

Supply chain performance of sea food from Kobong Market Semarang through seahood fresh market in Sleman Indonesia

Susanawati and Z N Aida*

Department of Agribusiness Faculty of Agriculture Universitas Muhammadiyah Yogyakarta, Brawijaya Street, Tamantirto, Kasihan, Bantul, Yogyakarta, Indonesia

Abstract. Fisheries supply chain is an activity that starts from fishermen as producers of raw materials to final consumers as buyers. This study aimed to (1) Describe the seafood supply chain through Seahood in Sleman Regency; (2) Analyze the performance of the seafood supply chain through Seahood in Sleman Regency in terms of product flow, money flow, and information flow. The location was in Sleman Regency, which was deliberately chosen because it was not directly adjacent to the sea so that in meeting the needs of seafood consumption in the community required suppliers from outside the district. Sampling in this study was carried out in stages, the first stage of sampling fishermen and the second stage of actors after fishermen. The sample was taken by using snowball sampling technique combined with information from Seahood. There were 43 respondents in this study, consisting of 6 fishermen, 1 collector, 1 wholesaler, 1 retailer, 1 Seahood manager, and 33 consumers. The results are composed of 6 actors who formed a supply chain. The actors consisted of fishermen, collecting traders, wholesalers, retailers, Seahood managers, and was ended consumers. The overall performance of the seafood supply chain through Seahood in Sleman Regency was in good condition.

1 Introduction

Human efforts involve the management, management and use of biological resources of known as fisheries. Aquatic biological resources are known as fisheries [1]. One of the marine products that is often used in the results of seafood products is sea fish. Sea fish is food obtained from the sea [2]. According to the distribution of fish species based on their place of life, marine fish are fish that live and breed in salt water [3]. So far, the types of marine fish that are widely consumed by the public are swordfish, tuna, mackerel, pomfret, cucut fish, skipjack fish, snapper, baronan fish, swordfish, shrimp, squid, green clams, pigeon clams, etc. [4]. In fishery products, the management of fishing boat hygiene systems, fish sorting methods, fish storage methods, fish marketing methods, types of vehicles used for fish delivery, storage methods when shipping fish, how to move fish, how to handle unsold fish, and how to handle fish that are not worth selling are activities that can be a risk to the

* Corresponding author : susanawati@umy.ac.id

safety of food products and need to be anticipated risk management [5].

A supply chain is a network of companies that work together to create and deliver a product into the hands of the end consumer. Related companies are suppliers, factories, wholesalers, shops or retailers, as well as supporting companies such as logistics services. There are 3 main things that must be managed in the chain, namely the flow of goods from upstream to downstream, for example raw materials sent from suppliers to factories, then to wholesalers, retailers, then to the final consumer. Also, the inflow of plutocrats flowing from downstream to upstream, and eventually the inflow of information flowing from downstream to upstream [6]. The food force chain is the entire process, operation and concinnity that helps convert raw accoutrements into food that's ready for consumption by consumers, with actors conforming of directors, processors, retailers and agents, and consumers [7]. A well-managed supply chain can produce cheap, quality, and timely products so that it can meet the target request and induce gains for the company. Integrated supply chain performance dimension is veritably important to do [8]. The strength of a supply chain depends on the strength of all rudiments in it [9].

Fisheries supply chain is an activity that starts from fishermen as producers of raw materials to final consumers as buyers. In this fishery supply chain, fishermen can sell their catch directly to buyers while still in the coastal or port environment with a direct or door-to-door sales system, thus cutting the flow of the supply chain. When selling to the market, there will be many combinations of medium chain actors involved such as traders, wholesalers, processors, wholesalers, transporters and so on. All these components move to package, change or transform, until moving the product from the point of production to the final process, namely the buyer [10].

Marine and fishery products have different characteristics compared to other products similar as diseases, cement, or rice, which affect the handling of the force chain. This product has a short service life and a high position of vulnerability to rainfall, so special running is demanded in the packaging and distribution process, in order to maintain the quality of the product [11].

