

## A STUDY ON DOMESTIC MARKETING OF SHARKS AND RAYS IN SABAH, MALAYSIA

Illisriyani Ismail\*<sup>1</sup>, Fatimah Mohamed Arshad<sup>1</sup>, Kusairi Mohd Noh<sup>1</sup>, Tai Shzee Yew<sup>1</sup>, Ahmad Shuib<sup>1</sup>, Ahmad Ali<sup>2</sup>, Aswani Farhana Mohd Noh<sup>1</sup>, Nurhafizah Mohamed<sup>1</sup>, and Allia Farhana Rosmanshah<sup>1</sup>

<sup>1</sup>Institute of Agricultural and Food Policy Studies, Universiti Putra Malaysia Putra Infoport, Serdang 43400 Selangor, MALAYSIA

<sup>2</sup>SEAFDEC/MFRDMD - Marine Fishery Resources Development and Management Department  
Southeast Asian Fisheries Development Center Taman Perikanan Chendering 21080 Kuala Terengganu  
Terengganu, MALAYSIA  
Email: illisriyani@gmail.com

### ABSTRACT

*This paper examines the domestic marketing of sharks and rays in Sabah. The aspects which highlighted in the study are include; the major players in the system, marketing channels and practices. Profiling the middlemen, their marketing activities and practices are crucial to indicate the economic roles of each type middlemen along the supply chain and the value creation made on the products respectively. This information are indicators of the commodification and marketization of sharks and rays in Malaysia, the major players, value added activities, roles of prices on the supply and demand of shark and ray products and consumer preferences. Therefore, data on the marketing of sharks and rays are collected through “key informant surveys” (KIS) and “focus group discussions” (FGD) with relevant stakeholders who are involved in the activities. Based on the findings of the KIS and FGDs, the marketing channels are highly localized depending on the catch (volume and type) and local demand due to the traders that have a good marketing network within Malaysia. Moreover, the sharks and rays product development is active that fishers and traders are able to add value to their catch by various product transformations through drying, packaging and processing both for food and non-food purposes. Due to the unique properties of the products, its marketing system is run by a wide range of intermediaries including: fishers, wholesalers, retailers (incl. those specializing in medicinal products), restaurants, exporters/importers and consumers. The observation on the domestic marketing of sharks and rays in selected areas in Sabah suggest that the industry is responding to the market forces pretty well despite the location disadvantage.*

**Keywords:** Domestic marketing; major players; marketing channels; and practices



## INTRODUCTION

Malaysia has developed a National Plan of Action for sharks (NPOA-Shark) in 2006 in line with the requirement of the International Plan of Action for Conservation and Management of Sharks (IPOA-Sharks) by FAO in 1998 (Department of Fisheries Malaysia, 2006). The NPOA-Shark contains seven major items. They are: biology and habitat, socio-economic aspects of fishers and middlemen, trade, consumption of elasmobranch, capacity building and research coordination, increasing awareness through information, conservation and effective management of sharks and rays. The first NPOA-Shark has been revised in 2014 taking into account of the suggestions made by the IPOA-Sharks after the document was evaluated on its achievement (Department of Fisheries Malaysia, 2014). According to IPOA-Sharks, all the seven items under NPOA-Shark 2006 have been addressed but sections on the socio-economics profile of the fishers and middlemen requires further empirical evidences as well as on trade issues. A number of studies have been proposed by Department of Fisheries Malaysia (DOFM) to fill the knowledge gap namely, (i) dependency of fishers in Sabah on shark and ray catch; (ii) domestic utilisation, marketing of sharks and rays in Sabah; and (iii) the international trade of the Malaysia's shark and ray products. This paper provides the findings of the number two theme and is based on a research project titled "*Marketing of Sharks & Rays in Sabah and International Trade of Malaysia's Sharks & Rays*" which is a collaboration research between Institute of Agricultural and Food Policy Studies and Marine Fishery Resources Development and Management Department.

