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FISHERIES OF SHARK IN KARANGSONG PORT, INDONESIA

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Trade, sharks, distribution, perception

ABSTRACT

Shark production in Karangsong tends to increase every year. The purpose of this study was to determine the pattern of shark trade landed in PPI Karangsong, Indramayu and perceptions of businesses man in responding to sharks as protected fish. The method used in this research is a questionnaire conducted on several shark business players, then deepening for each businessman. The results obtained from this study include the role of shark business players, including fishermen, collectors (wholesalers), large distributors, exporters, small traders and shark bones and teeth collectors. The price of whole shark is different from wet shark fins or dry shark fins. The wider the size of the shark's fin, the higher the selling price of the shark's fin. Fishermen and traders do not know or do not understand about shark conservation.

Introductions

Indonesia has a high diversity of sharks, with 118 species of sharks belonging to 25 tribes. However, almost all types of sharks with high economic value are threatened because of their capture, which in the last few decades shows a significant upward trend. The source of sharks caught was 72% bycatch and 28% of targets were from various fishing gear. Generally, shark fishing activities take place throughout the year, but there are certain months which are the highest catch season of the community in water.

The threat of shark extinction is getting more serious considering the recovery time of shark stock takes a long time because of the long age to reach gonad maturity. Various cases of shark extinction include Lamna nasus species in the North Atlan-tic Waters, Galeorhinus galius in California and Australia, bottle sharks (Squalus acanthias) in the North Sea and British Colombia [1]. Blue shark (Prionace glauca) which is an abundant pelagic shark, drastically declined and in 2007 entered the status of vulnerable, threatened with extinction on a global scale [2].

Sharks are caught as the main catch given the relatively high shark fisheries commodity prices. Sharks are used by Indonesian fishermen in almost all parts of their bodies, such as meat, fins, skin, liver, and bones. The utilization of sharks will continue to increase along with the increasing demand for sharks for consumption on the world market. Indonesia itself is listed as one of the countries that utilize the largest cartilaginous fish resources (shark and rays) in the world, with catches of 103,245 tons in 2011 and 105,230 tons in 2012. Sharks that are caught can be as bycatch or as a catch main catches [3]. Indonesia supplies around 15% of the total global shark fin requirement, while other countries only account for around 1% [4]. Based on the Central Statistics Agency [5] that around 424 tons of shark fins were exported throughout 2012. The trade value reached US $ 6 million or Rp. 57 billion.

Sharks fishing at Karangsong Port is interesting, considering that some of the catches of sharks by fishermen are sharks that are almost extinct and protected. This study aims to determine the pattern of shark trade landed at PPI Karangsong, In-dramayu, and perceptions of businesses in responding to shark protection as protected fish. So, with this information, it can be taken into consid-

eration or input in the management of shark fisheries in Indonesia, including Karangsong port.

Materials and Methods

The research was conducted in February - May 2019 on The Karangsong Port, Indramayu. The approach that will be used in shark fisheries socio-economic research is explorative and descriptive research with qualitative and quantitative approaches. Explorative research in this activity was carried out with the aim of exploring the perception of shark fisheries, the process of determining the price of sharks in each shark fishery actor, the shark's current distribution patterns. Explorative research was chosen because it is able to provide a sharper picture of a phenomenon, so deepening is possible to explore more insights related to the phenomenon being studied. In this case researchers must be open minded in seeing all the things that could potentially be an important clue [6].

a) Prize

There are 118 types of sharks that make the basis for determining the sale price of sharks. In this research, a price determination process for each species of shark landed at the Karangsong Port (PPN), Indramayu. Sharks, which are byproducts, result in no definite cost structure in shark trade. Tracing the price of sharks is done by questionnaire to fishermen and shark collectors.

The analysis of the data obtained in exploratory research, it will be conducted: Analysis of historical data analysis to find shark pricing and distribution patterns. Subsequently, an analysis of the results of the in-depth interviews was carried out an analysis of the field notes, interview notes, or transcripts. This data was collected as secondary data to support this research.

As for the analysis of primary data obtained based on descriptive research (survey), the techniques used are Frequency analysis and cross-tabulation to see the arrangement of data in a table that has been classified according to certain categories[7]. This is done to infer information about an indicator through the calculation of raw data or percentage of frequency.

b) Distribution and supply chains

The shark trade is divided into two types of product forms, namely whole sharks and shark fins. So that the distribution for the supply chain of shark trade is divided into two, namely for shark meat and shark fins.

c) Community and fishermen perceptions of shark fisheries

Perception is one of the psychological factors besides learning motivation and trust and traits that can affect individuals and organizations in determining product satisfaction. Perception is the process used by individuals to select, organize, and interpret information input to create a meaningful picture of the world [8].

