



## **Analysis of Supply Chain Management of Lobster (*Panulirus spp.*) In Pangandaran (Case Study of PT. ASI Pudjiastuti Marine Product)**

**Alfath Dhary<sup>1\*</sup>, Atikah Nurhayati<sup>1</sup>, Junianto<sup>1</sup> and Iwang Gumilar<sup>1</sup>**

<sup>1</sup>*Department of Fisheries, Faculty of Marines and Fisheries, University of Padjadjaran, Jl. Raya Bandung – Sumedang Km 21, Jatinangor 40600, Indonesia.*

### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author AD designed the research, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AN and Junianto managed the analyzing of the research. Author IG managed the literature searches. All authors read and approved the final manuscript.*

### **Article Information**

DOI: 10.9734/AJFAR/2021/v11i330203

#### Editor(s):

- (1) Dr. Pinar Oguzhan Yildiz, Ataturk University, Turkey.
- (2) Dr. Jorge Castro Mejia, Universidad Autonoma Metropolitana Xochimilco, Mexico.
- (3) Dr. Luis Enrique Ibarra Morales, State University of Sonora, Mexico.

#### Reviewers:

- (1) Uttiya Jana, J. D. Birla Institute Under the affiliation of Jadavpur University, India.
- (2) V. Muralidharan, Amet University, India.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/65498>

**Original Research Article**

**Received 14 December 2020**

**Accepted 18 February 2021**

**Published 23 February 2021**

### **ABSTRACT**

This study aims to analyze supply chain management of lobster in Pangandaran especially PT. ASI Pudjiastuti Marine Product. The research method is a case study with the case unit at PT. ASI Pudjiastuti Marine Product while information would be collected through primary and secondary data in the field. The sampling method in this research used snowball sampling. The research was conducted from August 2020 - September at TPI Pangandaran and PT. ASI Pudjiastuti Marine Product. The criteria used to select respondents in this study as follow; 4 fishermen, 3 distributors, 2 employees of PT. ASI Pudjiastuti Marine Product and 1 retailer. And the data would be analyzed to get the supply chain condition of lobster. The results showed that there were 6 marketing channels in the supply chain of lobster in Pangandaran case study of PT. ASI Pudjiastuti Marine Product. The availability of lobster products has a value of 0.5 which means was not easily replaced and needed. Late payment and distribution of lobster have a value of 1.0 which means irreplaceable and important. The third and fourth chain marketing margins are below 50%, which

\*Corresponding author: Email: [alfath15001@mail.unpad.ac.id](mailto:alfath15001@mail.unpad.ac.id), [alfath15001@mail.unpad.com](mailto:alfath15001@mail.unpad.com);

means efficient for all members of the chain. The fifth chain has 46.55% and it's inefficient Fisherman's share. The largest market share value was 46.40% on the fifth channel. Supply chain of lobster in Pangandaran has 6 marketing channels which third and fourth are the most efficient for all members, and the second is most profitable for PT ASI.

**Keywords:** *Marketing channel; PT ASI pudjiastuti marine product; risk consequences; supply chain management; TPI pangandaran.*

## 1. INTRODUCTION

The sustainable potential of Indonesia's marine fish resources was estimated at 12.54 million tons per year, which are scattered in Indonesian territorial waters and ZEEI. Of all the potential fish resources, the allowable catch (JTB) is 10.03 million tons per year or around 80 percent of the sustainable potential, and only 6.42 million tons have been utilized in 2017 or only 63.99% of JTB, while the total capture fisheries production (in seas and lakes) is 6.89 million tonnes [1]. At TPI Pangandaran, the amount of fish catch production has decreased from year to year, namely 2017 to 2020. The lobster catching area in Pangandaran stretches from Legok Jawa waters to the areas bordering Cilacap County [2]. Pananjung Pangandaran Beach is one of the potential distribution areas for crayfish or lobsters in the southern part of West Java. The caught lobsters will be sold to the Fish Auction Place (TPI) KUD Minasari by fishermen.