Supply chain performance is the junction of small factors in one system that functions as a whole supply chain exertion, to ameliorate connections to gain competitive advantage [12]. Supply chain performance is a performance of conditioning related to the inflow of goods, information, and supplier finances to the end consumer [13]. Good supply chain performance is determined by the role of the supply chain members involved, if supply chain members have not been maximized in carrying out their roles, it will have an impact on supply chain performance that occurs [14]. The level of utilization of fishery resources is still not optimal because there are differences between the supply chains of fish caught with each other so that it can affect the performance of fish supply chains [15]. Some strategies to improve the performance of supply chain actors are by providing fish catch management, regulating ship fleets when landing fish, increasing supervision on land and sea, and improving ship facilities [16]. For culinary businesspeople, the assessment of a supply chain performance can be used as a tool to make strategies in running their business [17].

Seahood fresh market is one of the shops or shops engaged in the distribution of marine fish located in Sleman Regency. Currently, Seahood has one branch in operation, namely Gebang Wedomartani Temple Branch. Seahood regularly orders marine fish products from Kobong Market Semarang through out-of-town suppliers through short message applications. There are various types of marine fish taken by Seahood from Semarang such as pure mackerel, banyar mackerel, selar, tuna, swordfish, green mussels, pigeon clams, virgin peeled clams, galer anchovies, crabs, snapper, gourami, white shrimp, squid, and samge fish. In the distribution of marine fish ranging from suppliers in Semarang Kobong Market to consumers in Sleman regency, of course, cannot be separated from the concept of supply chain. In the supply chain, at least three flows are managed namely product flow,

money flow, and information flow. Through these three streams, the performance can be known. The novelty of this research is shown by the involvement of the Kobong market in Semarang as one of the actors in the marine fish supply chain to Yogyakarta. Therefore, this study aims to analyze the marine fish supply chain and its performance from Semarang Kobong Market through Seahood Fresh Market to consumers in Sleman district. The results of this study can be used as evaluation material to improve the performance of each marine fish supply chain actor and as a whole.

2 Research Methods

The introductory system used in this study is qualitative descriptive analysis system. The qualitative descriptive analysis system is a system that analyzes, describes, and summarizes colorful conditions, situations from colorful data collected in the form of interviews or compliances about the problem under study grounded on what's passing in the field [18]. This method is used to obtain an in-depth and objective picture of the performance of the marine fish supply chain.

Determination of marine fish supply chain respondents using snowball sampling method combined with information from Seahood. The snowball sampling method is a method used by tracing information to get other information, so that after getting information from Seahood, it is traced to fishermen. Snowball sampling technique is a slice fashion that starts from small effects, also the sample chooses its musketeers to be tried, and so on so that the number of samples increases.

Sampling uses snowball sampling method combined with information from Seahood fresh market to find suppliers. The first information was obtained from Seahood about what types of marine fish Seahood wanted for a one-time transaction from an out-of-town supplier in the Kobong market. Then trace it to the supplier who gets the fish from. From the search, six fishermen in Tambachlorok were obtained, so that the number of fishermen in this study was 6 people. Sampling after suppliers or fishermen in Tambachlorok to consumers in Sleman Regency was carried out by snowball sampling technique as many as 37 respondents consisting of 6 fishermen in Tambachlorok, 1 Seahood fresh market manager, 1 out-of-town supplier in Kobong Market, 1 wholesaler in Kobong Market, and 1 collecting trader in Tambachlorok.

This research uses primary data including profiles of supply chain actors, indicators of product flow, money flow, and information flow. Descriptive analysis is used to describe the marine fish supply chain through Seahood fresh market in Sleman Regency by providing a complete picture of the marine fish supply chain analysis from fishermen to end consumers [19]. In order to determine whether or not the inflow of products, plutocrat inflow, and information inflow between marine fish force chain actors is distributed. The three aqueducts were determined using the Sturges formula, distributed as rough and smooth [20].

$$Z = \frac{X-Y}{K} \tag{1}$$

Where, Z was class interval; X was highest score; Y was lowest score; and K was number of classes

