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Marketing Efficiency of Yellowfin Tuna (*Thunnus albacares*) at Bungus Ocean Fisheries Port, West Sumatra

Efisiensi Pemasaran Ikan Tuna Sirip Kuning (Thunnus albacares) di Pelabuhan Perikanan Samudera Bungus Sumatera Barat

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Abstract

The Bungus Ocean Fisheries Port (PPS Bungus) in West Sumatra plays a crucial role in marketing yellowfin tuna (*Thunnus albacares*). As a fish landing base in western Indonesia, PPS Bungus supports activities including fishing, unloading, sorting, and tuna distribution. The marketing channels involve a series of interdependent institutions that deliver the product to consumers, with varying levels of efficiency and costs. This study aims to understand the marketing channels, marketing efficiency, marketing margins, and price differences of yellowfin tuna at PPS Bungus, West Sumatra. The research was conducted at Bungus Ocean Fisheries Port (PPS) in West Sumatra Province from July 25 to August 16, 2023. The methodology employed in this research involved surveys, data processing using Microsoft Excel, and SPSS version 26. The research findings indicate that there are two marketing channels for yellowfin tuna: one between fishermen and PT. Dempo Andalas Samudera, and another between fishermen and PT. Lintas Laut Samudera. The marketing margin for yellowfin tuna at PT. Dempo Andalas Samudera is IDR 12,000, and at PT. Lintas Laut Samudera is IDR 13,000. The fishermen's Share at PT. Dempo Andalas Samudera is 74.46%, and at PT. Lintas Laut Samudera is 72.91%. The efficiency of the marketing channels for yellowfin tuna shows 1.17 for PT. Dempo Andalas Samudera and 1.14 for PT. Lintas Laut Samudera. This study demonstrates that the marketing channels at PPS Bungus are efficient, and there are no differences in selling prices between PT. Dempo Andalas Samudera and PT. Lintas Laut Samudera.

Keywords: Efficiency, Marketing, *Thunnus albacares*

Abstrak

Pelabuhan Perikanan Samudera Bungus (PPS Bungus) di Sumatera Barat berperan penting dalam pemasaran ikan tuna sirip kuning (*Thunnus albacares*). Sebagai pangkalan pendaratan ikan di wilayah barat Indonesia, PPS Bungus mendukung kegiatan penangkapan ikan, pembongkaran, penyortiran, hingga distribusi ikan tuna. Saluran pemasaran melibatkan serangkaian lembaga yang saling tergantung untuk menyalurkan produk ke konsumen, dengan tingkat efesiensi dan biaya yang bervariasi. Tujuan dari penelitian ini untuk mengetahui saluran pemasaran, efesiensi pemasaran, margin pemasaran, dan perbedaan harga pemasaran ikan tuna sirip kuning (*Thunnus albacares*) di Pelabuhan Perikanan Samudra Bungus, Sumatera Barat. Penelitian ini dilaksanakan di Pelabuhan

Perikanan Samudera (PPS) Bungus Provinsi Sumatera Barat pada tanggal 25 Juli sampai 16 Agustus 2023. Metode yang digunakan pada penelitian ini dilakukan dengan menggunakan metode survey, pengolahan data menggunakan Microsoft Excel, dan SPSS versi 26. Hasil penelitian menunjukkan bahwa terdapat pemasaran ikan tuna sirip kuning antara nelayan dengan PT. Dempo Andalas Samudera dan nelayan dengan PT. Lintas Laut Samudera. Margin pemasaran ikan tuna sirip kuning pada PT. Dempo Andalas Samudera sebesar Rp. 12.000, saluran pemasaran pada PT. Lintas Laut Samudera sebesar Rp. 13.000. *Fisherman share* pada PT. Dempo Andalas Samudera, yaitu sebesar 74,46% dan *Fisherman share* pada PT. Lintas Laut Samudera, yaitu sebesar 72,91%. Efisiensi saluran pemasaran ikan tuna sirip kuning pada setiap saluran menunjukkan,saluran pemasaran pada PT. Dempo Andalas Samudera sebesar 1,17 dan saluran pemasaran pada Lintas Laut Samudera adalah sebesar 1,14%. Penelitian ini menunjukkan bahwa saluran pemasaran di PPS Bungus tergolong efesien, dan tidak terdapat perbedaan harga jual antara PT. Dempo Andalas Samudera dan PT. Lintas Laut Samudera.