From the research findings, the evidences on trade trends and competitiveness provide an indication of the extent of commercialization activities of this commodity in Malaysia. Profiling the middlemen, their marketing activities and practices are crucial to indicate the economic roles of each type middlemen along the supply chain and the value creation made on the products respectively. These information are indicators of the commodification and marketization of sharks and rays in Malaysia, the major players, value added activities, roles of prices on the supply and demand of shark and ray products and consumer preferences. They are valuable input towards designing a sustainable development of sharks and rays from all angles: production, utilisation, supply, demand, market, and resource management.

Therefore, the objectives of the study are to identify the major actors in the marketing of sharks and rays, and to examine the sharks marketing channels and practices in selected areas in Sabah which are Kota Kinabalu, Sandakan, Tawau, and Semporna. However, in this paper will only emphasize the case study of Kota Kinabalu and Sandakan.

## METHODOLOGY

Data on the marketing of sharks and rays are collected through "key informant surveys" or KIS and "focus group discussions" or FGD with relevant stakeholders who are involved in the activities. KIS is a qualitative in-depth interview with individuals who know what is going on in the community<sup>1</sup>. In this study, the purpose of KIS is to collect information from a wide range of individuals including community leaders, traders, officials, prominent fishers, village heads who have first-hand knowledge about the fisher community and market. A FGD is a small group of six to ten individuals led through an open discussion by a skilled moderator<sup>2</sup>. The group is large enough to generate rich discussion but not so large enough that some participants are left out.

The stakeholders involved in both the KIS and FGD were: fishers, small time traders, wholesalers, processors, retailers (including restaurants, medicinal shops) and exporters. The study has selected landing centres in Sabah which are Kota Kinabalu which accounted for 18.6% of sharks landing in Sabah in 2013, and Sandakan (29.1%) (Department of Fisheries Sabah, 2014).

A supply chain framework is used to guide the discussion and information seeking. The study ensured that major marketing functions are covered. These include: exchange function (buying, selling and storage), physical (transportation, processing and standardization) and facilitating (risk bearing,

<sup>1</sup> [http://healthpolicy.ucla.edu/programs/health-data/trainings/Documents/tw\\_cba23.pdf](http://healthpolicy.ucla.edu/programs/health-data/trainings/Documents/tw_cba23.pdf)

<sup>2</sup> <https://assessment.trinity.duke.edu/documents/How to Conduct a Focus Group.pdf>



financing and market intelligence). The major players along supply chain and product development are identified and observed respectively from the landing centres until they reach the final destinations reported by the stakeholders. To capture the differences in the marketing network between localities, a case study<sup>3</sup> approach is adopted for the locality and specific firm chosen.

## RESULTS

This section describes the case studies on marketing channel of sharks and rays by areas as well as specific entities (fisher-cum-exporters). The selected areas are Kota Kinabalu and Sandakan.

### Marketing Channels of Sharks in Kota Kinabalu, Sabah

The marketing practices and channels of sharks at Kota Kinabalu are presented in Figure 1. The study has observed the landing of sharks at the landing complex provided by the Sabah Fish Marketing Authority (SAFMA) in Kota Kinabalu. It is reported that sharks are also brought to other private jetties nearby i.e., fish market jetty. Unlike tuna and marlin where they are traded on contractual basis between the fisher and buyer, sharks are sold openly to traders. Prices are determined by the buyers (who are largely wholesalers) and they vary according to species, size and grade. Transactions are mainly made in cash.

The major sharks species caught are hammerhead shark (*Sphyrna lewini*), bamboo shark (*Chiloscyllium punctatum* and *C. plagiosum*) and sport-tail shark (*Carcharhinus sorrah*). The landing prices for each species are RM4.50/kg, RM4/kg and RM2.50/kg respectively. The whole body of sharks and rays are sold to a single wholesaler (first level) who offered at high price irrespective of volume. For instance hammerhead shark and sport-tail shark are sold at RM5/kg. The separation of the body parts later were cut into pieces are done either at the landing centre, wet markets, or factories.