2.1 Product flow

Average Scale per Indicator: Average Scale of all Indicators:

$$Z = \frac{5-1}{5} = 0.8 \qquad Z = \frac{25-5}{4} = 5$$

Table 1. Categorization on product flow

Average score	Product Flow Category
Indicator	
1.00-1.80	Not Compliant
1.81-2.60	Less Suitable
2.61-3.40	Quite Appropriate
3.41-4.20	Appropriate
4.21-5.00	Fits Perfectly
Overall Indicators	
5.00-10.00	Not Current
10.01-15.01	Less Smooth
15.02-20.02	Fluent
20.03-25.03	Very Smooth

2.2 Money flow

Average Scale per Indicator: Average Scale of all Indicators:

$$Z = \frac{5-1}{5} = 0.8 \qquad Z = \frac{25-5}{4} = 5$$

Table 2. Categorization of money flow

Average score	Money Flow Categories
Indicator	
1.00-1.80	Not Compliant
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Overall Indicators	
5.00-10.00	Not Current
10.01-15.01	Less Smooth
15.02-20.02	Fluent
20.03-25.03	Very Smooth

2.3 Information flow

Average Scale per Indicator: Average Scale of all Indicators:

$$Z = \frac{5-1}{5} = 0.8 \qquad Z = \frac{30-6}{4} = 6$$

Table 3. Categorization on information streams

Average score	Information Flow Categories
Indicator	
1.00-1.80	Not Available
1.81-2.60	Less Available
2.61-3.40	Simply Available
3.41-4.20	Available
4.21-5.00	Highly Available
Overall Indicators	
6.00-12.00	Not Current
12.01-18.01	Less Smooth
18.02-24.02	Fluent
24.03-30.03	Very Smooth

3 Results and Discussion

3.1 Marine Fish Supply Chain

The supply chain of marine fish through Seahood from Semarang Kobong Market through Seahood in Sleman Regency was formed by one chain involving six actors, namely fishermen in Tambachlorok, collecting traders in Tambachlorok, wholesalers in Kobong Market, out-of-town suppliers in Pasar Kobong, Seahood in Sleman Regency, and end consumers in Sleman Regency. This result is different from the research [21] on Analysis of Distribution Channels in the Raw Fish Supply Chain at the “Kembang Laut” Fishermen's Association on Nain Island, North Minasaha, which shows the presence of fish auction actors. In the supply chain, there are three streams that must be managed, namely product flow, money flow, and information flow. The flow of products flows from fishermen in Tambachlorok to consumers in Sleman Regency. The flow of money flows from consumers in Sleman Regency to fishermen in Tambachlorok. While the flow of information can flow from fishermen in Tambachlorok to consumers in Sleman Regency or vice versa from consumers in Sleman Regency to fishermen in Tambachlorok. The complete supply chain can be described as follows:

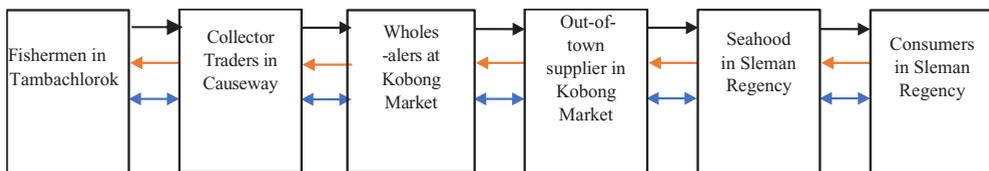


Fig. 1. Marine Fish Supply Chain

Information:

Product Flow



Money Flow



Information Flow



In the supply chain, fishermen play a role as first actors and as producers of marine fish. Fishermen have a role in sailing activities, price quotes, updating price information, sales, and maintenance of fishing gear. In this study, fishermen carried out sailing activities starting at 05.00 A.M until 02.00 P.M. After the fisherman lands and rests, the fisherman will immediately take the results of his sailing to the house of the collecting merchant to sell his fish. The type of payment made depends on the agreement made by traders, collectors and fishermen. In addition, fishermen also carry out various other activities such as caring for boats, nets, and other sailing tools because fishermen in Tambachlorok are traditional net fishermen. The types of fish commonly caught by Tambachlorok fishermen are shrimp, crab, squid, anchovies, shellfish, snapper, mackerel, barracuda, and crab.

