

Economics of Fish Marketing in Yenagoa Local Government Area, Bayelsa State, Nigeria

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Abstract

The study ascertained the socio-economic characteristics of fish marketers, determined the structure, efficiency of the fish marketers. It described the processing, storage, and transportation methods used in the study area, identified the constraints and made practical recommendations. The study adopted a survey research design with a sample size of 100 fish sellers. The study indicated that 36.1% of the respondents were in the age range of 31 – 40 years, while females, at 65.1%, dominated fish marketing in the study area. Most marketers, 56.6%, were married. 33.7% of the fish marketers' monthly income was between N51, 000 – N100, 000, suggesting that fish marketing contributes significantly to their livelihood. The study identified high transportation costs, poor road networks, lack of cold storage facilities, price fluctuations, and inadequate government support as major constraints faced by fish marketers in the study area. The study recommends investments in construction and rehabilitation of feeder and market access roads to reduce transportation costs and minimize post-harvest losses during fish transportation. Financial institutions, and cooperative societies should provide soft loans and grants tailored to the needs of small-scale fish marketers.

Keywords: Fish Marketing; Structure; Profitability; Constraints.

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INTRODUCTION

Fish is an important source of good quality protein required in human diets. It has the highest level of easily metabolisable protein, fats, vitamins, calcium, iron and essential amino acids when compared to other sources of animal protein such as poultry and beef. Fish is important to the ever increasing Nigerian population, especially in the Niger Delta Area, as it is the major source of high quality animal protein intake of the population especially in rural communities.

Fish, provide not only high-value protein but also represent an important source of a wide range of essential micro nutrients minerals and fatty acids which benefits human health (FAO, 2022).

In many developing countries, fish is very much in demand because it is often the cheapest source of animal protein, fish is also readily digestible and immediately utilizable by human body which makes it suitable for complementing the high carbohydrate diets prevailing in almost all the developing countries of the world (FAO, 2018).

Marketing is a process of exchanging goods and services from one person to another with reference to price. A fish market is a place used for marketing of fish and fish products. However, fish marketing essentially consist of all activities involved in delivering fish from one producer to the consumer, while distribution provides channels that link the marketing institutions and producers together.

However, fresh fish marketing in Nigeria is faced with several constraints. These include inadequate storage facilities, high transportation costs, poor road networks, lack of access to credit facilities, spoilage due to the perishable nature of fish, fluctuating prices, poor market infrastructure, and seasonal variations in fish supply. These challenges reduce marketing efficiency and profitability among fish marketers. Researchers observed that transportation and storage costs constitute a major portion of marketing expenses, thereby affecting the returns realized by marketers (Adewumi et al., 2012; Effiong & Igiri, 2015).

Furthermore, socioeconomic factors such as education, marketing experience, household size, access to capital, and membership in cooperative societies also influence the profitability and efficiency of fresh fish marketing. Marketers with better access to finance and market information are more likely to maximize profits and reduce losses associated with fish spoilage (Babalola et al., 2015).

In Nigeria, fish contributes significantly to dietary protein intake, accounting for a substantial proportion of animal protein consumed by households, especially among low-income groups (FAO, 2020; Adewumi & Olaleye, 2019).

Due to its relative affordability compared to other protein sources such as beef and poultry, fish is widely consumed across different socioeconomic groups in Nigeria. This makes fish a strategic commodity in achieving food security and improving public health outcomes (WorldFish, 2018; Béné et al., 2015).

The demand for fish in Nigeria has increased significantly over the years as a result of rapid population growth, urbanization, and changing dietary patterns. Nigeria's population growth has created a widening gap between fish demand and domestic production, leading to increased reliance on imports and pressure on local supply systems (FAO, 2022; Federal Department of Fisheries, 2021).

Globally, fish consumption continues to rise due to its recognized health benefits and increasing awareness of balanced diets. In Nigeria, per capita fish consumption remains below the global average, yet it continues to increase steadily, indicating a strong and growing market for fish products (FAO, 2020; World Bank, 2020).

Fish marketing plays a vital role in bridging the gap between fish production and consumption by facilitating the movement of fish from producers to final consumers. It involves activities such as assembling, grading, storage, transportation, and distribution, all of which contribute to the creation of time, place, and form utility (Olukosi et al., 2012; Adegeye & Dittoh, 2018).