Lobster (*Panulirus spp.*) is a fishery commodity that has the potential to be developed or conserved and has a high economic value which is good for export activities. In 2017 at TPI Pangandaran there was no lobster production recorded by the Department of Maritime Affairs, Fisheries, and Food Security wherein 2016 previously there was still a production of 233,5 kg. Lobster production was only recorded again in 2018, in which production was very minimal, around 7.8 kg only in December. In 2019, lobster production in Pangandaran increased very significantly from 7,8 kg to 1501,4 kg, the most caught in December. And in 2020 lobster production reaches 6.020,80 kg. Meanwhile, the average lobster prices from the Pangandaran TPI data from year to year are as follows; in 2018 worth Rp. 450.000, in 2019 Rp. 131.249,50 and in 2020 Rp. 76.155,16 which means that the price level has decreased. At the fishermen level, lobster prices are in the range of Rp. 200.000-800.000 / kg depending on the type, size, and season [3].

PT ASI Pudjiastuti Marine Product is a company that trades fishery products such as fish and lobster in fresh form. Fishery products were collected from fishermen and collectors around Pangandaran to be sold to various markets. PT. ASI Pudjiastuti develops its business as a supplier of fishery products for exporters and exports lobster. The lobsters obtained were sold to exporters in Jakarta. Lobster production was distributed by PT. ASI Pudjiastuti Marine Product in Pangandaran to exporters has decreased from 2017 to 2019 respectively as follows; 28,161.58 kg with an average price of IDR 303,500 / kg in 2017, 18,520.85 kg with an average price of IDR 352,000 / kg in 2018, and 11,698.23 kg with an average price of IDR 290,000 / kg in the year 2019. Lobster production at PT. Pudjiastuti Marine Product ASI which comes from fishermen's supply can cause fluctuations or uncertainty in the number of products every month. The catch made by fishermen can be seasonal where in certain circumstances it will affect the amount of catch obtained, and weather factors also affect fishing procedures. Supply that is still dependent on catches derived from nature has an impact on the difficulty to fulfill the demands.

Lobster catch at the coastal area of Pangandaran Beach is experiencing resource conservation problems which have resulted in decreased catches. Fishing efforts that are carried out beyond the maximum sustainable limit will affect the catch in the form of reducing the amount of production [4]. One type of coral lobster, namely sand lobster, is known to be caught in sizes that are not allowed. Sand lobsters caught during the fishing season ranged from 3.1 - 8.9 cm (CL) with the most caught sizes being 5.5 - 6 cm (CL) which was below the size of lobsters that could be caught > 8 cm (CL) [2]. The habitat of sand lobsters near the beach makes it easy for fishermen to catch them. Meanwhile, there has been a mention of the prohibition on the size limit of lobster fishing in the PERMEN KP No: 56 / PERMEN-KP / 2016 concerning the prohibition of catching laying

lobsters with carapace <8 cm or weighing <200 grams/head. Overfishing will result in a decrease in lobster volume which is supplied, the existence of a price monopoly by exporters, limited market accessibility to producers. The supply chain of lobster management can be a policy material for the Pangandaran Regency government in increasing fishermen's income and welfare.

This study aims to analyze the supply chain management of lobster in Pangandaran, especially PT. ASI Pudjiastuti Marine Product, which including the flow of raw materials, information and finance between the business partners involved. And analyze the supply chain by calculating its risk conditions, marketing margin, Fisherman's share, and market share.

## **2. MATERIALS AND METHODS**

### **2.1 Place and Time**

PT. ASI Pudjiastuti Marine product is located on the east coast and surrounded by restaurants and fish markets. The location is easy to reach and makes it easy to sell the lobster catch. The research was conducted from August 2020 - September 2020 at TPI Pangandaran and PT. ASI Pudjiastuti Marine Product, Pangandaran District, Pangandaran Regency, West Java.

### **2.2 Research Methods**

The research method using a case study with the case unit is PT. ASI Pudjiastuti Marine product. The information was collected through data collection in the field. A case study is a series of scientific activities carried out intensively, in detail, and in-depth about a program, event, and activity, whether at the level of an individual, group of people, institution, or organization to obtain knowledge of the event [5].

The research objects are the supply chain of lobster members such as fishermen and distributors of KUD Minasari Fish Auction Place (TPI) in the Pananjung Fish Market area, Pangandaran, and employees of PT. ASI Pudjiastuti Marine Product that play a role in distributing lobster commodities into consumers. Interviews were conducted with the object filling in a google form questionnaire as a medium for the interview.