Kata kunci: Efisiensi, Pemasaran, *Thunnus albacares*

1. Introduction

Bungus Ocean Fishing Port (PPS Bungus) in West Sumatra plays a significant role in fisheries activities, particularly in the marketing of yellowfin tuna (*Thunnus albacares*). As a major fish landing base in western Indonesia, PPS Bungus supports fishing operations, unloading, sorting, and distribution of tuna products. Yellowfin tuna is selected as a primary fishing target due to its high economic value and continuously increasing global demand. According to PPS Bungus (2020), statistical data showed that yellowfin tuna production reached 32% (575.92 tons) in 2017, 26% (468.49 tons) in 2018, 27% (499.86 tons) in 2019, and 15% (275.83 tons) in 2020. The marketing of yellowfin tuna represents a promising strategy in both local and international markets, particularly for companies focusing on tuna production, such as PT. Lintas Laut Samudera and PT. Dempo Andalas Samudera.

Increasing competition in the business sector makes marketing a crucial factor for fishers and companies in the fisheries industry. This concept is supported by Fadhiela et al. (2025), who stated that the marketing efficiency of fisheries products can be measured through marketing performance, the number of intermediary institutions, the distribution of marketing margins, and marketing channels, which may create price differences between fishers and companies. Large price differences indicate high costs and profits for marketing institutions, such as companies. Fisheries marketing is not merely a process of transferring products from fishers to consumers but a complex activity involving the collection and distribution of products from fishers. According to Arbie et al. (2018), marketing channels are a series of interdependent institutions that make products available to consumers. Each marketing channel has different levels of efficiency within the marketing chain and inevitably requires costs.

The success of a business in achieving maximum profit depends heavily on the effectiveness of its marketing channels; therefore, marketing efficiency is a critical factor in improving the flow of goods from producers to consumers. Through marketing efficiency analysis, price differences between fishers and marketing institutions can be identified, including the feasibility of the income received by fishers and other stakeholders involved in marketing activities. High fisheries production must be supported by efficient marketing systems, particularly considering the perishable nature of fishery products. Therefore, this study aims to identify marketing channels, marketing margins, marketing efficiency, and price differences of yellowfin tuna (*T. albacares*) at Bungus Fishing Port, West Sumatra.

2. Material and Method

2.1. Time and Place

This study was conducted from July 25 to August 16, 2023, at the Bungus Ocean Fishing Port (PPS Bungus), Labuhan Tarok Subdistrict, Bungus Teluk Kabung District, Padang City, West Sumatra Province, Indonesia.

2.2. Methods

The data were obtained from interviews with the ship captain on selling prices, purchase prices, and marketing costs, as well as statistical data from the Samudra Bungus Fishery Port on the number of ships, ship sizes, fishing gear used, and the companies involved in marketing.

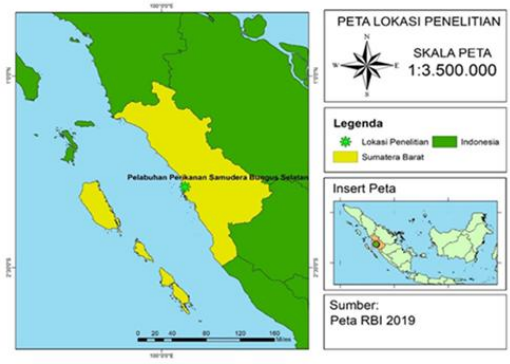

Figure 1. Map of the study area

2.3. Data Analysis

The data analysis in this study includes marketing margins, marketing costs, marketing profits, Fisherman's Share, marketing efficiency, and water productivity. Data were processed using Microsoft Excel and SPSS version 26.

2.3.1. Marketing Margin

The marketing margin was calculated using the formula proposed by Hanafie (2010): MP = Pr - Pf. Description: Pr (Retail Price) (IDR) = the selling price of yellowfin tuna at the company level, which constitutes part of the marketing channel; Pf (Producer Price) (IDR) = the price of yellowfin tuna received by fishermen

2.3.2. Marketing Costs and Profit

Marketing efficiency can be measured by comparing marketing costs with the value generated or the marketing margin.

$$Bp^1 + Bp^2 + Bp^3 \ldots.. Bp^n$$

This profit is calculated by subtracting marketing costs using the following formula: KP = MP – BP. Description: Kp = Marketing Profit (IDR/kg); Mp = Marketing Margin (IDR/kg); Bp = Marketing cost (IDR/kg).