In Nigeria, the fish marketing system is largely dominated by small-scale traders, wholesalers, retailers, and intermediaries who operate within informal market structures. These actors ensure continuous supply of fish products despite infrastructural and institutional challenges, although their activities are often characterized by inefficiencies (Olaoye et al., 2015; Nwabeze et al., 2013).

Artisanal fisheries contribute significantly to fish production in Nigeria and serve as the primary source of livelihood for many rural households. This sector relies on traditional fishing methods and supports a large proportion of the population, particularly in coastal and riverine areas (Akinrotimi et al., 2007; FAO, 2018).

The fisheries sector also contributes substantially to employment generation and income creation in Nigeria. Millions of people are engaged directly or indirectly in fishing, processing, and marketing activities, highlighting the importance of fish marketing as a driver of economic development (World Bank, 2020; Béné et al., 2016).

Due to the highly perishable nature of fresh fish, efficient handling, preservation, and transportation are required to maintain quality and minimize losses (Eyo, 2001; Davies & Davies, 2009).

Post-harvest losses remain a major challenge in fresh fish marketing in Nigeria. These losses occur as a result of inadequate storage facilities, poor handling practices, and lack of cold chain systems, leading to reduced availability of fish and loss of income for marketers (Akinneye et al., 2010; FAO, 2019).

Transportation plays a crucial role in fish marketing as it determines how quickly fish can be delivered to markets. Poor transportation infrastructure, especially in rural and riverine areas, increases marketing costs and contributes to spoilage due to delays (Ogunlade et al., 2012; Nwabeze et al., 2013).

The structure of fish marketing in Nigeria involves multiple intermediaries, including wholesalers and retailers. While these intermediaries facilitate distribution, they also increase marketing margins and reduce the share of profits received by producers (Olukosi et al., 2012; Adegeye & Dittoh, 2018).

Yenegoa Local Government Area of Bayelsa State is one of the major fishing zones in the Niger Delta region. The area is endowed with abundant rivers, creeks, and estuaries that support extensive fishing activities, making fishing a dominant occupation (Akinrotimi et al., 2007; Allison & Ellis, 2001).

In Yenegoa Local Government Area of Bayelsa State, artisanal fishing is the predominant form of fish production, with most fishermen operating on a small scale using traditional fishing

gear. The fish harvested is mainly sold fresh, making marketing activities crucial for income generation (Akinrotimi et al., 2007; Eyo, 2001).

Fresh fish marketing in Yenegoa Local Government Area of Bayelsa State provides employment opportunities for various stakeholders, including fishermen, processors, transporters, wholesalers, and retailers. This interconnected value chain supports rural livelihoods and contributes to local economic development (Béné et al., 2016; WorldFish, 2018).

Despite the abundance of fish resources, the marketing of fresh fish in Yenegoa Local Government Area of Bayelsa State faces several challenges that limit its efficiency. Poor transportation infrastructure and reliance on waterways increase costs and reduce accessibility to markets (Ogunlade et al., 2012; Nwabeze et al., 2013).

Another major constraint is the lack of adequate storage and preservation facilities. The absence of cold storage systems leads to rapid spoilage of fish, resulting in significant post-harvest losses and reduced income for marketers (Akinneye et al., 2010; FAO, 2019).

Limited access to credit and financial services also affects fish marketers in the study area. Most marketers rely on personal savings or informal credit sources, which restricts their ability to expand operations and adopt improved technologies (Olaoye et al., 2015; Adewumi & Olaleye, 2019).

Seasonal variations in fish supply further complicate marketing activities. During periods of abundance, prices tend to fall, while scarcity during off-seasons leads to higher prices, creating instability in the market (Eyo, 2001; Davies & Davies, 2009).

Understanding the economics of fresh fish marketing is therefore essential for improving efficiency, profitability, and sustainability in the sector. Economic analysis helps identify cost structures, returns, and factors influencing performance, providing a basis for policy interventions (Olukosi et al., 2012; Adegeye & Dittoh, 2018).

Improving fish marketing systems can enhance income generation, reduce post-harvest losses, and ensure the availability of affordable fish products. This will contribute to food security, poverty reduction, and sustainable rural development in Southern Ijaw and Nigeria as a whole (WorldFish, 2018). Yenegoa Local Government Area of Bayelsa State is endowed with abundant water resources, making fishing a major economic activity. The area is characterized by artisanal fishing, and fresh fish marketing forms a significant source of livelihood for the residents. However, despite the importance of fish marketing, challenges such as poor infrastructure, high transportation costs, and lack of storage facilities affect its efficiency (FAO, 2020).