Trace the perception of consumers and producers or fishermen to shark products in this case a case study on shark fishery products in Indramayu. In this study data collection will be carried out through questionnaires distributed to respondents. The measurement technique used in this study uses a Likert scale. Likert scale is a scale that can show the response of consumers or fishermen to shark trade (strongly agree, agree, doubt, disagree, and strongly disagree). In this study, the variable to be examined is the perception of fishermen and consumers about shark fisheries. This variable consists of four sub-variables: (a) Legality of shark fisheries business; (b) Knowledge of sharks; (c) The nature of shark products; (d) Advantages of shark trade.

The technique used in analyzing public perception is the Multidimensional Scaling (MDS) technique. MDS is one procedure used to map respondents' perceptions and preferences visually on a geometry map. The geometry map is called a spatial map or perceptual map, which is a translation of various related dimensions. For example, we use a Cartesian diagram with two dimensions, on the horizontal axis (X-axis) and on the vertical axis (Y-axis). Each dimension, X and Y, represents the various attributes involved in the formation of perception.

d) Responden

The sampling of respondents was also conducted purposively against fishermen who used to catch sharks, and businessman of shark trade. The number of samples for exploratory research is at least one or two representatives from each element of the target population, whose selection is based on quality rather than quantity [9]. While the number of samples for descriptive research refers to the number of samples sufficiency (n = 30) for each business actor in each commodity[10].

Result and Discussion

Responden

The number of respondents in this study were 121 people representing 3 shark fisheries businesses, with a composition of 82.64% fishermen, 12.40% traders / distrobutors and 4.96% shark consumers. The composition of fishermen respondents is the captain, ABK and Juragan. While the composition of traders / distributors is divided into 3 categories, namely fish collectors, whole-salers / distributors and retail traders. The shark fisheries consumers in this study are consumers who live in Indramayu.

Distribution and Marketing

Sharks are carried out in a limited circle. This can be seen when doing distribution and marketing tracing, business actors do not explain clearly about the business of selling sharks. Tracing distribution and marketing patterns is carried out on business actors at the fishermen level or in this case producers, distributor levels, and consumers.

The results showed that the shark trade in Karangsong was still in demand by business players in the fisheries sector. Sharks trade businesses in Karangsong include: (1) Fishermen; (2) Collectors; (3) Market (Retail traders); (4) Large Distributors; (5) Bone and shark tooth collectors.

Other businesses in the shark trade are restaurants and shark bones collectors. Part of the shark used in the menu raw material in restaurants is the shark's fin. Shark bone collectors use shark bones as accessories. The marketing of shark trade is fairlyclosed and tends to use a network that has been formed for years. This can be seen from the distribution of sharks, especially shark fins that cannot be accessed by just anyone. Outsider access closed. Thus, information is very limited in shark marketing.

