The Role of Middle Persons as a Distribution Channel for Small-scale Marine Capture Fishery Products: Case Study in Rayong Province, Thailand

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ABSTRACT

The main objective of this study was to describe the small-scale marine capture fishery products distribution in Rayong Province, Thailand, which particularly focused on the relationship between small-scale fishers and middle persons who played important roles in buying fish from small-scale fishers. It is important that a co-distribution-management for small-scale marine fishery products among the fishers and/or middle persons with the support from the local government could sustain the fishers' livelihood and benefit in the selling and buying system. The data were collected by interviewing 297 small-scale fishers catching fish along the three coastal districts and 39 middle persons (5 men, 34 women) in Rayong province. The results indicated that 60% of the middle persons provided loans or fishing gear to fishers to help them with their fishing operation cost and their daily life, in return fishers sold their catch to these middle persons. When a first middle person sold aquatic products to a second middle person or other buyers, the product's price increased by 25% depending on the aquatic animal species and size. The research also found that the number of middle persons might decrease because of few successors, therefore, it will pave the way for the middle persons to get more buying and selling power in the near future. Hence, the fishers will have less negotiating power in selling their fish. In order to solve this problem, the small-scale marine capture fishery products co-management system among fishers is very important to provide selling power to fishers. If fishers can sell the aquatic products by themselves or fisher's groups, it would be beneficial to them and the customers as well.

Keywords: Middle person, Small-scale fisheries, Fishery products distribution

INTRODUCTION

The demand for marine products has been rising while these products are being increasingly imported from and exported to many countries. The total capture production from marine waters was 81.5 million tonnes in 2014 (FAO, 2016). The contribution of capture fisheries to GDP was more than one percent in Southeast Asian countries such as in the Philippines (2.2%), Viet Nam (3.9%) and Thailand (1.6%). The total number of fishing boats in Asia was the largest, consisting of 3.5 million boats and accounting for 75% of the global fleet (FAO, 2016). For small-scale fisheries, motorized fishing boats (less than 12 m in total length) comprised about 85% in Asia, and the proportion of non-engine fishing boats in Asia was around 30% in 2014 (FAO, 2016). In Thailand,

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the total number of fishing boats was 58,119 in 2000, 80% of which were small-scale as well as small-scale fishing boats less than five gross tonnage (Boutson *et al*., 2016).

Fisheries play an essential role in providing vital income by generating opportunities to coastal residents. FAO reported that 39.4 million people were engaged as world fishers in 2012. The number of individuals earning income from primary sector employment in fisheries and aquaculture in 2002 reached about million (FAO, 2014). Furthermore, women are also directly engaged in primary production accounting for more than 15 percent of people engaged in fisheries and aquaculture, 90% of them are engaged in processing activities (FAO, 2016).

In Thailand, fisheries is composed of three main sub-sectors: marine, inland, and aquaculture. Fish production was mainly from marine fishing (51%), coastal aquaculture (25%), freshwater culture (17%) and freshwater fishing (7%) (NORAD-FAO, 2012). Small-scale fisheries are very important to provide source of food and income to the fishers and local people. According to previous research, about 47,000 households were involved in small-scale fishing activities in 1995 (Lunn, 2006). The fisheries sector can provide various activities and job opportunities, for example as fish collectors, middle persons, and repairing boats and fishing gears.

The fisheries sector is important and information is needed in order to manage the fisheries system and sustain fisheries resources. The government and other agencies search and collect fisheries data but statistical information for this sector is very limited especially from the small-scale fisheries. Particularly, statistics or complete data regarding marine capture fishery products distribution and market from small-scale fisheries are not available; most of the information are mainly from commercial fisheries, while existing academic papers are few. Therefore, this study was conducted to gather information on the marine capture fishery products distribution in Rayong Province, Thailand and develop it as a case study. This focused on fish distribution by collecting data from small-scale fishers and middle persons. Furthermore, this research aimed to describe the role of middle persons as a distribution channel for small-scale marine capture fishery products including the relationship between middle persons and small-scale fishers.