Poor transportation infrastructure in the riverine environment of Yenegoa Local Government Area of Bayelsa State significantly increases the cost and time involved in moving fish from landing sites to markets. The reliance on water transport and poorly developed road networks often leads to delays, perishability, and increased marketing costs, thereby reducing overall profitability (Ogunlade et al., 2012; Nwabeze et al., 2013). These infrastructural deficiencies limit market accessibility and reduce the efficiency of the fish marketing system.

Furthermore, limited access to credit and financial resources constitutes a major constraint to fish marketers in the study area. Most marketers operate on a small scale and depend largely on personal savings or informal credit sources, which restricts their capacity to expand their

businesses or invest in improved storage and transportation technologies (Olaoye et al., 2015; Adewumi & Olaleye, 2019). This financial limitation reduces their ability to cope with market uncertainties and operational risks.

Empirical studies have shown that although fresh fish marketing is generally profitable in Nigeria, inefficiencies within the marketing system often prevent marketers from achieving optimal returns (Olukosi et al., 2012; Adegeye & Dittoh, 2018). These inefficiencies are reflected in high transaction costs, price fluctuations, and poor market coordination. Moreover, the presence of multiple intermediaries in the marketing chain tends to reduce the share of profit accruing to primary producers, thereby discouraging increased production and participation in the sector (Nwabeze et al., 2013).

Despite the economic importance of fresh fish marketing in Yenegoa Local Government Area of Bayelsa State, there is limited empirical information on the cost structure, returns, and factors influencing marketing efficiency in the area. This lack of adequate data makes it difficult to design effective policies and interventions aimed at improving the performance of the sector. Therefore, there is a need for a comprehensive analysis of the economics of fresh fish marketing in the study area.

METHODOLOGY

Area of the Study

The study was conducted in Yenagoa Local Government Area (YELGA), which is one of the eight Local Government Areas that make up Bayelsa State, in the South-South geopolitical zone of Nigeria.

Sample Size and Sampling Procedure

The sample size for the study was 100 fish sellers. A multistage sampling comprising of purposive and random technique were used.

Stage one: All the major fish marketers were identified, and the list of these fish sellers formed the sampling frame.

Stage two: From this frame, 40 fish sellers were randomly selected from Swali Market, 30 from Tombia Market, and 30 from Opolo Market, this selection was based on the size and population of the market. This gave a total sample size of 100 fish marketers used in this study.

The study used a sample of 100 fish sellers drawn from the 300 registered fish sellers in Yenegoa Local Government Area of Bayelsa State. The sample size was determined using the Taro Yamane's formula at a 5% level of precision:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = required sample size

N = population size (300)

e = level of precision (0.05)

$$\text{Therefore: } n = \frac{300}{1 + 300(0.05)^2}$$

$$n = 100$$

It should be noted that during field data gathering, only 83 of the respondents were available.

Method of Data Collection

Both primary and secondary sources of data were employed in this study.

Primary data was collected with the aid of a well-structured and pre-tested questionnaire administered to the respondents. Secondary data were obtained from published and unpublished sources such as journals, textbooks, articles, reports, and technical publications.

Method of Data Analysis

The data obtained were analyzed using descriptive statistics such as percentages, frequency, and mean.

Technical Inefficiency

The impact of technical inefficiency is caused by behavior-based problems that may be resolved by competent management (Xu and Jeffrey, 1998). The incorrect term ('s) is assumed to not affect them. The inefficiency model was used to identify and compare the factors affecting the efficiency of fish marketing in the research location.