#### **2.2.1 Data collection method**

##### *2.2.1.1 Interview*

Interviews were conducted by asking questions using google form addressed to parties who are

directly related to this business with the aim of wanting to know things from respondents that are more in-depth and open-ended.

##### *2.2.1.2 Questionnaires*

The questionnaire was a data collection technique by giving a set of questions or written statements in google form to respondents to answer.

##### *2.2.1.3 Literature study*

Aims to analyze data theoretically and collect data related to writing obtained from reading theses, textbooks, various journals, relevant articles, the internet, and other sources that can support this research.

#### **2.2.2 Types and data sources**

The data source used in this research consists of primary data and secondary data. Primary data was obtained from interviews using google form with fishermen, collectors, owners, or business actors along with employees of PT. Pudjiastuti Marine Product, filling out questionnaires by respondents by answering questions that have been compiled on google form in accordance with the research conducted, which including an integrated part of the supply chain of lobster at PT. ASI Pudjiastuti Marine Product. Primary data collected includes chain structure, chain objectives, chain management, chain resources, chain business processes, chain business performance. Secondary data was obtained through various kinds of literature, documents, and information from the libraries of the Faculty of Fisheries and Marine Sciences as well as from various related agencies including PT. ASI Pudjiastuti Marine Product, Journal of the Department of Marine Affairs, Fisheries, and Food Security in Pangandaran Regency. Secondary data collected including data on lobster catch or production, lobster distribution channel data, auction mechanism in Pangandaran, and other supporting data such as statistical data and PT. ASI Pudjiastuti Marine Product.

#### **2.2.3 Sampling methods**

The sampling method in this research uses the snowball sampling method. Snowball sampling is a method of determining a sample that is initially small in number, then enlarges. In determining the sample, the first one or two people were selected, but because these two people did not

feel complete about the data provided, the researchers looked for other people who were considered to know better and completed the data provided by the two previous people [6].

The snowball sampling method is conducted by obtaining information from the first marketing agency (fishermen), from this information source points to the next sample which is the next marketing agency to the last consumer [7]. Snowball sampling is used to analyze the product, financial, and information flows in the supply chain. The snowball sampling method in this research is carried out by taking samples through information technology by contacting and interviewing institutions marketing related to the distribution process of fishery catches, especially lobster from fishermen, which are sold and distributed to PT. ASI Pudjiastuti Marine Product to reach consumers.

The criteria used to select respondents in this study including four fishermen as respondent producers, three distributors, two employees of PT. ASI Pudjiastuti Marine Product and a retailer.

## 2.3 Data Analysis

### 2.3.1 Analysis of supply chain condition

Analysis of the condition of the supply chain of lobster is carried out through the approach of product flow, finance, and supply chain information which is described in a qualitative descriptive manner and supported by an assessment or evaluation of the indicators in the three streams based on the opinions of selected respondents. Product flow approaches including marketing objectives, implementation of supply chain management, demand, and supply. Meanwhile, the financial flow approach including capital and payments in cash and due.

Supply chain conditions of lobster were analyzed using a supply chain conceptual framework [8] which is modified into a supply chain development framework [9]. [10] Suggested that supply chain development can be analyzed using:

- Chain structures (Network structures)
- Chain objectives
- Chain managements
- Chain resources

- Chain business processes

### 2.3.2 Risk consequence

In abnormal supply chain conditions, some risks can threaten the sustainability of the supply chain, both those that are easy to replace and those that are not easy to replace quickly within the span of its management [11]. This risk value is referred to as the risk consequence ( $\alpha$ ) which can be calculated using the following formula:

$$\alpha = \frac{\delta \text{ replace}}{\delta \text{ collapse}}$$

Information:

- $\alpha$  : The risk consequences of a product in the supply chain.
- $\delta \text{ replace}$  : The time it takes for a supply chain to replace a sub-product or the time it takes to handle the interruption of a product flow and return to normal scheduling conditions with the same quality level.
- $\delta \text{ collapse}$  : Time for a sub-product to fail to complete before the supply chain suffers a loss at a critical point in its market service.