MATERIALS AND METHODS

Rayong Province is located in the Eastern part of Thailand. The coast line of Rayong is approximately 100 km long (Boutson *et al*., 2016). The province is divided into eight districts with three of the districts adjacent to the sea, namely Klaeng, Muang, and Ban Chang. Rayong faces the southeast monsoon (rainy season) during mid-May to mid-October and the northeast monsoon (winter season) during mid-October to mid-February (Boutson *et al*., 2016).

The research sites for this study are the three coastal districts in Rayong province. There were 28 fisher groups in these districts: Klaeng District with 5 fisher groups, Muang District with 20 fisher groups and Ban Chang District with 3 fisher groups (Figure 1). The names of the fisher groups with the corresponding number of members are shown in Table 1.

Questionnaires were designed based on the objectives of the study. This research compiled data from two sets of questionnaires used in face to face surveys. In the first questionnaire, "Fishing household survey", respondents were asked about general information on selling of marine and aquaculture products. The second questionnaire, "Middle person survey" had four main parts: Part 1 was about the middle person's business, Part 2 was on aquatic products purchasing, Part 3 on aquatic products selling, and Part 4 on loans and processing. The second questionnaire was used to interview middle persons regarding distribution of small-scale marine capture fishery products.

Table 1. Number of fishing households and middle persons selected as respondents

Location/Fisher groups	No. of Members	No. of household samples	No. of middle person samples
Klaeng District			
1. Rau Rop Ruan Prasae	45	11	0
2. Nern Khor	111	25	4
3. Ao Makham Pom Sunthonphu	36	4	1
4. Wang Kaew	33	9	3
5. Ao Charoen	17	4	0
Muang District			
6. Klaeng Municipality	70	20	1
7. Klaeng Tumbol Administrative Organization	70	16	1
8. Nuan Trip Fishing port	25	6	0
9. Sala-Keaw	15	3	0
10. Kok Leam Tien	45	10	1
11. Konh Aoa	35	10	0
12. Hin Kaow	25	5	1
13. Pa-Khan Hindum	40	9	1
14. Klong Kha-Chur	20	5	1
15. Bang Kha-Chur	30	8	3
16. Leam Rung Ruang	47	11	10
17. Konh Puk	150	25	5
18. Nah Boat Yuan	80	13	0
19. Paknam Ban Rao	150	27	1
20. Ban Kaow Yood	44	12	0
21. Had Suchada	25	6	1
22. Had Sang-ngeng	30	9	1
23. Pakklong Takoal	35	9	0
24. Takoal Aoa Praduu	76	8	1
25. Nong Faap	26	4	1
Ban Chang District			
26. Payoon	40	8	0
27. Pla Hoa Leam	90	12	0
28. Pla	48	8	2
Total	**1,458**	**297**	**39**