The body parts are sold at the landing centres (stalls owned by the fishers) as well as to other wholesalers (second level) and local restaurants. Whilst some of the wholesalers (second level) processed at the landing centres, the sharks body parts to produce fish balls and small cuts.

According to Abdul Haris Hilmi *et al.*, (2017, in press), the highest sharks species landing by weight at SAFMA Jetty were brownbanded bambooshark (*Chiloscyllium punctatum*) followed by whitespotted bambooshark (*C. plagiosum*), sport-tail shark (*Carcharhinus sorrah*), scalloped hammerhead shark (*Sphyrna lewini*), and coral catshark (*Atelomycterus marmoratus*). During our trip we found whitetip reef shark (*Triaenodon obesus*), bamboo sharks (*Chiloscyllium* spp), sport-tail shark (*Carcharhinus sorrah*) and scalloped hammerheadshark (*Sphyrna lewini*). The landing prices are varied by species for big size sharks from family Carcharhinidae such as sport-tail shark and scalloped hammerhead shark from RM2.50/kg to RM3.50/kg and all sharks and rays were sold to single wholesaler. Fins are sold separately. Processing for big size sharks to small cuts was carried out at the jetty by the wholesaler. For instance, whole body of small size shark such as scalloped hammerhead sharks and sport-tail shark were sold at RM3.5-RM4.5/kg. The body parts are sold to other retailers at nearby fish markets, traders and local restaurants.

Sometimes, the traders outsource sharks from fishers to produce sharks cuts and fish ball. The left over body parts are also processed into animal food (pellet) by a fishmeal factory. The left-over meat is sold at RM0.40/kg and heads and other parts of the body are sold at RM0.15 sen/kg. Almost all parts are fully utilised.

The prices however increased to nearly double or even triple once its reach the fish markets. For example, spot-tail shark and bamboo shark are sold at RM2.5 to RM3.5/kg at SAFMA jetty before were sold at RM4.5 to RM5.5/kg at nearby Kota Kinabalu fish market.

The sharks fin marketing channel differs from its body parts. To further enhance the value added of the fin, the fishers dry and salt the fin for about two to three weeks. They also source fins from other fishers. The dried and salted fins are stored in sacks. Each sack weighs 15 kg and it takes two to three months to fill up one. The price of per sack is between RM1,200 to RM1,300 sold to Chinese medicinal shops locally.

<sup>3</sup> "Case study" is defined as an in-depth investigation of a single individual, group or event to explore the causes of underlying principles (<http://www.pressacademia.org/case-studies/definition-of-case-study>)