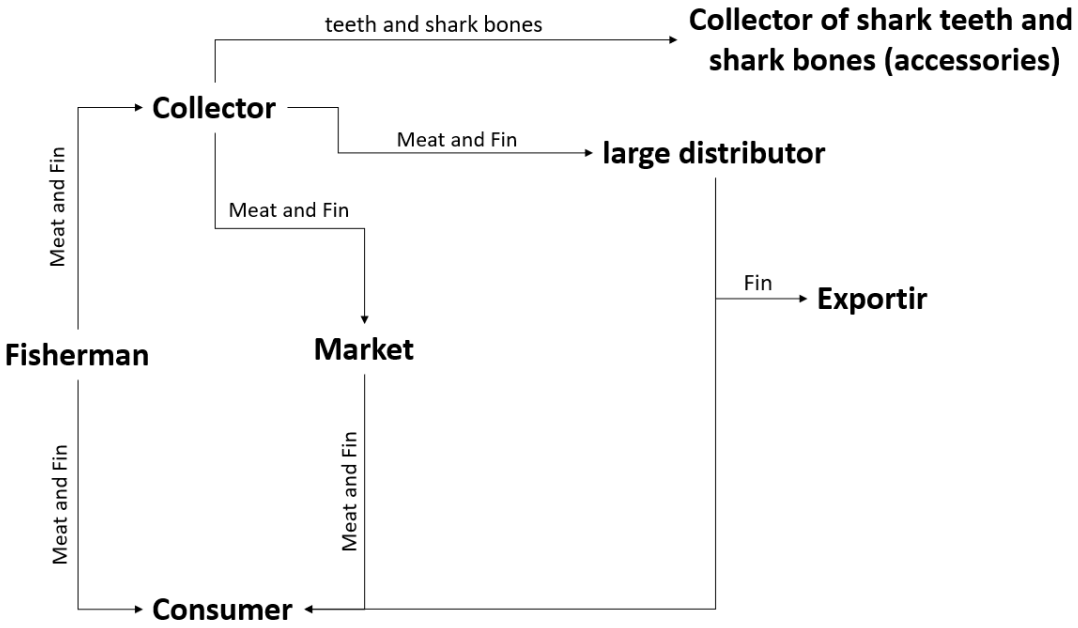

Figure 1. Flow of Sharks Trade Distribution

Prize

Some factors that influence the price of sharks are fish species, fish size, and fin width. As for the abundance of shark fishing, the decline in shark prices can occur. Determination of the price of sharks from fishermen to collectors occurs when sharks begin to land. Unlike other commercial fish, shark pricing does not go through a fish auction. Bargain contact occurs directly between the skipper and the shark collector.

The price of the whole-shark is different from wet shark fins or dry shark fins. The wider the size of the shark's fin, the higher the selling price of the shark's fin. One type of shark that is excellent is the hammerhead shark because it has a large fin size compared to other types of shark fins.

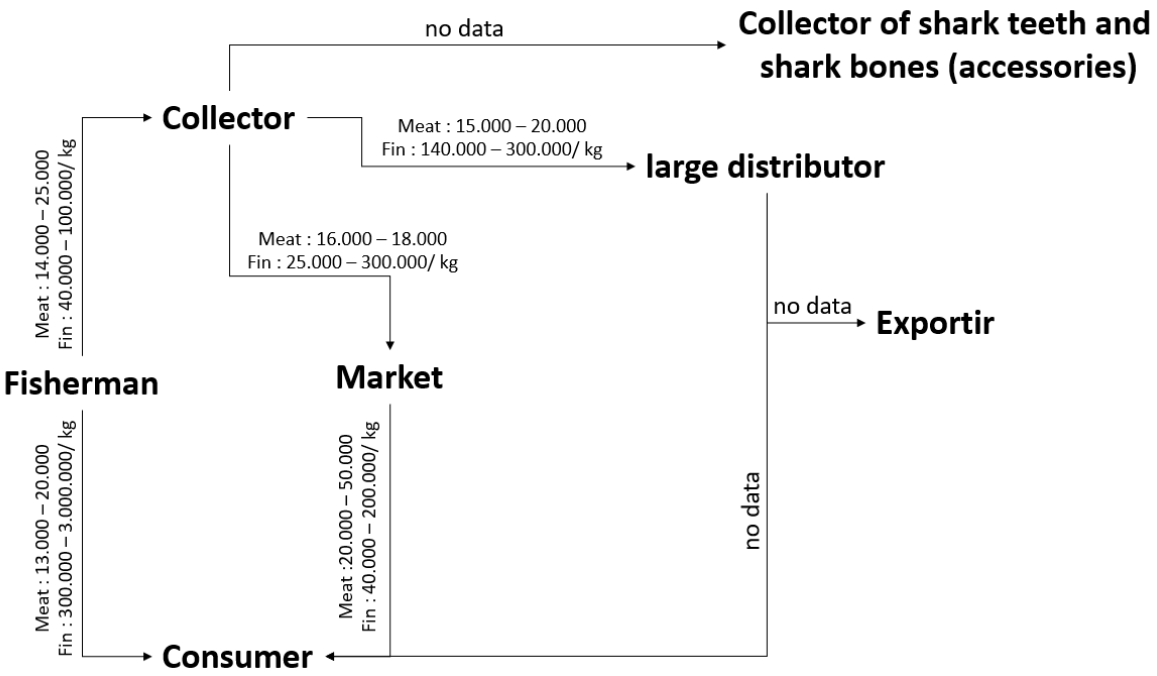

Figure 2. Price for Sales of Sharks in Indramayu

Perception

Fisherman knowledge is very minimal about the biological aspects of sharks and the status of sharks in Indonesian waters. This is evident from the response of fishermen to the statements put forward by researchers. The more fishermen answered "not understand". Graphically, the results of the perception of the general picture of sharks are presented in the picture. Fishermen's education level on average only attained elementary school. This is what makes one of the causes of lack of knowledge about the importance of shark protection.

The perception of fishermen who do not know the existence and status of sharks, whether they are fully protected or regulated by trade, makes fishermen not hesitate to catch sharks and sell them at TPI. In the field survey there were a number of hammerhead sharks in containing conditions being weighed at TPI to then be auctioned. Spearman's nonparametric correlation test results show that between the statements regarding the general picture of sharks in fishermen to one another significantly different (Table 1).