Below is the explicit presentation of the calculated technical inefficiency:

$$\mu_i = \delta_0 + \delta_1 X_1 + \delta_2 X_2 + \delta_3 X_3 + \delta_4 X_4 + \delta_5 X_5 + \delta_6 X_6 + \delta_7 X_7 + \dots \quad (1)$$

Where: μ_i = X1 = Inefficiency effect Age of farmer (years)

X2 = Gender (dummy variables: 1 female and 0 male)

X3 = marital status (dummy variables: 1 married and 0 single)

X4 = Family Size (number of persons in the household)

X5 = Education (level of education)

X6 = Primary Occupation (major occupation)

X7 = Experience of farmer (years)

δ_0 = Constant

δ 's = Parameters to be estimated

RESULTS AND DISCUSSION

Data Presentation

Table 1: Socio-Economic Characteristics of Respondents

S/No	Items	Frequency	Percentage(%)
1	Age (years)		
	Below 20	3	3.6
	21–30	20	24.1
	31–40	30	36.1
	41–50	18	21.7
	Above 50	12	14.5
	Total	83	
2	Gender		
	Male	29	34.9
	Female	54	65.1
	Total	83	
3	Marital Status		
	Single	21	25.3
	Married	47	56.6
	Widowed	10	12.0
	Divorced	5	6.0
	Total	83	
4	Educational Qualification		
	No formal education	6	7.2
	Primary education	18	21.7
	Secondary education	36	43.4
	Tertiary education	23	27.7
	Total	83	
5	Years of Experience		
	Less than 5 years	15	18.1
	6–10 years	27	32.5
	11–15 years	24	28.9
	Above 15 years	17	20.5
	Total	83	
6	Average Monthly Income		
	Below ₦50,000	20	24.1
	₦51,000–₦100,000	28	33.7
	₦101,000–₦150,000	22	26.5
	Above ₦150,000	13	15.7
	Total	83	

Source: Field Survey, 2026

The result in Table 1 indicates that the majority (36.1%) of fish marketers were within the age range of 31–40 years, implying that fish marketing is dominated by middle-aged individuals who are economically active. Females (65.1%) were more involved in fish marketing than males, showing that fish trading is a major source of livelihood for women in Yenagoa. (56.6%) of the respondents were married suggesting that fish marketing supports household income.

(43.4%) had secondary education, which implies that the respondents were fairly educated and could effectively manage small-scale businesses. (32.5%) of the fish marketers in the study area had 6–10 years of experience, showing moderate expertise in fish trading, while (33.7%) of the respondents reported an average monthly income between ₦51,000–₦100,000 suggesting that fish marketing contributes significantly to their livelihood.

Structure of Fish Marketing in Yenagoa

Table 2: Structure of Fish Marketing in Yenagoa

S/No	Items	x	SD	Remark
1	Fish is sourced directly from fishermen	3.82	0.88	Agree
2	Marketing channels are well organized	3.60	0.95	Agree
3	Fish marketing is dominated by retailers	3.75	0.81	Agree
4	Membership in cooperative societies aids marketing	3.90	0.79	Agree
5	Wholesalers play a significant role in distribution	3.65	0.92	Agree

Source: Field Survey, 2026

The result in table 2 indicates that most fish marketers obtain their products directly from fishermen, with a mean score of 3.82. It was agreed that marketing channels are well organized with a mean score of 3.60. The result shows that fish marketing is dominated by retailers with a mean score of 3.75. Membership in cooperative societies aids marketing and has a mean score of 3.90. This shows that most of the fish marketers are members of cooperative societies that support their businesses. The result also shows that wholesalers play a significant role in distribution of fish products, with a mean score of 3.65.

Efficiency of Fish Marketers in Yenagoa

Table 3: Efficiency of Fish Marketers

S/No	Items	X	SD	Remark
1.	Recordkeeping improves business efficiency	3.80	0.84	Agree
2.	Fish marketing is profitable	3.95	0.72	Agree
3.	Transportation costs affect profit margins	4.10	0.68	Strongly Agree
4.	Access to credit facilities improves business	3.55	0.90	Agree

Source: Field Survey, 2026

The result in table 3 shows that respondents keep financial records of all transactions with a mean score of 3.80. The respondents generally agreed that fish marketing is profitable in Yenagoa with a mean score of 3.95. However, the high mean score for transportation costs (4.10) indicates that it significantly reduces profit margins. Most marketers also acknowledged that access to credit and proper record-keeping enhance operational efficiency with a mean score of 3.55.