Collecting traders are the second actor in the marine fish supply chain. Collecting merchants generally provide credit or loans to fishermen. This loan is a bond or guarantee for fishermen to sell their catch to collecting traders. Collecting traders has an important role in fisheries supply chain activities because they function as collectors of fishery products from scattered production areas, the scale of production is small, and production is not fixed because it is seasonal. Activities carried out by collecting merchants include weighing, pricing, quotes, updating price information, purchasing, transporting, shipping, selling, and payment. In large fishermen who usually catch large amounts of marine fish, fish auctions will be held at TPI (Fish Auction Place), but in this study all fishermen studied are small fishermen so that after the fishermen lean on the dock at noon around 02.00 P.M – 03.00 P.M, fishermen will bring their marine fish catches to the house of the collecting trader. After recording and weighing, fishermen will get payment in the form of cash or notes that can be

exchanged in the future depending on the agreement of both parties. After obtaining marine fish products from fishermen, collecting traders will store the availability of marine fish in storage warehouses to be distributed to wholesalers at Kobong Market.

Wholesalers are the third actors in the marine fish supply chain. Wholesalers are traders who sell large quantities of marine fish. Large traders usually process transactions at Kobong Market, Semarang. Kobong Market is a special market that sells various marine fish products, both from fishermen in Semarang and fishermen from other regions. Activities carried out by wholesalers include weighing, pricing, quotes, updating price information, purchasing, shipping, selling, and payment. Wholesalers do not carry out transportation activities because collecting traders will come to sell their sea fish to wholesalers at Kobong Market. Large traders will start their selling activities according to the operating hours of Kobong Market, which are at 02.00 P.M until 08.00 P.M. If there are marine fish that have not been sold out, wholesalers will store their marine fish products in fish drums, sterofom boxes, or fish containers that are given ice cubes to maintain the freshness of the fish and covered by tarpaulins.

Out-of-town suppliers from Kobong Market are the fourth players in the marine fish supply chain. Out-of-town suppliers are traders who buy marine fish not directly to fishermen, but through wholesalers for resale, usually in the form of units. The difference between wholesalers and out-of-town suppliers is that wholesalers usually sell sea fish in considerable quantities compared to relatively few out-of-town suppliers. Activities carried out by out-of-town suppliers include weighing, pricing, quotes, updating price information, purchasing, transporting, shipping, selling, and payment. Out-of-town suppliers will start their activities during market operating hours. After out-of-town suppliers get orders through short message applications, out-of-town suppliers will start looking for various marine fish products ordered, usually there will be a bargaining process until they reach the desired price according to the agreement. Out-of-town suppliers will usually confirm the desired sea fish order through a short message application such as the size of the existing fish, the type of fish desired, and the price of the existing fish. After confirming, *out-of-town* suppliers will make transactions with wholesalers. Out-of-town suppliers will make payments with proof of note and paid in cash directly or postponement. Furthermore, the desired sea fish will be included in a fish drum that is given ice cubes to maintain the freshness of the fish. The drums will then be transported onto vehicles such as pick ups, and out-of-town suppliers will distribute sea fish to Seahood in Sleman Regency from Kobong Market in Semarang. Out-of-town suppliers from Pasar Kobong usually start leaving around 10.00 P.M and return again at 07.00 A.M.

Seahood is the last actor in the marine fish supply chain before consumers. Seahood gets its marine fish products through *out-of-town* suppliers who distribute their wares from Kobong Market to Seahood in Sleman Regency. Seahood's activities include weighing, packaging, pricing, quotes, updating pricing information, purchasing, shipping, selling and payment. Seahood will usually record the needs of marine fish, both products ordered via short message and products to meet the needs of displays in stores. The desired needs of marine fish will then be conveyed to out-of-town suppliers through short message applications. Out-of-town suppliers will confirm the ordered product when making transactions at Kobong Market through a short message application. In the early morning at 12.00 P.M – 01.00 A.M the sea fish order arrives at Seahood and checks and weighs whether the desired sea fish is appropriate or not appropriate. Furthermore, Seahood will separate the ordered sea fish products and the sea fish that will be placed on display will be stored with ice cubes to maintain the freshness of marine fish products. At 06.00 A.M Seahood will start activities such as confirming orders to consumers who have placed orders through short message applications and making agreements on the time of products to be delivered, besides that Seahood will start operating to serve consumers until 07.00 P.M.