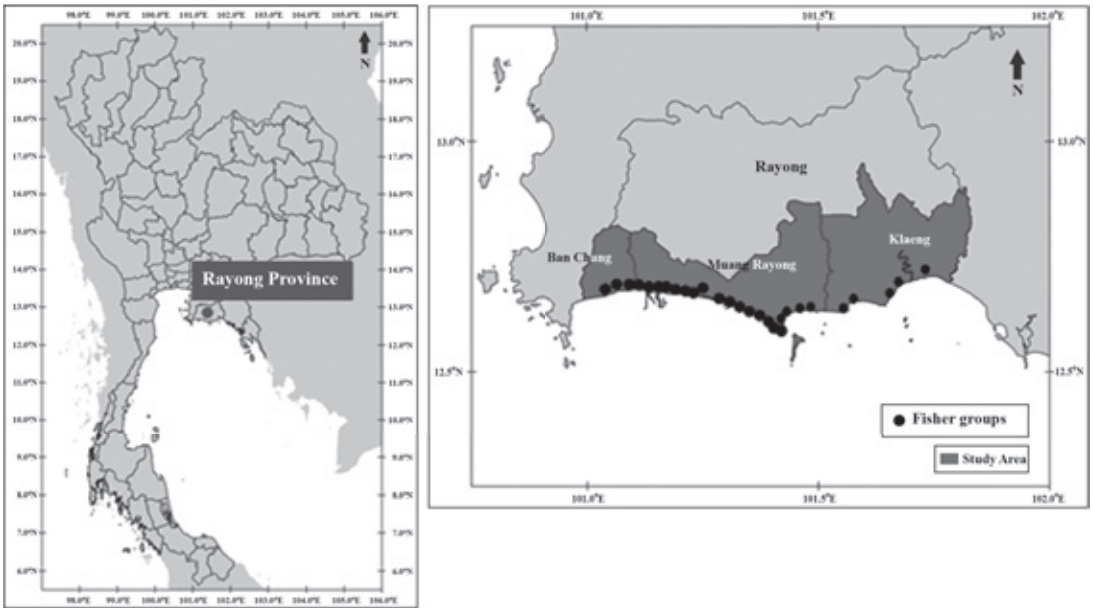

Figure 1. A location of Rayong Province, Thailand (left) and locations of the 28 fisher groups in three districts of Rayong (right)

We interviewed fishing households along the Rayong coastal area from 2012 to 2014 using the questionnaire, "Fishing household survey". The extraction number was calculated by following the formula:

$$N \geq \frac{P}{\left(\frac{B}{K}\right)^2 \times \frac{P-1}{A\times(1-A)} + 1}$$

where N is the number of extractions, P is the number of all fishers in the area, B is relative precision (0.05), K is 1.96 when p-value is 0.05, and A is population rate (put in 0.5 for A).

The extraction number N was 304, which was then divided into three districts, resulting in Klaeng District having 50.0 samples, Muang District 216.6 samples, and Ban Chang District 37.1 samples. However, the total sampling number was 297, with Klaeng District having 53 samples, Muang District 216 samples, and Ban Chang District 28 samples. The sample number in Ban Chang District was less than the calculated number (N=37) because the District was composed of small fishing villages.

Furthermore, we obtained information on the names and addresses of the main middle persons from the fishers themselves. The researchers then visited the middle persons and conducted our face to face interviews in 2013 and 2014. The total number of middle persons interviewed was 39, coming from the three districts along the coastal area of Rayong Province (Table 1). The method used in analyzing the data was descriptive statistics.

RESULTS AND DISCUSSION

Fish products distribution from the fishers

Results from the "Fishing household survey" showed that the total number of fishing gear types was 14. The main fishing gears were crab gillnet, fish gillnet, shrimp trammel net, and squid jigging.

Small-scale fishers normally sold their catch to middle persons at the landing site (pier, beach). A few fish were sold by the fishers to tourists who came to the fish landing site. At the landing site,

the fishers removed their catches from their nets, cleaned their fishing gear, sold the catch, repaired their boat and/or fishing gear, took a rest and talked with friends. No ice buckets or ice services exist at the landing site. The middle persons had to prepare the ice buckets by themselves when they came to buy the aquatic products from the fishers. Catch prices usually increase during weekends or during the summer season which is a tourist season.

Regarding the selling of small-scale marine capture fishery products (Table 2), more than 60.0% of fishers sold their catch to middle persons in their community, 22.4% sold by themselves at the local market and beside the road/bridge, and only 9.6% sold their catch to fish retailers. The fishers sold their products to middle persons who came to the landing site while the fishers brought their products to sell using their motorcycles. The fishers said that they felt tired after coming back from the sea and needed to take a rest or do other things, therefore, they preferred to sell their catch to the middle persons because it was easy and convenient. Moreover, the fishers took loan from the middle persons, hence, they needed to sell their products to these middle persons.

Fish products distribution from the middle persons

Profile of middle persons (from Part 1)

Results from the "Middle person survey" indicated that the respondents were 5 males and 34 females. This result showed that women played important role in the selling business while men's role was mainly as fishers. Women's involvement in selling business led to increased household well-being (FAO, 2008). Many of the respondents (38.5%) were between 41-50 years old, particularly aged between 51-60 (25.6%), 31-40 (17.9%), higher than 60 (12.8%), and lower than 30 was only (5.1%).