2.3.3. Fisherman Share

The proportion of the price received by producers relative to the price paid by final consumers was calculated using the Fisherman's Share formula proposed by Hanafiah & Saefuddin (2006).

$$Fs = \frac{Pr}{Pf} X\ 100\%$$

Description: Fs = The percentage received by fishermen; Pf = The price at the fishermen's level (IDR/kg); Pr = The price at the company level (IDR/kg).

2.3.4. Marketing Efficiency

The variables obtained were subsequently analyzed using the marketing efficiency formula and evaluated based on efficiency criteria referring to Maisyaroh et al. (2014), as follows:

$$EFS = \left(\frac{\text{Marketing Cost}}{\text{Value of Marketed Product}} \right) \times 100\ \%$$

If EFS > 5%, the marketing channel is considered inefficient, indicating it does not operate optimally; if EFS < 5%, the marketing channel is considered efficient, indicating it operates efficiently and can achieve the desired outcomes. According to Ghozali (2012), a comparative test is used to examine differences between two samples from each group or company. If the probability value in the t-test is greater than 0.05, it can be concluded that there is no significant difference between the groups. Conversely, if the probability value in the t-test is less than 0.05, it can be concluded that a significant difference exists. This study employed SPSS version 26 for data analysis.

2.3.5. Analisis Productivity

According to Saputra et al. (2011), capture fisheries productivity refers to the total weight of catch obtained from fishing activities. One commonly used formula to measure capture fisheries productivity in research is as follows:

$$\text{Productivity per GT: } \left(\frac{\text{Total Catch}}{\text{Number of Vessels}} \right)$$

3. Result and Discussion

3.1. Analysis of Productivity

The productivity of fishing vessels was calculated by dividing the monthly catch per vessel by the number of vessels with a size of <30 GT, as shown in Figure 2.

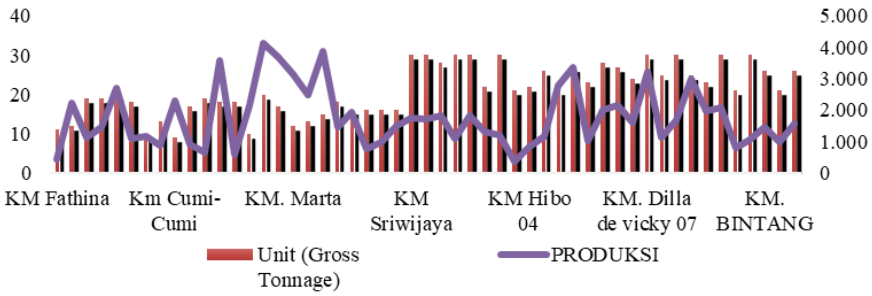

Figure 2. Trend of productivity per vessel

Figure 2 shows total production, averaging 1,771.37 kg per vessel per month. This analysis reflects the productivity of the fishing grounds in the yellowfin tuna fishing area at PPS Bungus, where vessels <30 GT achieved a significant catch during the study period. Comparisons of productivity among vessels provide insights into the effectiveness and efficiency of individual vessels in capturing fish. In addition, these data can be used to develop more effective fishing strategies in the future. This finding is consistent with the study by Kelly et al. (2022), which highlights the importance of monitoring vessel productivity in sustainable fisheries management. Analysis of vessel productivity data helps understand stock distribution and formulate appropriate management policies. By considering vessel productivity data, fisheries management can take measures to improve fishing efficiency, sustain fish stocks, and ensure the overall welfare of fishers.

Fishing vessel productivity is an important parameter for evaluating fishing performance in a particular fishing ground. In this context, the average production per vessel provides an overview of the potential catch from each vessel unit. Higher vessel productivity indicates more efficient use of resources and fishing time. Analysis of productivity per vessel is essential for evaluating operational efficiency and each vessel's performance in fishing activities. This information can be used to identify the most effective vessels for catching yellowfin tuna and to design better management strategies to ensure the sustainability of fishery resources.