### 2.3.3 Marketing margin

Marketing margin is the difference between the price of lobster at the consumer level and the price at the producer level. The difference in price or marketing margin is due to the profits taken by marketing agencies and the costs incurred in marketing lobsters. Margin can be stated as a payment made to them for services. The marketing margin is systematically formulated as follows:

$$Mt = Pr - Pf$$

Information:

- Mt: Lobster marketing margin
- Pr: Price of lobster at consumer level (Rp / kg)
- Pf: Price of lobster at producer/fisherman level (Rp / kg)

Note that if  $Mt < 50\%$ , then marketing can be said to be efficient.

**Table 1. Risk consequences value**

Consequence	Information	$\alpha$
Important	Irreplaceable	1,0
Required	Hard to replace	0,6
Necessary	Easily replaced	0,3
Desired	Easily replaced	0,1

**2.3.4 Fisherman's share**

In addition to the marketing margin to calculate marketing efficiency, an assessment of fisherman's share is used. The size of fisherman's share is influenced by the level of processing, transportation costs, product durability, and the number of products. The higher the fisherman's share, the higher the share received by fishermen.

$$FS = \left(\frac{Pr}{Pr}\right) \times 100\%$$

Information:

- FS: Fisherman's share (%)
- Pr: Price of lobster at consumer level (Rp / kg)
- Pf: Price of lobster at producer / fisherman level (Rp / kg)

With a note that if the FS > 50%, marketing can be said to be efficient [12].

**2.3.5 Market share**

Market share analysis is the proportion of the company's ability to the sales of all competitors, including sales of the company itself. The market share rate is addressed and expressed in percentage figures. Based on these figures, the position of the company and the position of all its competitors in the market can be seen. Often the level of market share is used as a guideline or standard for the company's marketing success in a position with its competitors [13]. In determining the amount of market share, it can be formulated mathematically as follows:

$$Ms = \left(\frac{Pr}{Pt}\right) \times 100\%$$

Information:

- Ms: Market Share (%)

- Pr: Amount of production at the marketing agency (Rp)
- Pt: Total production amount (Rp)

**3. RESULTS AND DISCUSSION**

**3.1 General Condition of Fisheries in Pangandaran**

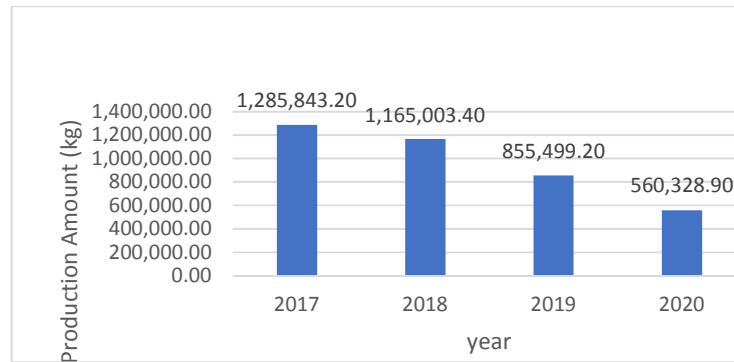
Fishery activities at TPI Pangandaran are dominated by capture fisheries. Based on data obtained from the Department of Maritime Affairs, Fisheries and Food Security in Pangandaran Regency, the production of all fishery commodities caught in 2017 TPI Pangandaran was 1.285.843,20 kg with a production value of Rp. 34.406.322.866,00, production in 2018 reached 1.165.003,40 kg with a production value of Rp. 39.985.714.226,00, production in 2019 reached 855.499,20 kg with a production value of Rp. 35.705.805.580,00 and production value in 2020 reaching 560.328,90 kg with a production value of Rp. 28.398.488.732,00. In the graphic illustration, the number and value of fisheries production value and quantity of TPI Pangandaran 2017-2020 are shown as follows.

Based on the graph, it is known that the amount of production from year to year, 2017 to 2020 has decreased significantly.