The end consumer is the last player in the marine fish supply chain. End consumers purchase marine fish through short message applications or make transactions directly at Seahood. Activities carried out by consumers include purchasing, transporting, and payment.

3.2 Marine Fish Supply Chain Performance

The performance of the marine fish supply chain is analyzed through the smooth flow of products, money flow, and information flow. The results of the overall analysis of product flow from fishermen to end consumers show that they are in the current category. This means that fishermen can meet the needs of marine fish desired by the end consumer. The flow of products that have the highest score is among collectors and wholesalers with an average score of 21.5. Also, the alternate loftiest score was followed by perpetrators who passed between wholesalers and out-of city suppliers and between out-of city suppliers and Seahood with an average score of 21. The third loftiest score was between Seahood and consumers with an average score of 20.85. And eventually, the smallest score was among fishers and collecting dealers with an average score of 13.6. The results of the analysis of product flow conditions on product flow can be seen in Table 4.

The product flow from fishermen to end consumers is generally smooth, with fishermen able to meet the demand for seafood as required. The highest score (average 21.5) was recorded between collectors and wholesalers, due to their large storage capacities, which enable product availability of 81%-100%. The second highest score (21) was observed between wholesalers and out-of-town suppliers, as well as between out-of-town suppliers and Seahood. These suppliers use large drums for storage during distribution, maintaining optimal product availability.

However, the quality of seafood tends to decline throughout the distribution chain, as handling and storage with ice affect its freshness. The third highest score (20.85) was between Seahood and consumers, supported by high purchase volumes that can meet 81%-100% of demand. Quality remains a concern, as the seafood passes through multiple stages before reaching the consumers.

The lowest score (13.6) was found in the flow between fishermen and collectors, caused by uncertainties in fishermen's ability to catch seafood due to weather conditions, as well as the lack of storage facilities on the fishermen's side.

The results of the overall analysis of the flow of money from consumers to fishermen show that it is in the current category. This means the flow of money from consumers until the fisherman runs smoothly. The plutocrat inflow that has the loftiest score is among consumers with Seahood with an average score of 23.2. Also, the alternate loftiest score was followed by the perpetrators who passed between Seahood and out-of city suppliers with an average score of 21.5. The third loftiest score passed among out- of- city suppliers and wholesalers with an average score of 19. The fourth loftiest score passed among collecting dealers and fishers with an average score of 18.6. Eventually, the smallest score is among large dealers and collecting dealers with an average score of 15.5. The results of the analysis of the condition of money flow in money flow can be seen in Table 5.

The flow of money from consumers to fishermen runs smoothly. The highest score (average 23.2) was recorded between consumers and Seahood, driven by factors like transaction location and payment method. Consumers are satisfied with the transaction location, whether they purchase directly from Seahood or receive delivery via messaging apps. The lowest scores in this category were due to changes in payment methods from cash to online transfers.

Table 4. Product Flow Score in Marine Fish Supply Chain

Indicator	Fisherman Trader Collectors		Collector Merchant Wholesalers		Wholesaler Small Trader		Small Trader-Seahood		Seahood - Consumer	
	Fisherman	Merchant Collectors	Merchant Collectors	Merchant Big	Merchant Small	Merchant Small	Merchant Small	Seahood	Seahood	User
Sum Sales	1.7	2	4	4	4	4	4	5	4	4.6
Number of purchases	1.7	2	4	4	5	4	4	5	5	4.8
Availability	1.8	2	5	4	4	4	4	4	4	4.8
Quality	5	5	4	4	4	3	3	3	3	2.2
Availability Storage Area	1	5	5	5	5	5	5	5	5	4.3
Total Score	11.2	16	22	21	22	20	20	22	21	20.7
Average Score	13.6	21.5		21		21		20.85		
Category	Less Smooth		Very Smooth		Very Smooth		Very Smooth		Very Smooth	