The data presented show significant variation in productivity among vessels. Vessel productivity data are important for evaluating each vessel's relative contribution to total fish production. These differences indicate that the contribution of individual vessels to total catches is not uniform. This concept aligns with the findings of Setiawan et al. (2019), who reported differences in productivity among fishing vessels due to variations in fishing operation strategies and the characteristics of fishing grounds. Vessels with high productivity are more effective at catching yellowfin tuna, while those with lower productivity may require further evaluation of fishing techniques or other factors affecting their performance. However, productivity does not always correlate with vessel size. Although larger vessels may have greater catch capacity, factors such as crew size, trip duration, and fishing gear type also influence productivity. Therefore, vessels with larger gross tonnage (GT) do not necessarily produce higher catches. This finding contrasts with Gilman et al. (2021), who stated that vessel size (gross tonnage/GT) has a significant effect on catch production, with larger vessels yielding higher catches. Nevertheless, these results must be evaluated within the specific context of each fishing operation, as other factors such as crew size and fishing gear also play a role in determining vessel productivity. Consequently, analyses of vessel productivity should consider multiple influencing factors, including vessel size, to obtain a comprehensive understanding of fishing performance.

3.2. Age Distribution of Respondents

Age is a significant determinant of work productivity. As age increases, physical activity capacity tends to decline. This condition is reflected in respondents' physical abilities to carry out fishing-related activities and operational efforts. Data analysis shows that the respondents interviewed at PPS Bungus were classified into several age groups, as shown in Table 1.

Based on the research results, the majority of respondents (70.59%, 42 individuals) were in the 21–31 age group. The 32–42 age group accounted for 23.52% of respondents, while the 43–53 age group accounted for only 5.89% of respondents. These results indicate that all vessel captains at PPS Bungus were still within the productive age range, consistent with the view of Mahendra et al. (2014), who stated that the productive age range spans from 16 to 64 years. Within this range, physical strength and work capacity tend to decline as individuals move beyond their peak productive period.

Table 1. Respondents by age at PPS Bungus

No	Age	Number of Respondents (Persons)	Percentage (%)
1	21-31	36	70,59
2	32-42	12	23,52
3	43-53	3	5,89
	Jumlah	51	100

3.3. Respondents Based on Education Level

Education level is a key factor influencing respondents' characteristics at PPS Bungus. Data analysis shows the distribution of respondents by education level, as shown in Table 2.

Table 2. Respondents by education level at PPS Bungus

No	Education Level	Number of Respondents (Persons)	Percentage (%)
1	SD	4	7,85
2	SMP	10	19,60
3	SMU	37	72,55
	Jumlah	51	100

Based on the research results, the majority of respondents (72.55%) had a senior high school education or equivalent. Respondents with an elementary school education accounted for 7.85%, while those with junior high school education or equivalent comprised 19.60%. Education has a significant impact on ways of thinking and work productivity. Furthermore, Konoralma et al. (2020) stated that communities with lower educational levels tend to rely on occupations such as vessel captains or fishers, particularly because their livelihoods are closely related to marine resources and because they live in coastal areas. These findings reflect the variation in educational levels among fishers at PPS Bungus.

3.4. Respondents' Work Experience at PPS Bungus

Work experience reflects the length of time and level of understanding a person has in performing their job. The longer an individual works, the more skilled and efficient they become in completing tasks. The results of interviews conducted at PPS Bungus are presented in Table 3.

Table 3. Respondents with work experience at PPS Bungus.

No	Work Experience (Years)	Number of Respondents (Persons)	Percentage (%)
1	5-10	35	68,63
2	11-15	11	21,57
3	16-20	5	9,80
	Total	51	100

Based on Table 3, the majority of respondents (68.63%) had 5–10 years of work experience as vessel captains. A total of 21.57% of respondents had 11–15 years of experience, while only 9.80% had 16–20 years. The results indicate that most fishers at PPS Bungus possess a relatively high level of work experience. Substantial work experience can influence skill development and operational efficiency in carrying out their duties and responsibilities as fishers. This finding is consistent with Khair et al. (2021), who stated that the longer an individual's work experience, the more skilled and efficient they become in completing their assigned tasks.

3.5. Marketing Channel of PT Dempo Andalas Samudera

The marketing channel for yellowfin tuna is marketed through PT. Dempo Andalas Samudera at PPS Bungus is presented in Figure 3.