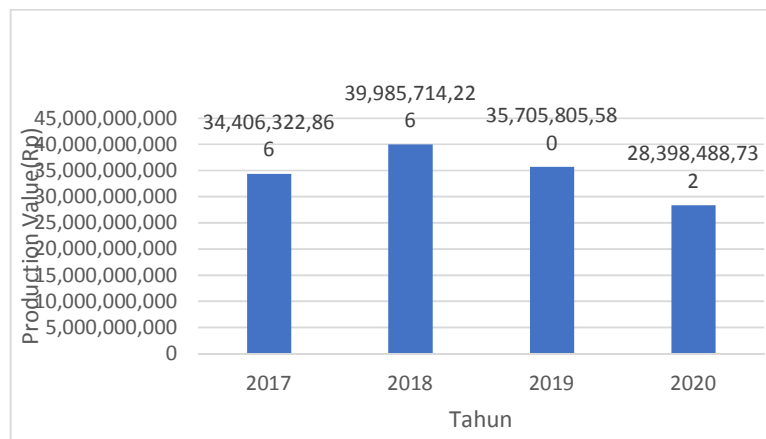
Based on the graph, the production value from 2017 to 2018 has increased, and subsequently decreased from 2018 to 2020.

**3.2 Overview of PT ASI Pudjiastuti Marine Product**

The main activity at PT ASI Pudjiastuti Marine Product was initially trading fishery products in the form of fish and lobster in fresh form. Fishery products are collected from fishermen and collectors around Pangandaran to be sold to various markets.



**Fig. 1. Graph of production amount of capture Fisheries at TPI Pangandaran 2017-2020**



**Fig. 2. Graph of capture Fisheries production value of TPI Pangandaran 2017-2020**

PT ASI Pudjiastuti Marine Product began to supply fishery products to various companies. PT ASI Pudjiastuti Marine Product has started making frozen fishery products fresh and cooked. Fishery products are lobster, shrimp, snapper, pomfret, grouper, tuna, and squid. Lobster is the main product under the brand name Susi Lobster.

In 2012 PT. ASI Pudjiastuti Marine Product started opening a branch in Nias for lobster storage. Delivery of products by plane. In 2019 PT. ASI Pudjiastuti Marine Product in Pangandaran no longer carries out export activities due to the insufficient availability of raw materials. The lobsters obtained are sold to exporters in Jakarta. So, lobster production operates only in Nias, Singkil, and Simeuleu.

### 3.3 Analysis of Supply Chain Condition of Lobster

The supply chain structure has chain members consisting of fishermen, collectors, PT. ASI

Pudjiastuti Marine Product and exporter as the main chain and exporter changed by the retailer as the alternative chain. There are six chains in the Pangandaran lobster supply chain. Case study of PT. Pudjiastuti ASI Marine Product.

Supply chain target of PT. ASI Pudjiastuti Marine Product is primarily aimed at the international market by passing through sales intermediaries to lobster exporters in Jakarta.

In supply chain management, fishermen have a very important role because they produce lobsters. The partnership formed is cooperative. The cooperative is KUD Minasari, so fishermen who are members of KUD Minasari sell their catch to TPI which would be bought by collectors and PT. ASI Pudjiastuti Marine Product.

The fishermen's physical resources are boat, gill nets, and baskets to store their catch. Another physical resource owned by fishermen is the means of transportation by motorbike. The collector's physical resources are digital scales,

buckets, fiber tubs, scoops, aeration, boots, and coolboxes. PT. ASI Pudjiastuti Marine Product has the same as a collector but with additional physical resources such as sand, ice, duct tape, newspapers, cardboard, and styrofoam boxes. The retailer's physical resources are stalls, ice and styrofoam boxes, and cooking utensils. The human resources for fishermen only two or three persons per trip. Collectors have around 10-15 workers and PT. ASI Pudjiastuti Marine Product Pangandaran only has six employees.

There are differences in product flow cycles between marketing channels which is the involvement of TPI and the differences in chain members depending on the condition of the lobster (live or dead). Cellular telephones are used to provide price information in their business processes. The scheduling of seasonal lobster product cycles also affects the lobster business process.

### 3.4 Risk Consequences

The supply chain of lobster in Pangandaran is considered good enough in terms of product flow, information, and finance. However, in a business that relies on living natural resources, several abnormal conditions can affect the sustainability of the supply chain, for example, raw materials are affected by natural conditions and other unexpected conditions that disrupt the supply chain. This situation can cause losses ranging from irreplaceable to irreversible. Sea lobster is a fishery commodity which production is strongly influenced by natural conditions. The rainy season is the highest point of lobster production. Meanwhile, during the offseason, the market price will increase due to limited lobster production. However, to keep the flow of production running properly, the collectors and PT. ASI Pudjiastuti Marine Product accommodates lobsters in a pond or fiber tub. The results of the consequence analysis of the

supply chain of lobster risk are described in detail in Table 2.