Table 5. Money Flow Score in Marine Fish Supply Chain

Indicator	Consumer - Seahood		Seahood - Small Trader		Small Traders - Wholesalers		Wholesalers - Collecting Traders		Collecting Merchants	
	User	Seahood	Seahood	Small Trader	Small Trader	Wholesalers	Wholesalers	Collector Merchants	Collector Merchants	Fishermen
Place of Transaction	5	5	5	5	5	5	5	4	5	4.7
Manner Transaction	4.7	5	5	4	5	4	4	3	5	4
Manner Transaction Payment	4.8	4	4	4	3	4	3	2	3	2.8
Payment Amount Transaction	5	4	4	4	3	3	2	3	3	3.5
Time Payment	4.9	4	4	4	3	3	2	3	3	3.2
Total Score	24.4	22	22	21	19	19	16	15	19	18.2
Average Score	23.2		21.5		19		15.5		18.6	
Category	Very Smooth		Very Smooth		Smooth		Smooth		Smooth	

The second highest score (21.5) was between Seahood and out-of-town suppliers, followed by the third highest (19) among out-of-town suppliers and collectors. In both cases, the smooth flow was supported by clear transaction locations and satisfaction with the payment process, although issues with payment methods persisted.

The fourth highest score (18.6) was between collectors and fishermen. Transactions occur directly at the collector's home, leading to high satisfaction with the location. However, payment is often made via notes exchanged later, or loans provided by collectors, causing lower scores in payment methods.

The lowest score (15.5) was between wholesalers and collectors, influenced by delayed payment methods. Transactions occur at Pasar Kobong, and payments are exchanged through notes, leading to uncertainty in the payment timeline.

Table 6. Information Flow Score in Marine Fish Supply Chain

Indicator	Fisherman - Collecting Trader		Collecting Traders - Wholesalers		Wholesalers - Small Traders		Small Merchant - Seahood		Seahood - Consumer	
	Fishermen	Collector Merchants	Collector Merchants	Wholesalers	Wholesalers	Small Trader	Small Seahood	Seahood	Seahood	User
Availability Information	1	1	4	4	4	1	5	5	4	1
Customer Request Information	2	5	4	4	4	1	5	5	3	1.7
Pricing Information	4.7	5	5	5	5	5	5	5	4	1
Retrieval Information	3.3	1	1	1	5	1	1	1	1	1
Shipping Information	1.2	5	1	1	1	1	5	5	4	1.5
Payment Information	4	2	3	2	3	4	5	4	4	5
Total Score	16.2	19	18	17	22	13	26	25	20	11.2
Average Score Category	17.6 Less Smooth		17.5 Less Smooth		17.5 Less Smooth		25.5 Very Smooth		15.6 Less Smooth	

The results of the overall analysis of the flow of information from fishermen to consumers show that it is in the substandard category. This means that the flow of information from fishermen to consumers runs less smoothly in terms of information indicators. The flow of information that has the highest score is among *out-of-town* suppliers and Seahood with an average score of 25.5. Then the second highest score was followed by perpetrators who occurred between fishermen and collecting traders with an average score of 17.6. The third highest score occurred among collectors with

wholesalers and wholesalers with out-of-town suppliers with an average score of 17.5. Eventually, the smallest score is between Seahood and consumers with an average score of 15.6. The results of the analysis of product inflow conditions in product inflow can be seen in Table 6.

The overall analysis shows that the information flow from fishermen to consumers is categorized as less smooth. The highest score (average 25.5) was between out-of-town suppliers and Seahood, due to active communication across various indicators, including product availability, customer demand, pricing, collection, delivery, and payment information. Information flow is smooth because suppliers and Seahood actively communicate via messaging apps.

The second highest score (17.6) was between fishermen and collectors, with smoother information on pricing but less certainty about product availability, affected by weather conditions and unpredictable catches. The third highest score (17.5) was observed between collectors and wholesalers, and between wholesalers and out-of-town suppliers, where price information was effectively communicated, but information on collection and delivery was limited.