Table 1. Spearmen Nonparametric Correlation Test between Statements

Statment	Correlation coefficient
A. Sharks are animals that breed by giving birth	0,775**
B. There are many types of sharks, but some of them are endangered	0,809**
C. Overfishing of juvenile sharks causes shark populations to decline	0,695**
D. Sharks play a very important role in maintaining the food chain in the sea	0,760**
E. There are 22 species of sharks that are listed as protected by the IUCN	0,659**
F. One type of shark enters Extinct Critical Condition	0,768**
G. Five species of shark with Endangered status	0,666**

Multidimensional Scaling (MDS) test results show that fishermen gave the same portion of the assessment on the statement [A] Sharks are animals that breed by giving birth and [B] Many types of sharks, but some of the shark types have been threatened with extinction, statement [C] and [D], and [E] and [G]. So that fishermen consider this statement to be interconnected. MDS analysis by looking at the object points presented in Figure 3.

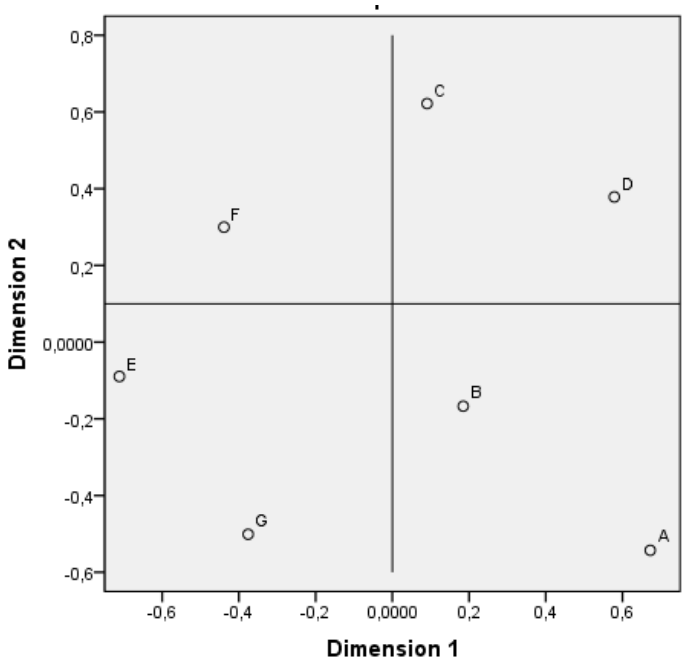

Figure 3. MDS Analysis Quadrant Analysis Statement of Sharks in Fishermen

Trader / distributor knowledge is sufficient for the biological aspects of sharks and the status of some species of shark. This is evident from the response of fishermen to the statements put forward by researchers. The majority of traders / distributors answered understanding for the general description of shark fisheries. In the detail statement of shark fisheries, the majority of traders / distributors answered that they did not understand or did not understand.

Traders / Distributors of shark fisheries strongly agree with maintaining shark conservation in Indonesian waters, around 60.87% stated "agreed" on shark protection. But this is contrary to disagreement in order to reduce the catch and regulations regarding shark fisheries. This can be seen from the statement of traders / distributors with a level of disagreement to disagree around 82.61% on the issue of regulations in shark fishing and around 73.92% stated they do not agree to the release of sharks that are accidentally caught.

Conservation of shark: If traders/distributors participate in shark protection, traders/distributors prefer to catch them regularly. The level of trader/distributor participation in shark protection is presented in the figure. Around 65.22% of fishermen answered that they had to catch sharks regularly. Traders/distributors expect sustainable shark fishing. Around 69.57% of traders/distributors stated that they did not agree if they were not allowed to catch sharks.

Consumer knowledge about the status of sharks is very minimal. Most consumers do not know information about: Many types of sharks, but some of these sharks are endangered; Overfishing of juvenile sharks causes shark populations to decline; Sharks play a very important role in maintaining the food chain in the sea; There are 22 types of sharks that are listed as protected by the IUCN; One type of shark is classified as Critically Endangered and Five species of shark are Endangered. More than 50% of consumers answered "lack of understanding". This can be seen from the time of in-depth interviews with consumers, who only prioritize efficacy. Consumers indicate that shark fins are medicinal.

Conclusion

The price of whole shark is different from wet shark fins or dry shark fins. The wider the size of the shark's fin, the higher the selling price of the shark's fin. Fishermen and traders do not know or do not understand about shark conservation.

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