When the lobster stock from the raw material provider was not available, for 15 consecutive days the collectors and PT. ASI Pudjiastuti Marine Product will suffer losses in the sense that it cannot fulfill consumer demand. It is assumed that within 30 days the demand for lobster supply has not been fulfilled. Based on the results of interviews for 3 days, distributors, and PT. Pudjiastuti Marine Product ASI can return this to its original state by storing it in a fiber tub from the remaining lobster production that does not meet the sales requirements according to the regulation and purchasing lobsters from other TPI outside Pangandaran TPI such as TPI Batukaras, Nusawiru, Legokjawa and others around Pangandaran Regency. It means that the distribution distance is far and requires more costs to get a product of the same quality.

Late payment occurs when payments made were not cash, in other words, payments were due. However, this delay condition never lasts long, generally 2-3 days, a maximum of 7 days. Payment due is made by the agreement agreed by both parties and occurs between retailers to collectors and PT. ASI Pudjiastuti Marine Product. And it also happens when TPI is not operating. Late payment occurs while lobsters have accumulated and have not been sold to consumers and massive distribution from fishermen to collectors and PT. ASI Pudjiastuti Marine Product. The agreement for payment due is 2-3 days, a maximum of 7 days, but there has never been a payment due that has exceeded this limit.

The success of lobster distribution is largely determined by two things, those are the quality of the lobsters and the ability of PT. ASI Pudjiastuti Marine Product in distributing from one place to another.

**Table 2. Risk Consequences of Supply Chain of Lobster in Pangandaran (Case study of PT. ASI Pudjiastuti Marine Product)**

Risk	$\frac{\text{replace}}{\text{collapse}}$	Value	Consequence	Information
Availability of lobster stock	$\frac{15}{30}$	0,5	Hard to replace	Required
Late payment	$\frac{7}{7}$	1,0	Irreplaceable	Important
Lobster distribution	$\frac{1}{1}$	1,0	Irreplaceable	Important

When the quality of the lobster was poor, such as defect and die, the freshness of the lobster was not in good condition either. The ability of PT. ASI Pudjiastuti Marine Product's in distributing from one place to another greatly determines the physical condition of lobsters. The product that is expected is to have a living condition and physically intact without any defects, such as a large number of loose, torn, or hollow legs. Defective conditions in lobsters greatly affect the selling price, it can even decrease 25% - 30%. Both conditions cannot be returned to the desired condition because it is a natural factor in which within 1 day of marketing the trader does nothing to the lobster. Supply chain risk as a loss has been studied in terms of its likelihood of occurrence, its possible causes, and its side

effects in a supply chain. If one actor experiences a problem in the supply chain, it will affect both in the supply chain network [14].

### 3.5 Marketing Margin

Marketing margin is calculated to determine the price difference between each member of the supply chain of lobster from fishermen, collectors, PT. ASI Pudjiastuti Marine Product, exporters, retailers, to end consumers. Marketing costs are all costs incurred to flow the product from one marketing agency to the next beyond the profits earned by the marketing agency [15]. In detail, the calculation of the lobster marketing margin can be seen in Table 3.

**Table 3. Marketing margin of Lobster in Pangandaran (Case Study of PT. ASI Pudjiastuti Marine Product)**

Marketing Member	Chain I (Rp/Kg)	Chain II (Rp/Kg)	Chain III (Rp/Kg)	Chain IV (Rp/Kg)	Chain V (Rp/Kg)	Chain VI (Rp/Kg)
Fisherman Purchase price	150.000	150.000	105.000	105.000	135.000	100.000
TPI Purchase price	150.000	150.000	105.000	105.000	-	-
Selling price	190.000	190.000	115.000	120.000	-	-
Margin	40.000	40.000	10.000	15.000	-	-
Distributor Purchase price	190.000	-	115.000	-	135.000	100.000
Selling price	240.000	-	130.000	-	200.000	125.000
Margin	50.000	-	15.000	-	65.000	25.000
PT. ASI Purchase price	240.000	190.000	130.000	120.000	200.000	125.000
Selling price	290.000	290.000	140.000	140.000	290.000	140.000
Margin	50.000	100.000	10.000	20.000	90.000	15.000
Exporter Purchase price	290.000	290.000	-	-	290.000	-
Selling price	-	-	-	-	-	-
Margin	-	-	-	-	-	-
Retailer Purchase price	-	-	140.000	140.000	-	140.000
Selling price	-	-	155.000	155.000	-	155.000
Margin	-	-	15.000	15.000	-	15.000
Consumer Purchase price	-	-	155.000	155.000	-	155.000
Total margin (%)	140.000 (93%)	140.000 (93%)	50.000 (48%)	50.000 (48%)	155.000 (>100%)	55.000 (55%)