The lowest score (15.6) was between Seahood and consumers, where communication on product availability and pricing was less effective. Consumers often had to inquire directly about available products, and not all were aware they could communicate with Seahood via messaging apps. Payment information was generally straightforward, but other aspects like collection and delivery details lacked clarity, leading to less efficient information flow.

Grounded on the product inflow, plutocrat inflow, and information inflow scores over, it can be used to describe the performance of the marine fish force chain as follows:

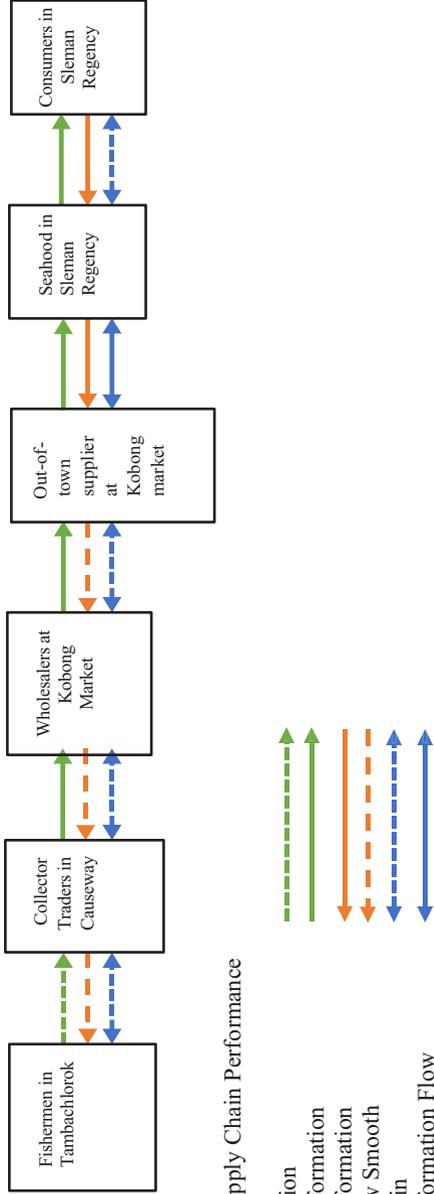


Fig. 2. Marine Fish Supply Chain Performance Information:
 Less Smooth Information
 Flow Very Smooth Information
 Flow Very Smooth Information
 Flow Information Flow Smooth
 Less Smooth Information
 Flow Very Smooth Information Flow

4 Conclusion

The marine fish supply chain from Semarang Kobong Market through Seahood in Sleman Regency only consists of one chain with six actors, namely fishermen in Tambachlorok, collectors' traders in Tambachlorok, wholesalers in Kobong Market, out-of-town suppliers in Kobong Market, Seahood in Sleman Regency, and end consumers in Sleman Regency. In the supply chain, three streams are managed, namely the flow of products from fishermen in Tambachlorok to consumers in Sleman Regency; the flow of money from consumers in Sleman Regency to fishermen in Tambachlorok; and the flow of information from fishermen in Tambachlorok to consumers in Sleman Regency or vice versa from consumers in Sleman Regency to fishermen in Tambachlorok. The condition of the three streams is included in the category of very smooth and substandard. The flow of products is not smooth between fishermen and collecting traders in Tambachlorok. Poor money flows occur between fishermen and collecting traders in Tambachlorok; collecting traders in Tambachlorok with wholesalers in Pasar Kobong; and between wholesalers at Pasar Kobong and suppliers out of town at Pasar Kobong. The flow of information was less smooth between fishermen and collecting traders in Tambachlorok; Tambachlorok collecting traders with wholesalers at Kobong Market: wholesalers with out-of-town suppliers in Kobong market; and Seahood with end consumers in Sleman Regency. Overall, the performance of the marine fish supply chain from Semarang Kobong Market through Seahood Fresh Market in Sleman Regency is categorized as smooth or good.

The implications of this study as information material for improving supply chain performance are based on the condition of product flow, money flow, and information flow. The product flow from fisherman to collecting trader needs to be improved, especially the fish availability attribute. Almost all attributes of information flow between supply chain actors need to be improved except between small traders and seahood fresh markets.

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