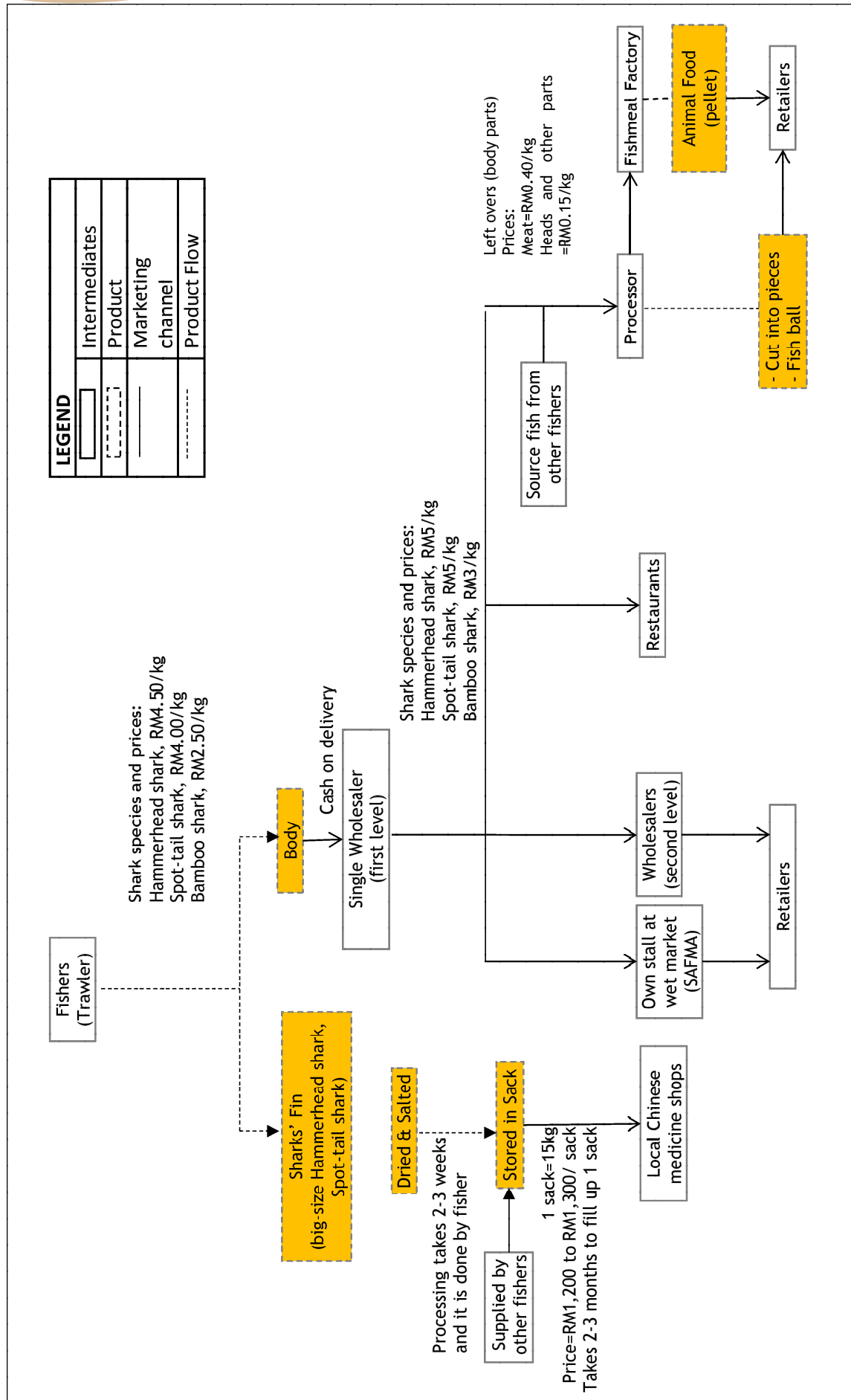


Figure 1: Marketing channels of sharks in Kota Kinabalu, Sabah

## Marketing Channels of Rays in Sandakan, Sabah

The study examines the marketing channel of rays of two exporters in Sandakan (Figure 2). The fishers in Sandakan who are mostly tawlers supply rays catch to local fishmongers, wholesalers and the two exporters.

According to Abdul Haris Hilmi et al., (2017 in press) the highest landing of rays by weight was from pink whipray (*Himantura fai*) followed by whitenose whipray (*H. uarnacoides*), leopard whipray (*H. leoparda*), whitespotted whipray (*H. gerrardi*), Jenkin's whipray (*H. jenkinsii*), reticulated whipray (*H. uarnak*) and bluespotted stingray (*Neotrygon kuhlii*). Sandakan is found to be the major landing site for rays in Sabah.

The big size ray species with usable skins (only denticle part area) for food and accessories such as pink whipray, whitenose whipray, leopard whipray, whitespotted whipray, Jenkin's whipray and reticulated whipray are sent to local processors. Small species with unusable skin such as bluespotted stingray are further segmented into three categories: meat, livers and rest of the body. The meat and liver are sold to the wet market while the rest of the body are sold to the fishmeal factories if there is demand for it.

The prices of rays at the landing sites are between RM2 – RM2.50/kg for small rays compared to RM1.50/kg for big rays. The processors pay RM4/piece of ray's skin of less than 6 inches, RM6/kg for rays more than 10 inches and RM6/piece of reticulated whipray and leopard whiprays. Payments to fishers are made on credit once a week.