**Table 4. Fisherman's Share of Supply Chain of Lobster in Pangandaran (Case Study of PT. ASI Pudjiastuti Marine Product)**

Marketing chain	Fisherman's share
Chain I	51,72%
Chain II	51,72%
Chain III	67,74%
Chain IV	67,74%
Chain V	46,55%
Chain VI	64,51%

**Table 5. Market Share of Supply chain of Lobster in Pangandaran (Case Study of PT. ASI Pudjiastuti Marine Product)**

Market member	Component	Channel					
		I	II	III	IV	V	VI
Fisherman	Selling price (Rp/Kg)	150.000	150.000	105.000	105.000	135.000	100.000
	Market Share (%)	17,24%	23,81%	16,28%	20,19%	21,60%	19,23%
TPI	Selling price (Rp/Kg)	190.000	190.000	115.000	120.000	-	-
	Market Share (%)	21,84%	30,16%	17,83%	23,08%	-	-
Distributor	Selling price (Rp/Kg)	240.000	-	130.000	-	200.000	125.000
	Market Share (%)	27,59%	-	20,15%	-	32%	24,04%
PT. ASI	Selling price (Rp/Kg)	290.000	290.000	140.000	140.000	290.000	140.000
	Market Share (%)	33,33%	46,03%	21,70%	26,92%	46,40%	26,92%
Retailer	Selling price (Rp/Kg)	-	-	155.000	155.000	-	155.000
	Market Share (%)	-	-	24,03%	29,81%	-	29,81%

In the six lobster marketing chains above, the lowest marketing margin values are in the third and fourth chains with a total margin of IDR 50,000 / kg or 48%. A small marketing margin is more efficient than a high marketing margin [16]. Meanwhile, the largest marketing margin is in the fifth chain with a total margin of Rp. 155,000 / kg or more than 100%. Only the third and fourth marketing chains are below 50%, which means to be efficient. A distribution system is efficient if the level of marketing margin is less than 50 percent of the price level paid by consumers [17].

### 3.6 Fisherman's Share

The definition of fisherman's share itself is the comparison of the price received by fishermen with the price paid by the final consumer and expressed as a percentage. The

results of the fisherman's share can be seen in Table 4.

The smallest fisherman's share is in the fifth chain with 46,55% which means to be inefficient and unprofitable for fishermen. While the largest fisherman's share value is the third and fourth chains with 67.74%. Both are efficient and profitable for fishermen. Fisherman's share has a relatively low value if the price at the end consumer level is relatively higher than the price received by fishermen.

Based on the composition above, it appears that the pattern of the relationship between these two variables is negative, where the higher the fisherman's share value, the lower the margin distribution. The fisherman's share has a negative relationship with marketing margins [18]. The higher the fisherman's share the higher share that fishermen will get.

### 3.7 Market Share of Supply Chain of Lobster

Market share is a comparison between the selling price of each marketing actor and the price received by the supply chain actor expressed as a percentage. The market share value is calculated from the selling price of marketers divided by the total marketing selling price of the channel or chain, the results of which are expressed as a percentage and calculated from each channel. The following is the market share in each marketing chain in Table 5.

Based on the calculations of Table 5, each marketing channel has a different market share value, the longer the chain, the lower the market share value. The highest market share value is 46.40% in the fifth channel with marketing subject is PT. ASI Pudjiastuti Marine Product. Due to TPI was not operating and PT. ASI Pudjiastuti Marine Product sold products to the exporter as the last chain member of the fifth channel as well as the high selling price difference between the last and the first supply chain members. While the smallest market share value is in the third marketing channel with marketing member is fishermen at 16.28%.