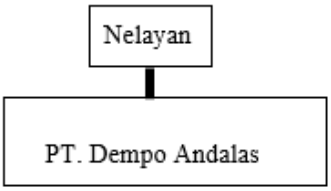

Figure 3. Marketing channel diagram of PT. Dempo Andalas Samudera

The marketing channel pattern of PT. Dempo Andalas Samudera at PPS Bungus is a direct or simple marketing channel. In this channel, fishermen as producers sell yellowfin tuna directly to PT. Dempo Andalas Samudera without involving intermediaries. This direct involvement allows for better control over product quality and greater efficiency in distribution. According to Kotler & Keller (2021), direct marketing channels enhance quality control and distribution efficiency between producers and business actors. In this context, the role of producers, particularly fishermen, is crucial in maintaining product quality and ensuring product success. All marketing

activities are conducted within PPS Bungus, creating an efficient and direct marketing channel between fishermen and PT. Dempo Andalas Samudera.

3.6. Marketing Channel of PT Lintas Laut Samudera

The marketing channel for yellowfin tuna is marketed through PT. Lintas Laut Samudera at PPS Bungus is presented in Figure 4.

Figure 4. Marketing channel diagram of PT. Lintas Laut Samudera

The marketing channel pattern of PT. Lintas Laut Samudera at PPS Bungus is similar to that of PT. Dempo Andalas Samudera. PT. Lintas Laut Samudera uses a simple marketing channel that directly involves fishermen as producers who sell yellowfin tuna to the company, bypassing multiple intermediaries. This system is classified as a direct marketing channel, which enables distribution efficiency and better control over product quality. Abad et al. (2024) reported that efficient marketing channels involve fewer intermediaries; thus, the fewer intermediaries, the more effective the channel. Although this marketing channel provides more proportional benefits for fishermen or producers, market price fluctuations may lead to income uncertainty for both producers and marketing institutions. This finding is consistent with the study by Fatmawati & Zulham (2019), which emphasized that fewer intermediaries result in a simpler marketing flow.

3.7. Marketing Costs, Margins, Profits, and Fisherman's Share of PT Dempo Andalas Samudera.

The average marketing costs, marketing profits, and Fisherman's Share in the marketing channel of PT Dempo Andalas Samudera at PPS Bungus are presented in Table 4.

Table 4. Marketing costs, margins, profits, and fisherman's share of yellowfin tuna at PT. Dempo Andalas Samudera

Description	Value (IDR/kg)
Fishermen	
Costs	
a. Fuel Cost	13.199,57
b. Provision Cost	6.399,57
c. Crew Wage Cost	1.333,33
d. Skipper Wage Cost	5.360,17
e. Ice Block Cost	38,4
Total Cost	19.931,47
Selling price	35.000
Profit	15.068,53
Marketing Costs	
a. Transportation cost	23.13
b. Handling cost	527,9
Total marketing cost	551,03
Price at Company B	47.000
Marketing margin	12.000
Marketing profit	11.448,97
Marketing efficiency (%)	1,17
Fisherman's Share (%)	74,46

Based on the data presented in Table 4, fishermen sell yellowfin tuna to PT. Dempo Andalas Samudera at IDR 47,000 per kg. This marketing channel arises because fishermen have established long-term agreements with the company before going fishing. Transactions are generally conducted in large volumes, ranging from 500 kg to 1 ton, with a transaction frequency of approximately 2 to 4 times per day, depending on unloading activities at PPS Bungus. The marketing margin obtained is IDR 12,000 per kg, representing the difference between the selling price of PT. Dempo Andalas Samudera and the market price of IDR 35,000 per kg. This margin reflects the additional profit earned by fishermen from yellowfin tuna marketing activities. This finding is consistent with Kotler & Keller (2021), who define the marketing margin as the difference between the price a company charges for a product and the prevailing market price at the port. This margin constitutes additional profit that fishermen, as producers, obtain from their marketing activities.

During sea-based fishing operations, fishermen incur substantial costs. These costs include IDR 6,399.57 per kg for supplies during fishing trips, including fuel costs; IDR 1,333.33 per kg for crew (ABK) wages; IDR 5,360.17 per kg for skipper wages; and IDR 38.40 per kg for ice block costs. Marketing-related costs include IDR 23.13 per kg for loading labor and IDR 527.90 per kg for berthing fees. Before selling their yellowfin tuna catches,

fishermen carefully estimate all fishing-related expenses. Overall, the costs incurred by fishermen are relatively high, whether calculated per kilogram or per ton, depending on production targets and fishing seasons. Marketing costs are expenses incurred to facilitate product distribution. These costs arise due to the distance between producers and marketing institutions. When distances are short, transportation costs can be minimized. Conversely, longer distances between producers, traders, and consumers entail more intermediaries, thereby increasing marketing costs (Arbi et al., 2020).