The Exporter 1 owns three trawler boats. The caught rays are frozen and exported to China (about 90% of the catch) and the balance is sold at the local market. Exporter 2 on the other hand diversifies his ray exports. As for species with usable skin, they are processed and exported to Thailand. Semi – processed (meat only without head, gill, internal organ and tail) are exported to Hong Kong. Other big size ray species with unusable skin are segmented into head and cartilage, livers and meat. Heads and cartilage bones are exported to Hong Kong for pharmacology used, livers are frozen and are shipped to Sibu Sarawak and meat are shipped to Selayang Wholesale Market, near Kuala Lumpur in Peninsular Malaysia.

## DISCUSSION

The Study has gathered data on the marketing channels and practices of sharks and rays in Kota Kinabalu and Sandakan. Based on the discussions, a number of observations can be concluded.

Firstly, the marketing channels are highly localised depending on the catch (volume and type) and local demand. The key industry players (wholesalers, processors, retailers, exporters, and consumers) are local people. Due to the unique properties of the shark and ray products, its marketing system is run by a wide range of intermediaries including: fishers, wholesalers, retailers (incl. those specialising in medicinal products), restaurants, exporters/importers and consumers.

Secondly, the diversity of products (refer **Appendix 1**) and value added created indicate high degree of utilisation of shark carcass by the fishers and traders. For instance, in Kota Kinabalu, the forms of consumption of sharks by local consumers are in various forms (including medicinal purposes).

Thirdly, it is observed that in all centres, the shark and ray products are consumed locally as well as for export. Shark and ray products are traded in the world market particularly in the Asian market such as Hong Kong, Singapore and Thailand (only skin). The traders seem to have a good and its own unique of marketing network within and outside Malaysia. Major domestic market destinations include Sibu, Johor Bahru and Kuala Lumpur.

Fourthly, the shark and ray upstream product development is active which fishers and processors were able to add value to fresh catch by various product transformations through drying, salting, packaging, and processing both for human and animal consumption. However, the downstream product development requires further research and development.