Figure 2 shows that 41.0% of the middle persons started their own business during 2001-2010 while 25.6% of the middle persons started their business during 1991-2000. Only 5.1% were started during the period 1970-1980. Prior to becoming a middle person, 35.9% of them used to belong to fishing households, worked as laborers (20.5%), trading (17.9%), other business such as farming, and carpentry (15.4%). This means that the middle persons were familiar with the fishery because some of them were fishers before. In this case, it was

Table 2. Fish product distribution categorize by buyer and products transportation method

Fish products distribution	Number	Percentage
1. Buyers		
1. Middle persons	215	62.5
2. Fish retailer	33	9.6
3. Restaurant	19	5.5
4. End customer (Home use, Local market, tourist)	77	22.4
2. How fish gets to the buyer		
1. Middle persons came to pick up	163	54.5
2. Motorcycle	108	36.1
3. Car	11	3.7
4. Human power (sell directly)	11	3.7
5. Boat	6	2.0

Note: This data derived from "Fishing household survey".

a good opportunity to have a new or additional income for the women who became a middle person. Moreover, they selected this job because they could sell fish easily every day, and it was not too tiring compared with fishing operations, and they could obtain better income than as fishers. Furthermore, in the past, some areas did not have a middle person so they decided to be a middle person. As much as 87.2% of middle persons were women and some of them came from fisher families, therefore, middle persons could get fish from fishers easily.

The majority of middle persons (79.5%) could operate the job by themselves, thus they did not employ a worker, because it was not a big business. Of those who employed workers, 12.8% employed only one, 5.1% had two, and only 2.6% had six workers. They would do the business almost every day. Results found that 53.8% of middle persons worked every day (365 days·year^{-1}), 25.6% worked between 300-364 days, 15.4% between 200-299 days, and 5.1% less than 200 days. Some middle persons (3%) had additional jobs such as operating a small grocery shop, restaurant, and going fishing. For the selling value per day, the result showed that most of them (51.3%) could get 1,000-5,000 Baht·day^{-1}, while 20.5% could get 5,001-10,000 Baht·day^{-1} (Table 3). Furthermore, besides buying aquatic products, the middle persons also sold fuel oil, nets, and lent fishers money.

The average selling value per day of middle persons in Muang District was the highest at 14,604 Baht·day^{-1} while Klaeng District got an average income of 12,938 Baht·day^{-1} and Ban Chang got 6,000 Baht·day^{-1} (Figure 3). From the results, Muang District was the center of Rayong Province and it was a tourist area. Many fishing boats landed there, and there were many areas to sell fish products such as the municipal market, Wat Lum local market, and Banphe market. In Klaeng District which is a conservation area, a small number of fishing boats would land there, therefore, less middle persons bought aquatic products in this area. Ban Chang District is an industrial zone. Capture fisheries was less but green mussel culture was more popular. Therefore, Ban Change district had few middle persons who bought capture fishery products.

Aquatic products purchasing (from Part 2)

Table 4 indicates that blue swimming crab was the species mainly collected by the middle persons in both high season and low season. In high season, the middle persons could buy blue swimming crab at 2,428 kg·day^{-1}, bigfin reef squid

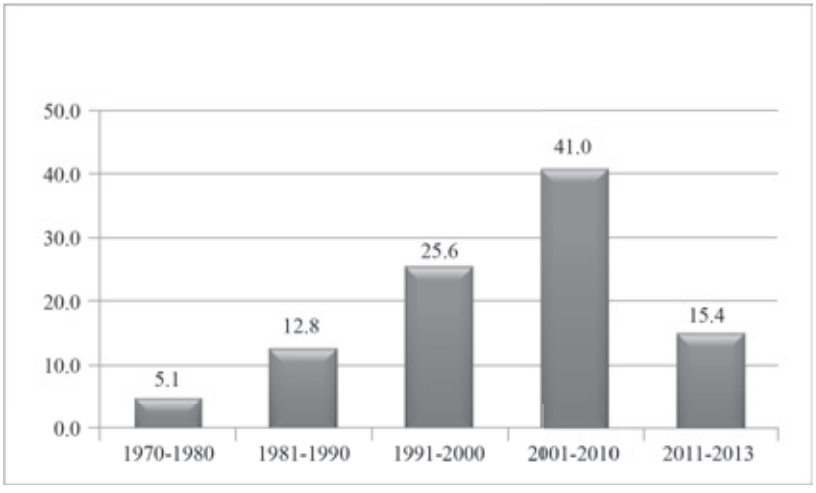

Figure 2. Year of establishment of middle persons' business
Note: This data derived from "Middle person survey".