As shown in Table 4, the total fishing costs incurred by fishermen, including fuel, crew wages, skipper wages, and ice blocks, amount to IDR 19,931.47 per kg of fish. After deducting these costs from the market selling price of IDR 35,000 per kg, fishermen obtain a profit of IDR 15,068.53 per kg. Marketing costs, consisting of loading labor and berthing fees, total IDR 551.03 per kg. The profit from sales to PT. Dempo Andalas Samudera, at IDR 11,448.97 per kg, represents the difference between the company's purchase price and its total marketing costs. The length of the marketing channel influences this profit. According to Jobber et al. (2002), marketing costs and profits are key determinants of marketing success. Brassington & Pettitt (2013) also emphasize the importance of accounting for all marketing and distribution costs to calculate profits accurately. Understanding this relationship enables stakeholders to take measures to improve efficiency and profitability within the yellowfin tuna supply chain.

Marketing efficiency measures how effectively a marketing institution utilizes available resources to achieve marketing objectives. In this study, marketing efficiency is calculated as the percentage ratio of marketing costs to the product's selling price. The marketing efficiency value for PT. Dempo Andalas Samudera is 1.17%. The lower the marketing efficiency percentage, the better the marketing performance in generating profits from product sales. According to Abidin et al. (2020), if the marketing efficiency percentage is below 5%, the marketing channel is considered optimal and capable of achieving desired outcomes. This indicates efficient resource utilization, with costs relatively low compared to sales revenue, enabling the marketing channel to meet its intended objectives.

Fisherman's Share refers to the percentage of profit received by fishermen, calculated as the ratio of fishermen's income to the selling price. The results show that fishermen receive approximately 74.46%, exceeding the 50% threshold, indicating that a substantial portion of the profit is allocated to them as producers. The higher this percentage, the greater the Share of profits received by fishermen from selling their products to the company. Conversely, when the Share exceeds 50%, fishermen obtain a significant portion of the profit, thereby improving welfare and participation in fisheries activities. This finding suggests that fishermen receive a large share of the selling price of yellowfin tuna, likely due to efficient marketing practices, lower marketing costs, or fair profit-sharing policies implemented by the company.

3.8. Marketing Costs, Margins, Profits, and Fisherman's Share of PT. Lintas Laut Samudera

The average marketing costs, marketing profits, and Fisherman's Share in the marketing channel of PT Lintas Laut Samudera at PPS Bungus are presented in Table 5.

Table 5. Marketing costs, margins, profits, and fishermen's Share of yellowfin tuna at PT. Lintas Laut Samudera

Description	Value (IDR/Kg)
Fishermen	
Costs	
a. Fuel Cost	13.199,57
b. Provision Cost	6.399,57
c. Crew Wage Cost	1.333,33
d. Skipper Wage Cost	5.360,17
e. Ice Block Cost	38,4
Total Cost	19.931,47
Selling price	35.000
Profit	28.268,1
Marketing Costs	
a. Transportation cost	23.13
b. Handling cost	527,9
Total marketing cost	551,03
Price at Company B	48.000
Marketing margin	13.000
Marketing profit	12.448,97
Marketing efficiency (%)	1,14
Fisherman's Share (%)	72,91

Based on the data presented in Table 5, fishermen sell yellowfin tuna to PT. Lintas Laut Samudera at IDR 48,000 per kg at PPS Bungus. This price differs from the price applied in PT's marketing channel. Dempo Andalas Samudera. The price difference may be attributed to PT's higher production requirements. Lintas Laut Samudera compared to PT. Dempo Andalas Samudera. The marketing channel applied is not substantially different from the

previous channel. The costs incurred by fishermen remain the same, and the purchase price received by the company is determined through direct agreements with fishermen.

The marketing margin at PT. Lintas Laut Samudera is IDR 13,000 per kg, reflecting the difference between the company's selling price for yellowfin tuna and the prevailing market price. This margin indicates the profit obtained from marketing activities and arises from the difference between the selling price of Rp 48,000 per kg to PT. Lintas Laut Samudera and the market price of IDR 35,000 per kg. The greater the marketing margin, the higher the profit earned by fishermen. According to Indriyani et al. (2022), a high marketing margin reflects an efficient marketing channel in which producers gain substantial added value from marketing activities. Thus, the marketing margins achieved by fishermen reflect the effectiveness of the marketing channel, enabling them to achieve higher margins through direct relationships with the company.