Fish Processing, Storage, and Transportation Methods

Table 4: Processing, Storage, and Transportation Methods

S/N	Items	X	SD	Remark
1	Smoking is the major fish processing method	4.25	0.63	Strongly Agree
2	Most marketers use cold storage or freezers	3.85	0.76	Agree
3	Poor storage affects product quality	3.90	0.69	Agree
4	Motorcycles and tricycles are common means of transport	4.00	0.71	Agree

Source: Field Survey, 2026

The result in table 4 shows the fish processing, storage, and transportation method. The findings reveal that smoking is the dominant processing method used by fish marketers with a mean score of 4.25, followed by cold storage and freezing with a mean score of 3.85. Poor storage conditions were identified as a factor affecting product quality with a mean score of 3.90. The use of motorcycles and tricycles is common due to the poor state of roads leading to the markets with a mean score of 4.00.

Problems Associated with Fish Marketing

Table 5: Problems Associated with Fish Marketing in Yenagoa

S/No	Items	X	SD	Remark
1	High transportation cost	4.25	0.58	Agree
2	Lack of cold storage facilities	3.95	0.67	Agree
3	Poor road network	4.10	0.62	Agree
4	Price fluctuation	3.75	0.80	Agree
5	Inadequate government support	4.05	0.66	Agree
6	Lack of access to credit facilities	3.85	0.71	Agree

Source: Field Survey, 2026

The result in table 5 shows the problems associated with fish marketing in Yenagoa. The findings show high transport cost is a problem faced by most fish marketers with a mean score of 4.50; Lack of cold storage facilities is also one of the challenges faced by fish marketers with a mean score of 3.95; poor road network with a mean score of 4.10; price fluctuation with a mean score of 3.75; inadequate government support with a mean score of 4.05; and lack of access to credit facilities with a mean score of 3.85.

DISCUSSION OF FINDINGS

The findings of this study revealed that fish marketing in Yenagoa Local Government Area is a major livelihood activity predominantly undertaken by women within the economically active age range of 31–40 years. This agrees with the work of Eze (2019), who found that women constitute over 60% of participants in fish marketing in Anambra State, Nigeria. The high participation of women reflects the traditional dominance of females in small-scale fish trading in the Niger Delta region. This also supports Adewumi and Ajayi (2020), who emphasized that fish marketing serves as a vital source of supplementary income for women and contributes significantly to household welfare in coastal communities.

The study further found that the majority of fish marketers possess at least a secondary school education, which implies that they have a moderate level of literacy necessary for business management and recordkeeping. This finding is in line with Okon and George (2018), who reported that literacy enhances marketers' ability to adapt to changing market conditions, negotiate prices, and maintain adequate records for business growth. Moreover, the result showing that most respondents had between 6–15 years of experience corroborates Bamidele et al. (2017), who noted that marketing experience is a key determinant of profitability and sustainability among fish traders in southern Nigeria.

In terms of market structure, the results indicated that fish marketing in Yenagoa is relatively organized, with most respondents sourcing fish directly from fishermen and participating in cooperative societies. This finding aligns with the observation of Ifeanyi and Olayemi (2021), who found that cooperative membership enhances access to market information, bulk purchase advantages, and credit facilities among fish traders in Rivers State. The role of wholesalers in distribution, as highlighted in this study, also agrees with the findings of Akinola (2020), who noted that middlemen remain indispensable in ensuring regular supply and price stability in the fish value chain.

Regarding efficiency, the results revealed that fish marketing in Yenagoa is profitable but affected by high transportation costs and limited access to credit facilities. This is consistent with Nwafor and Opara (2019), who observed that poor transportation networks and high logistics costs significantly reduce profit margins among fish traders in Bayelsa and Delta States. Similarly, the positive relationship between recordkeeping and business efficiency observed in this study agrees with Okeke (2018), who emphasized that proper record management enhances financial planning and reduces operational losses among small-scale marketers.

The findings also indicated that smoking remains the predominant method of fish processing in Yenagoa, followed by freezing and drying. This supports the report of Timi and Gabriel (2020), who stated that traditional fish smoking is the most widely used preservation technique in the Niger Delta due to its cost-effectiveness and adaptability to local environmental conditions. However, the problem of poor storage facilities and the use of motorcycles and tricycles for fish transportation corroborate Agbugba and Okoye (2019), who found that inadequate infrastructure limits the growth potential of the fish marketing sector in Nigeria.