Table 3. Selling value per day (Baht) of the middle persons

Selling value per day (Baht)	Percentage of middle persons	Average No. of employees	Average No. of working days	Average No. of fishers (sellers)
1,000-5,000	51.3	0.1	323	3
5,001-10,000	20.5	0.3	343	7
10,001-20,000	10.3	0.3	328	10
20,001-30,000	2.6	0.0	365	8
30,001-40,000	2.6	0.0	365	15
40,001-50,000	5.1	1.0	288	16
50,001-60,000	7.6	2.7	353	10
Total	**100.0**			

Note: This data derived from "Middle person survey".

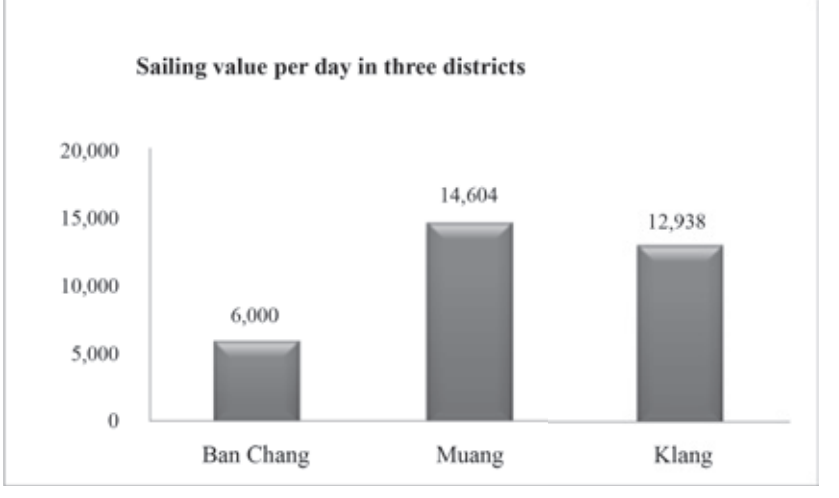

Figure 3. Selling value per day in three districts
Note: This data was derived from "Middle person survey".

Table 4. Purchasing patterns of the middle persons during high and low seasons

Species	High season			Low season			Live, Fresh, or Chilled (L,F,C)
	Middle persons (per day)	Percentage of middle persons	Quantity (kg•day^{-1})	Middle persons (per day)	Percentage of middle persons	Quantity (kg•day^{-1})	
Blue swimming crab	27	27.6	2,428.0	24	29.6	485.0	L, F
Mud crab	7	7.1	167.0	6	7.4	68.0	L, F
Shrimp	5	5.1	242.5	3	3.7	26.0	F
Cuttlefish	4	4.1	219.0	2	2.5	65.0	F
Bigfin reef squid and Loligo	12	12.2	1,742.0	10	12.3	289.0	F
Octopus	1	1.0	1.0	1	1.2	1.0	F
Green mussel	2	2.0	100.0	1	1.2	50.0	F
Spotted babylon	1	1.0	65.0	1	1.2	350.0	F
Cockle	3	3.1	65.0	2	2.5	45.0	L, F
Oyster	2	2.0	10.0	1	1.2	2.0	F
Mackerel	10	10.2	730.0	9	11.1	211.5	F
Sillago	5	5.1	320.0	3	3.7	30.0	F
Pampano	2	2.0	120.0	1	1.2	20.0	F
Barracuda	1	1.0	100.0	2	2.5	100.0	F
Snapper	1	1.0	40.0	2	2.5	30.0	F
Fish (mixed species)	10	10.2	811.0	9	11.1	232.0	F
Catfish	1	1.0	30.0	1	1.2	5.0	F
Trevally	1	1.0	30.0	1	1.2	10.0	F
Mullet	1	1.0	50.0	-	-	-	F
Shark	1	1.0	10.0	1	1.2	10.0	F
Ray	1	1.0	6.0	1	1.2	2.0	F
Total	**98**	**100.0**	**7,286.5**	**81**	**100.0**	**2,026.5**	

Note: This data derived from "Middle person survey". These numbers were total number and it was percentage from 39 middle persons conducted by the researcher survey.

and Loligo at 1,742 kg·day^{-1}, and various fish species (mixed species) at 811 kg·day^{-1}. In low season, the middle persons bought almost the same species as in high season but less quantity i.e. blue swimming crab at 485 kg·day^{-1}, bigfin reef squid and Loligo at 289 kg·day^{-1}, and various fish species at 232 kg·day^{-1}. It means that the main species in Rayong Province were blue swimming crab, bigfin reef squid and Loligo, and fin fish. Most of these species were bought by the middle persons as fresh aquatic food products, however, blue swimming crab, mud crab and cockle were bought both as live and fresh aquatic products.