Before fishing operations, fishermen at PPS Bungus typically establish agreements with business actors through production or sales contracts. Each transaction with PT. Lintas Laut Samudera generally involves the purchase of yellowfin tuna in significant quantities, ranging from 600 kg to more than 1 ton. These transactions may occur 2 to 4 times per day, depending on the unloading of yellowfin tuna at PPS Bungus. Business actors provide capital support to fishermen in the form of fuel allowances and fishing supplies to ensure that production needs are met. In other words, the higher the costs, the higher the selling price required to cover them and achieve maximum profit.

During fishing operations at sea, fishermen incur various costs, and before selling their yellowfin tuna catches, they estimate all fishing-related expenses. These costs include IDR 13,199.57 per kg for fishing supplies, including fuel; IDR 1,333.33 per kg for crew (ABK) wages; IDR 5,360.17 per kg for skipper wages; and IDR 38.40 per kg for ice block costs. Marketing costs include IDR 23.13 per kg for loading labor and IDR 527.90 per kg for berthing fees. The distance between fishing grounds and marketing centers can influence transportation, fuel, and overall logistics costs. According to Ismail (2008), longer distances increase transportation and logistics costs. Kotler & Keller (2021) define marketing costs as all expenditures incurred to promote products or services, including distribution, promotion, and selling costs. In this context, fishermen's marketing costs include fuel, crew wages, skipper wages, and ice block costs, while port-related marketing costs consist of loading labor and berthing fees. Overall, the average costs incurred by fishermen are relatively high, whether calculated per kilogram or per ton, depending on production targets or fishing seasons. High marketing costs may also add value to the selling price (Kaygisiz & Eken, 2017).

The costs incurred by fishermen, including fuel, crew wages, skipper wages, and ice blocks, amount to a total marketing cost of IDR 19,931.47 per kg of fish. After deducting the market selling price of IDR 35,000 per kg, fishermen obtain a profit of IDR 28,268.10 per kg. Marketing costs, consisting of loading labor and berthing fees, total IDR 551.03 per kg of fish. Based on the data presented, the profit per kg is IDR 12,448.97. This profit represents the difference between the selling margin (IDR 48,000 − 35,000) and the total marketing costs. The profit reflects the amount earned after deducting all expenses associated with product marketing, such as transportation and berthing costs. Thus, this profit constitutes the residual income after accounting for all expenditures related to the marketing process of yellowfin tuna. Overall, the marketing channel of PT. Lintas Laut Samudera generates higher profits than the marketing channel of PT. Dempo Andalas Samudera. These profits result from greater efficiency and effectiveness in the marketing channel. Factors such as contractual agreements with companies, catch volume, and fishing location also contribute to the magnitude of marketing costs and profits obtained by fishermen in selling yellowfin tuna at PPS Bungus.

The marketing efficiency level of PT. Lintas Laut Samudera is 1.14%, indicating how well marketing costs are managed to achieve profitability. The lower the percentage, the more efficient the marketing system. A comparison shows that the marketing efficiency levels of both PT. Lintas Laut Samudera and PT. Dempo Andalas Samudera are below 5%, indicating that both marketing channels operate efficiently. This finding is consistent with Maisyaroh et al. (2014), who stated that marketing channels are considered inefficient if marketing efficiency exceeds 5%, whereas values below 5% indicate efficient marketing performance. Therefore, the marketing of yellowfin tuna through both channels can be classified as efficient.

The fisherman's Share obtained in the marketing channel of PT. Lintas Laut Samudera is 72.91%, indicating the proportion of profit received by fishermen as producers of yellowfin tuna. The higher this percentage, the greater the Share of profits received by fishermen. Comparative analysis indicates that fishermen receive a slightly higher fisherman's Share in the marketing channel of PT. Dempo Andalas Samudera is more than PT. Lintas Laut Samudera. This suggests that fishermen obtain a higher proportion of profits in the marketing channel represented by PT. Dempo Andalas Samudera. It can also be interpreted that there is no substantial difference in fishermen's Share between the marketing channels of PT. Dempo Andalas Samudera and PT. Lintas Laut Samudera, as the fisherman's Share in both channels exceeds 50%. According to Septiani et al. (2016), a marketing channel is considered efficient when the producer's Share (fisherman's Share) exceeds 50%, indicating that fishermen receive a significant portion of the selling price of yellowfin tuna. This high percentage may result from efficient marketing activities, lower marketing costs, or fair profit-sharing policies. Conversely, if the fisherman's Share is below 50%, the marketing channel is considered inefficient.