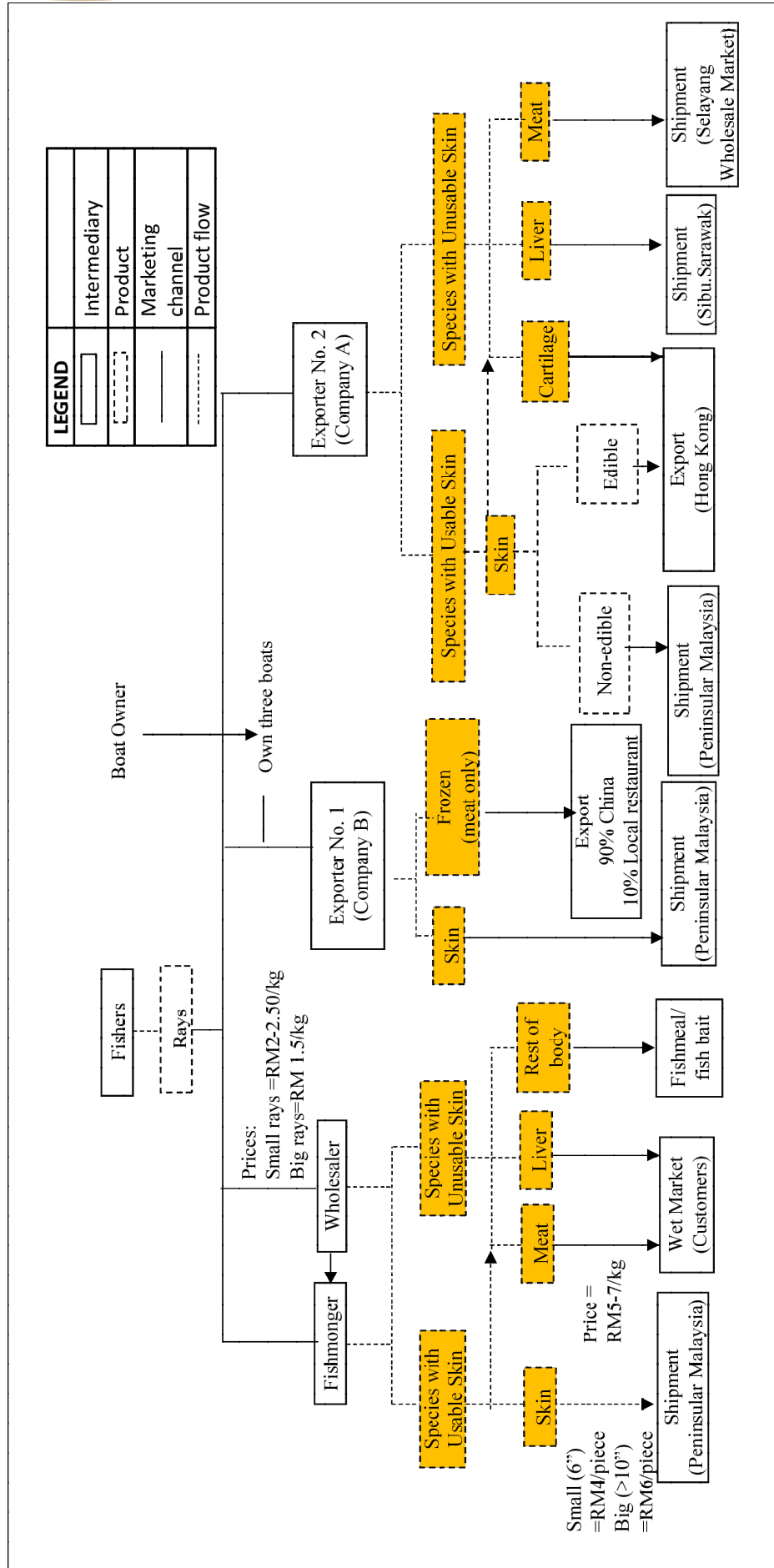


Figure 2: Rays marketing channel in Sandakan, Sabah

Fifthly, the traders were able to perform marketing function efficiently despite the location disadvantage. Therefore the state of infrastructural facilities require a lot more improvement to minimize transaction cost. With highly efficient transportation network, the products are able to fulfil the demand in Peninsular Malaysia which minimising the import volume from other countries.

Finally, along with the active domestic marketing and trade which are contributing to livelihood and socio-economics of the local communities, their practices reflect the sustainability and optimal utilisation of natural marine resources.

## CONCLUSION

The observation on the domestic marketing of sharks and rays in selected areas in Sabah suggest that the industry is responding to the market forces pretty well despite the location disadvantage. The growing demand in neighbouring countries particularly China is being disseminated through various media to the industry participants. Based on the findings of the KIS and FGDs, a number of observations can be concluded. First, considering that the products are “by-catch” which are irregular in term of harvest and size, its marketing system can be considered relatively efficient. The following observations support this contention. Second, the marketing channels are highly localised depending on the catch (volume and type) and local demand. For instance, in Kota Kinabalu, sharks are consumed by local consumers in various forms (including medicinal purposes). In Sandakan, sharks and rays are either consumed locally or exported particularly for shark fin and large size sharks. Third, sharks and rays are traded in the world market particularly in the Asian region such as Hong Kong, Singapore and Thailand. China is the final destination for some products particularly shark fin that are exported to Hong Kong. Fourth, the traders seem to have a good marketing network within and outside Malaysia. Popular export destinations are: Thailand, Singapore, Hong Kong and China. Major internal market destinations include Sibul, Johor Bharu and Selayang. Fifth, the sharks and rays product development is active in that fishers and traders were able to add value to their catch by various product transformations through drying, packaging and processing both for food and non-food purposes. The diversity of products and value added created indicate high degree of utilisation of shark carcasses by the fishers, processors and traders. Sixth, the traders were able to perform marketing function efficiently despite the location disadvantage infrastructural defects particularly at the landing centres and logistical facilities require a lot more improvement to minimize transaction costs. Seventh, due to the unique properties of the shark and ray products, its marketing system is run by a wide range of intermediaries including: fishers, wholesalers, retailers (incl. those specialising in medicinal products), restaurants, exporters/importers and consumers. In short, the fundamentals for sharks and rays are relatively strong particularly the demand sector. The uniqueness of shark fin which is revered by Chinese consumers at large explains for its very high market value and hence incentives for the supply sector. The supply sector on the other hand may not be able to respond as fast as the demand and in fact it requires monitoring to ensure sustainability. The finning regulation has prompted the market for shark meat all over the world which minimizes wastage. Clearly interventions aim at conservation will have to balance the trilogy of the market, resources and environment in a sustainable manner.

