amount is slightly above the regional minimum wage in many areas of Indonesia, indicating that the crab fishing business provides a sufficient source of livelihood for fishermen in the Pasir Limau Kapas District. The profit structure also illustrates a cost-revenue ratio of 0.88, meaning that for every rupiah of revenue, fishermen must spend 88 cents. This ratio highlights that the crab fishing business is characterized by high cost intensity and relatively thin profit margins. Such conditions reflect the general characteristics of small-scale fisheries, which typically face a heavy operational cost structure, including expenses for fuel and labor.

With relatively thin profit margins, crab fishermen in this area are still able to sustain their businesses. This suggests the presence of non-economic values in this profession, such as cultural factors, social identity as fishermen, and limited alternative livelihood options in coastal regions. Although the profits generated are not extraordinary, they provide sufficient economic incentives to support the viability of crab fishing enterprises as a cornerstone of the coastal community economy in the Pasir Limau Kapas District. To determine the feasibility of continuing a fishing business, a business feasibility analysis is conducted using various metrics, including R/C (Revenue to Cost), RoI (Return on Investment), and PPC (Payback Period of Capital), as illustrated in Table 7.

Table 7. Feasibility of fishermen's business

No	Feasibility Components of Crab Fishermen's Business	Total (IDR Year^{-1})
1	Revenue Cost Ratio (R/C)	
	a. Income (IDR Year^{-1})	104,996,571.43
	b. Total Cost (IDR Year^{-1})	92,105,356.14
	c. R/C	1.14
2	Return on Investment (ROI)	
	a. Profit (IDR Year^{-1})	12,891,215.29
	b. Total Cost (IDR Year^{-1})	92,105,356.14
	c. RoI	14.00
3	Payback Period of Capital (PPC)	
	a. Total Investment (IDR Year^{-1})	17,430,722.69
	b. Profit (IDR Year^{-1})	12,891,215.29
	c. PPC	1.35

Based on the feasibility data for the crab fishing business in the Pasir Limau Kapas District in 2025, it is evident that this venture presents positive prospects, despite generating relatively moderate profits. The crab fishing business has a Revenue Cost Ratio (R/C) of 1.14, indicating that for every IDR 1 spent, the business generates an income of IDR 1.14. An R/C value greater than 1 signifies that the business is both profitable and feasible, albeit with a modest profit margin. In terms of Return on Investment (RoI), this business boasts a 14% rate, meaning that every rupiah invested yields a profit of 14% annually. With a total income of IDR 104,996,571.43 / year and total operational costs amounting to IDR 92,105,356.14 / year, the business generates a net profit of IDR 12,891,215.29 annually. While this profit may not be substantial relative to the scale of the fishery industry, it still represents a significant source of income for local fishermen.

Meanwhile, the PPC (Payback Period of Capital) value of 1.35 indicates that the initial investment capital of IDR 17,430,722.69 can be returned in about 1 year and 4 months. This relatively short payback period is a positive indicator for business sustainability because fishermen do not have to wait too long to get back the capital that has been invested. Overall, although it does not promise very large profits, the crab fishing business in Pasir Limau Kapas District has quite good economic feasibility with relatively controlled financial risks, making it a source of sustainable livelihood for the fishing community in the area. The results of the feasibility analysis of the crab fishing business in Pasir Limau Kapas District, which showed an R/C ratio of 1.14, ROI 14%, and PPC of 1.35 years, are in line with several recent studies in the field of crab fisheries. The results of this study align with those of Salman et al. (2023), who explained that the investment value of the control fyke net fishing gear is IDR 15,000,000 per year, and the modified fyke net is IDR 20,000,000 per year. The total cost, which includes fixed and variable costs, is IDR 82,142,000 for the control fyke net, while IDR 102,942,000 for the modified fyke net. The crab catch income from the control fyke net is IDR 108,000,000 per year, while the catch from the modified fyke net is IDR 151,200,000 per year. The profit earned from the control fyke net was IDR 25,858,000/year, while the modified fyke net was IDR 48,258,000/year. The R/C ratio for the control fyke net fishing effort was 1.3, while the modified fyke net fishing effort was 1.5

4. Conclusions

The research findings indicate that the average investment made by fishermen amounts to IDR 17,430,722.69. The total costs are IDR 92,105,356.14/year, while the income is IDR 104,996,571.43 /year, resulting in a profit of IDR 12,891,215.29/year. The business demonstrates good economic feasibility, as evidenced by an R/C ratio of 1.14, which shows that the income generated exceeds the costs incurred. Additionally, the return on investment (RoI) of 14% suggests that this business yields moderate profits relative to the total costs. The payback period of capital (PPC) of 1.35 years, or approximately 1 year and 4 months, is relatively short, allowing fishermen to recover their initial capital promptly. Although the profits are not exceptionally high, this business can serve as a sustainable source of livelihood for fishermen, as it meets the necessary parameters for business feasibility.

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