The middle persons bought aquatic products from fishers (86.0%), buyers (other middle persons) (11.0%), and fish vendors or fishers who collected fish from their relatives or friends around their house (3%). Many of the middle persons (48.0%)

came to buy aquatic products from fishers at the landing site. Whereas sellers (45.9%) such as fishers and middle persons brought the aquatic products to the middle person's house by motorcycle with a side car (31.6%), pick-up truck (9.2%), hired vehicle (5.1%), and by walking (8.2%).

The species and quantity of aquatic products depended on the fishers and season. During the southwest monsoon or rainy season (May-October), middle persons could obtain a high amount of crabs and shrimp. While the northeast monsoon or winter season (October-February), the middle persons got high quantities of fish.

In addition, the number of regular sellers was divided into each species (Table 5). In high season, 35.2% of sellers (178 fishers) sold blue swimming crab to middle persons while mackerel, various fish, bigfin reef squid and Loligo were sold by 14.5% of sellers (73 fishers), 10.9% of sellers (55 fishers), and 8.7% of sellers (44 fishers), respectively.

On the other hand, in low season, 33.7% of the sellers (147 fishers) sold blue swimming crab to middle persons, 12.8% of sellers (56 fishers) sold mackerel, and 10.6% of sellers (46 fishers) sold cockle to middle persons.

Table 5. Number and percentage of regular sellers

Species	High season		Low season	
	Number of sellers fishers)*	Percentage	Number of sellers (fishers)*	Percentage
Blue swimming crab	178	35.2	147	33.7
Mud crab	35	6.9	29	6.7
Shrimp	17	3.4	8	1.8
Mackerel	73	14.5	56	12.8
Cuttlefish	13	2.6	10	2.3
Bigfin reef squid and Loligo	44	8.7	41	9.4
Octopus	8	1.6	8	1.8
Green mussel	2	0.4	1	0.2
Spotted babylon	6	1.2	4	0.9
Cockle	1	0.2	46	10.6
Oyster	2	0.4	1	0.2
Sillago	22	4.4	2	0.5
Pampano	8	1.6	3	0.7
Barracuda	15	3.0	4	0.9
Snapper	4	0.8	32	7.3
Fish (various fish)	55	10.9	8	1.8
Catfish	2	0.4	2	0.5
Trevally	1	0.2	1	0.2
Mullet	15	3.0	-	-
Shark	2	0.4	30	6.9
Ray	2	0.4	3	0.7

* Sellers refer to fishers around the Rayong beach in three districts, Klaeng, Muang, Ban Chang Districts, who sell marine aquatic products to 39 respondents (middle persons).
Note: This data derived from "Middle person survey".

From the survey, researchers found that the number of sellers (fishers) was 1-28 sellers per one middle person. 20.5%, 15.4%, 12.8% and 10.3% of middle persons bought aquatic products from three sellers, two sellers, four sellers, and one seller, respectively. It indicated that most of respondents (the middle persons) were not a major buyer. The middle persons bought aquatic products from a small number of sellers (the fishers). There were only 20.6% of middle persons who bought aquatic products from more than 15 sellers (Figure 4).

Reasons why most of the middle persons bought aquatic products from the same sellers (fishers) included the following: a) sellers were old acquaintances or friends (28.2%), b) sellers were relatives (20.5%), c) aquatic products sold were of good quality (7.7%), and d) sellers had large amounts of aquatic products available (5.1%).

In terms of ease and convenience in buying the aquatic products, the middle persons said that it was easier to buy previously, since 2009. But some species (i.e. blue swimming crab, mackerel) were very difficult to find in 2012-2013. There were even some species which could not be found during the low season such as mullet.

The middle persons determined the buying price by collecting price information from other middle persons including market prices. The price was high during low season and festivals because the supply of aquatic products decreased while consumption demand increased. On the other hand, the price was low during high season because of high supply of aquatic products. For example, the buying price of big size blue swimming crab (6 crabs·kg^{-1}) in high season was around 120 Baht·kg^{-1} while during low season it was 260 Baht·kg^{-1}.