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Appendix I: Price of sharks and rays by species and market destination in Sabah

Species	Local Name	Price Range (RM/kg)	Part	Market Destination	Other Body Parts	Price Range (RM/kg)
<i>Sphyrna lewini</i>	Hammerhead shark	4.50 – 5.00	whole body	Local	fin	1,200 – 1,300/sack of 15kg fin
<i>Chiloscyllium punctatum</i>	Bamboo shark	3.00 – 5.50	whole body	Local	-	-
<i>Chiloscyllium plagiosum</i>	Bamboo shark	3.00 – 5.50	whole body	Local	-	-
<i>Carcharhinus sorrah</i>	Spot-tail shark	2.50 – 5.50	whole body	Local	fin	1,200 – 1,300/sack of 15kg fin
<i>Himantura fai</i>	Pink whipray	2 – 2.50 (small) 1.50 (big)	whole body	China, Thailand, Sarawak, Kuala Lumpur, Local	skin	4.00/piece <6 inc; 6.00/piece >10 inc
<i>Himantura uarnacoides</i>	Whitenose whipray	2 – 2.50 (small) 1.50 (big)	whole body	China, Thailand, Sarawak, Kuala Lumpur, Local	skin	4.00/piece <6 inc; 6.00/piece >10 inc
<i>Himantura leoparda</i>	Leopard whipray	2 – 2.50 (small) 1.50 (big)	whole body	China, Thailand, Sarawak, Kuala Lumpur, Local	skin	6.00/piece
<i>Himantura gerrardi</i>	Whitespotted whipray	2 – 2.50 (small) 1.50 (big)	whole body	China, Thailand, Sarawak, Kuala Lumpur, Local	skin	4.00/piece <6 inc; 6.00/piece >10 inc
<i>Himantura jenkinsii</i>	Jenkin's whipray	2 – 2.50 (small) 1.50 (big)	whole body	China, Thailand, Sarawak, Kuala Lumpur, Local	skin	4.00/piece <6 inc; 6.00/piece >10 inc
<i>Himantura uarnak</i>	Reticulated whipray	2 – 2.50 (small) 1.50 (big)	whole body	China, Thailand, Sarawak, Kuala Lumpur, Local	skin	6.00/piece

\*Note: Local = Kota Kinabalu

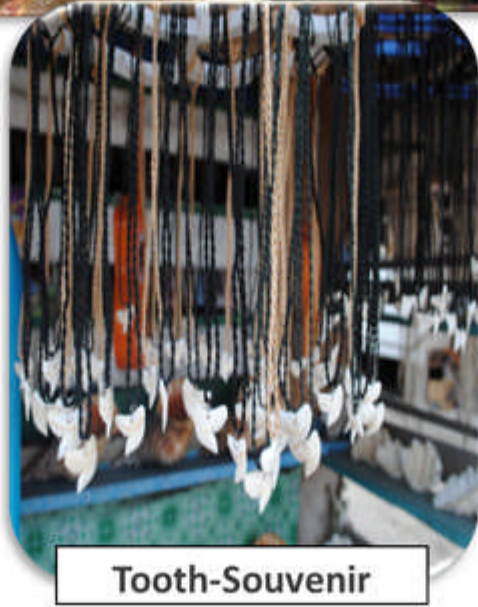




Appendix II: Shark products in Kota Kinabalu, Sabah



Food Products



Tooth-Souvenir

Appendix III: Ray products in Sandakan, Sabah



Food Products



Ray skins as accessories