### 4. CONCLUSION

The condition of supply chain management of lobster in Pangandaran case study of PT. ASI Pudjiastuti Marine product has 6 marketing channels in which there are differences in prices and supply chain members depending on the marketing target. The risks that must be faced by PT. ASI Pudjiastuti marine product is the availability of lobster stock, late payment, and distribution of lobster, all of which are influenced by seasons, fishing time, freshness of lobsters, and unexpected technical problems. The most efficient lobster marketing channel for all chain members is the third and fourth chain and the most profitable for PT. ASI Pudjiastuti marine product is the second chain. Position of PT. ASI Pudjiastuti marine product and its marketing success standard are the highest compared to all its competitors in the market because it has the largest market share value.

### CONSENT

As per international standard or university standard, participants' written consent has been collected and preserved by the authors.

### ACKNOWLEDGEMENTS

Thank you to the lecturers and the entire academic community of the faculty of fisheries and marine sciences

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

### REFERENCES

1. Ministry of Marine Affairs and Fisheries. Maritime Affairs and Fisheries in Figures 2018. Jakarta: One Data; 2018. Available: <https://knp.go.id/Setjen/Satudata/Artikel/9669-Kelsea-Dan-Perikanan-Dalam-Angka-2018-Telah-Terbit> Accessed 30 November 2020.
2. Rahman A., Dimas AH, Danu W. Size distribution and condition factor of spiny Lobster (*Panulirus homarus* Linnaeus 1758) in Pananjung Pangandaran. Widyariset. 2018;4(2):205-211.
3. Nurfiarini A, Wijaya D, Dan Haryadi J. Stock Restoration and conservation of Lobster resources in Wpp-Nri 573. In Wibowo S, MH Jayawiguna and Triyono (Eds.), Potential of marine and Fisheries resources wppnri Jakarta: Amafrad Press-marine and Fisheries Research and Human Resources Agency. 2019;573:157-178.
4. Nurhayati A. Analysis of the sustainable potential of capture fisheries in Pangandaran area. Aquatic Journal. 2013;4(2):195-209.
5. Rahardjo, M. Case Studies in Qualitative Research: Concepts and Procedures; 2017. Available:<http://repository.uin-malang.ac.id/1104/> Accessed June 13, 2020.
6. Sugiyono. Understanding Qualitative Research. Bandung: Alfabeta; 2012.
7. Sugiyono. Quantitative and Qualitative Research Methods. R&D. Alfabeta. Bandung; 2008.
8. Lambert DM, Cooper MC. Issues in supply chain management. Journal of Industrial Marketing Management. 2000; 29: 65-83.
9. Van Der Vorst. Performance measurement in agri-food supply-chain networks.

- Hollandseweg Netherlands: Logistics and operations research group, Wageningen University, Hollandseweg Wageningen, Netherlands; 2006.
10. Marimin, Alim, SS. Analysis of supply chain management decision making for agricultural commodities and products. Food Journal. 19; 2010.
  11. Neureuther BD, Kenyon G. Mitigating supply chain vulnerability. Journal of Marketing Channels. 2009;16:245-263
  12. Hamid AK. Agricultural Administration. Hasanuddin University Faculty of Agriculture. Makassar; 1972.
  13. Kotler Philip. Marketing management. millennium edition. PT Prenhallindo: Jakarta. 2002;2.
  14. Atikah N, Yustiati A, Herawati T. An integrated supply chain management based on non-colored tilapia (*Oreochromis niloticus*) seed market institution. Gadjah Mada University Fisheries Journal. 2019;21(2):65-72. DOI:10.22146 / jfs.44210
  15. Hanafiah AM, Saefudin AM. Fisheries Product Trading. UI Press. Jakarta; 1983.
  16. Winandi R. Agribusiness marketing (Agri marketing). Rosiana N, editor. Department of agribusiness, faculty of economics and management, IPB. Bogor; 2012.
  17. Widiastuti N, Harisudin M. Corn Marketing Channels and Margins in Grobogan Regency. SEPA 2013; 9:231-24.
  18. Sudiyono A. Agricultural Marketing. Muhammadiyah University of Malang. Malang; 2001.

---

© 2021 Dhary et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*  
*The peer review history for this paper can be accessed here:*  
<http://www.sdiarticle4.com/review-history/65498>