Lastly, the study identified high transportation costs, poor road networks, lack of cold storage facilities, price fluctuation, and inadequate government support as major challenges faced by fish marketers in Yenagoa. This aligns with Iheanacho (2021), who highlighted similar constraints affecting fish distribution systems in coastal communities of the South-South region. The findings imply that infrastructural and institutional constraints continue to impede fish marketing efficiency and profitability across the Niger Delta. Therefore, improved road networks, cold storage provision, access to soft loans, and government intervention programs are recommended to strengthen fish marketing systems and promote economic development.

CONCLUSION

This study has provided an in-depth understanding of fish marketing in Yenagoa Local Government Area of Bayelsa State. The findings demonstrate that fish marketing is not merely an economic activity but a vital livelihood enterprise that sustains many households in the study area. A significant proportion of the respondents, particularly women, depend on fish

marketing as their primary source of income, highlighting the important role of the subsector in employment creation, household income generation and local economic development.

Furthermore, the socio-economic characteristics of the respondents indicate that fish marketing is largely undertaken by individuals within the economically active age group, with moderate educational attainment and considerable marketing experience. These characteristics suggest that the marketers possess valuable practical knowledge of the fish trade, although their capacity to improve profitability and efficiency may be constrained by limited access to finance, infrastructure, market information, storage facilities and other essential marketing services.

Contribution to Knowledge

The study contributes to knowledge by providing empirical evidence on the economic characteristics, marketing practices, costs, returns and efficiency of fish marketing in Yenagoa Local Government Area. In particular, it provides location-specific evidence on the factors influencing the performance and efficiency of fish marketers, thereby contributing to the existing literature on fish marketing and agricultural value-chain development in Nigeria. The findings also provide a basis for understanding the gender dimension of fish marketing and the important role played by women in sustaining fish distribution and household livelihoods in the study area.

The study further provides a useful empirical foundation for future researchers interested in fish marketing efficiency, livelihood diversification, gender participation and agricultural value-chain development, particularly in the Niger Delta region.

Practical and Policy Implications

The findings have important practical implications for policymakers, fish marketers, development agencies and other stakeholders. There is a need to strengthen support for fish marketers through improved access to affordable credit, market information, modern storage and preservation facilities, transportation infrastructure and appropriate marketing technologies. Such interventions would help reduce post-harvest losses, lower marketing costs and improve the profitability and efficiency of fish marketing.

Given the substantial participation of women in the enterprise, policies and development programmes should also incorporate gender-responsive interventions, including access to finance, business training, improved processing and preservation technologies, and market-linkage opportunities. Strengthening women's participation in the fish value chain could contribute significantly to household income, employment creation and poverty reduction.

The study also highlights the importance of marketers' experience and human capital. Consequently, regular training in financial management, pricing, record keeping, market analysis, quality control and modern fish handling techniques should be encouraged. Cooperative organizations could also be strengthened to enable marketers to access credit, purchase inputs collectively, share market information and improve their bargaining power.

Overall, improving the efficiency and profitability of fish marketing in Yenagoa Local Government Area requires a coordinated approach involving government agencies, financial institutions, extension and research institutions, marketers' associations and private-sector stakeholders. Addressing the identified constraints would not only improve the welfare and income of fish marketers but would also strengthen the fish value chain, reduce food losses,

improve the availability of fish to consumers and contribute to sustainable economic development in Bayelsa State.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. **Improvement of Infrastructure:** The government should invest in the construction and rehabilitation of feeder and market access roads to reduce transportation costs and minimize post-harvest losses during fish transportation.
2. **Provision of Cold Storage and Processing Facilities:** Public-private partnerships should be encouraged to establish cold rooms and modern fish processing centers in major markets to reduce spoilage and maintain product quality.
3. **Access to Credit Facilities:** Financial institutions and cooperative societies should provide soft loans and grants tailored to the needs of small-scale fish marketers. Simplified credit procedures will enhance business expansion and profitability.
4. **Capacity Building and Training:** Government agencies, NGOs, and extension officers should organize periodic training and workshops to equip fish marketers with modern business management, record-keeping, and preservation techniques.
5. **Government Support and Policy Intervention:** The government should implement policies that promote fish marketing through subsidies on transportation, market fees, and input materials. Strengthening market regulation and infrastructure will also boost efficiency.
6. **Market Information System:** The establishment of a reliable and accessible market information system will enable fish marketers to access real-time data on market prices, supply, and demand trends, thereby improving decision-making and reducing exploitation by middlemen.

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