3.9. Marketing Efficiency

The marketing efficiency of yellowfin tuna at PPS Bungus can be measured by calculating the ratio of marketing costs to the final value of the marketed product, then multiplying by 100%. Marketing efficiency data for each marketing channel are presented in Table 6.

Table 6. Marketing efficiency of yellowfin tuna in each marketing channel

No	Marketing Channel	Marketing cost (IDR/kg)	Final value of yellowfin tuna (IDR/Kg)	Marketing Efficiency (%)
1.	Channel I	20.482,5	47.000	1,17
2.	Channel II	20.482,5	48.000	1,14

Based on Table 6, the marketing efficiency of the PT. Dempo Andalas Samudera channel is 1.17%, while the marketing efficiency of the PT. Lintas Laut Samudera channel is 1.14%. This indicates that the marketing channel of PT. Dempo Andalas Samudera has a slightly higher efficiency than PT. Lintas Laut Samudera. However, based on the percentage values, both marketing channels are considered efficient, as their efficiency levels are below 5%.

This assessment is supported by the findings of Abidin et al. (2017), who stated that the marketing efficiency percentage reflects the magnitude of costs incurred by traders within a marketing channel. A marketing channel is considered efficient when its efficiency value is less than 5%, indicating that it operates efficiently and can achieve the desired outcomes. These results demonstrate that the marketing channels of PT. Dempo Andalas Samudera and PT. Lintas Laut Samudera can minimize marketing costs when marketing yellowfin tuna at PPS Bungus.

3.10. Statistical Test of Marketing Prices Between Marketing Institutions.

The purpose of this statistical test is to determine whether there are differences in marketing prices between PT Dempo Andalas Samudera and PT Lintas Laut Samudera at PPS Bungus.

Table 7. Marketing prices between the marketing channels of PT. Dempo Andalas Samudera and PT Lintas Laut Samudera

Description	PT. Dempo Samudera Andalas	PT. Lintas Laut Samudera	Sig
	Value (IDR/kg)		
Selling Price	47.000	48.000	0,971

The table above compares the selling prices of yellowfin tuna between PT. Dempo Andalas Samudera and PT. Lintas Laut Samudera. As shown in the table, the selling price offered by PT. Dempo Andalas Samudera is IDR 47,000 per kg, while PT. Lintas Laut Samudera offers a selling price of IDR 48,000 per kg. In addition, the significance value (Sig.) obtained from the statistical test is 0.971.

These results indicate that there is no statistically significant difference in the selling prices of yellowfin tuna between the two companies. Although the selling price offered by PT. Lintas Laut Samudera is slightly higher than PT's. Dempo Andalas Samudera, the difference is not statistically significant. This is supported by the high p-value (0.971), which exceeds the 0.05 threshold, indicating that there is no significant difference in selling prices between the two companies. This finding is consistent with the study by Nurdin et al. (2020), which stated that selling price is a key factor in determining the success of fisheries product marketing. They emphasized the importance of companies understanding market conditions and setting competitive prices to enhance competitiveness and profitability.

4. Conclusions

The marketing channels for yellowfin tuna at PPS Bungus, West Sumatra, are classified as efficient, including those of PT. Dempo Andalas Samudera and PT. Lintas Laut Samudera. The marketing margin of yellowfin tuna at PPS Bungus through PT. Dempo Andalas Samudera is IDR 12,000 per kilogram, while the marketing margin through PT. Lintas Laut Samudera is Rp 13,000 per kilogram, slightly higher than PT's. Dempo Andalas Samudera. The marketing efficiency values of the yellowfin tuna marketing channels at PPS Bungus, both for PT. Dempo Andalas Samudera and PT. Lintas Laut Samudera is less than 5%. This indicates that both marketing channels operate efficiently in minimizing marketing costs. Furthermore, the analysis shows that there is no significant difference in the selling prices of yellowfin tuna at PPS Bungus between PT. Dempo Andalas Samudera and PT. Lintas Laut Samudera. Therefore, both companies implement efficient, competitive marketing systems for the trade in yellowfin tuna at PPS Bungus.

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