The price was determined by the majority of middle persons (90.4%), while only 9.6% determined by the sellers. For the payment system, 84% of the middle persons paid cash directly to the sellers at the same time as receiving aquatic products while 16% paid the day after receiving aquatic products.

Selling of aquatic products by the middle persons (from Part 3)

In order to sell the aquatic products, half of the middle persons (50.5%) used motorcycles with a side car to transport the goods. Some middle persons (17.9%) sold the aquatic products at their house and shop so they did not need to use any transportation, whereas 12.6% used pick-up trucks, 11.6% used hired vehicles, and 2.1% used motorcycles (Table 6).

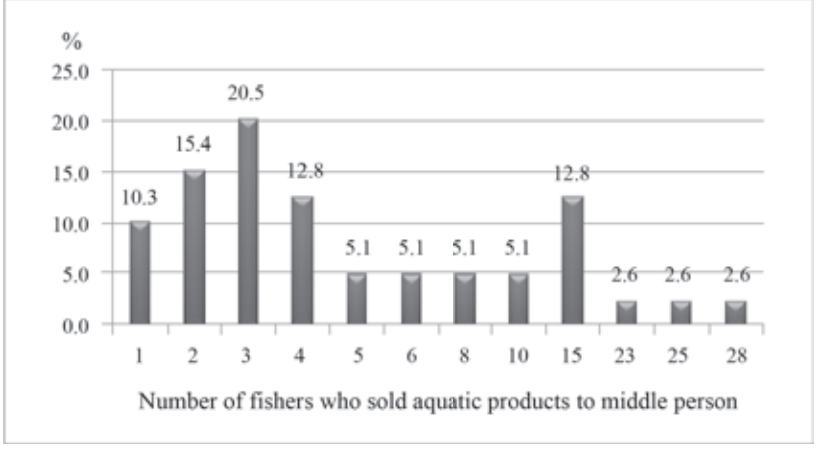

Figure 4. The percentages of middle persons who bought aquatic products from fishers
Note: This data derived from "Middle person survey".

Table 7 shows the various customers who bought aquatic products from middle persons such as restaurants, other middle persons, local people, and tourists. The majority of middle persons (66%) had their own shop and/or were renting a space at the local market to sell to local people and tourists, while 27% would sell to restaurants, and 7% would sell to other middle persons. The middle persons preferred to sell at the local markets because it was easier to sell the aquatic products to customers. The selling locations were located at Muang Rayong Market and local Market (i.e. Watlum, Sounson, Had Suchada beaches).

The trend for ease in selling aquatic products was almost the same as that of buying. More than half of the middle persons (51.1%) said that it was easy to sell until five years ago, then it became difficult to sell in 2012 to 2013. However, for some species such as grouper, there was no change as it was always easy to sell, according to 36.7% of the respondents). In addition, 12.2% of the respondents said that the trend of selling has not changed since they started their business.

The middle persons determined the selling price by themselves (98.9%). Only 1.1% said that

Table 6. Selling of aquatic products by the middle persons

Transportation	Frequency	Percentage
None	17	17.9
Hired vehicles	11	11.6
Pick-up truck	12	12.6
Motorcycle with side car	48	50.5
Motorcycle	2	2.1
Pick-up truck and Motorcycle with side car	3	3.2
Hired vehicles and Pick-up truck	2	2.1

Note: This data derived from "Middle person survey".

Table 7. Types of customers and quantity of aquatic products bought, by species

Species	Type of customers (%)			Average quantity bought by each customer (%)		
	Restaurant	Other middle persons	Buyers at local markets (retail)	Restaurant	Other middle persons	Buyers at local markets (retail)
Blue swimming crab	18	12	70	24	47	29
Mackerel	20	0	80	33	0	67
Cuttlefish	20	0	80	38	0	63
Bigfin reef squid and Loligo	7	7	86	42	47	11
Shrimp	33	17	50	35	50	15
Sillago	50	17	33	29	33	38
Barracuda	50	0	50	35	15	50
Fish	20	0	80	43	0	57
Other species*	0	0	100	0	0	100

* Other species such as shark, pampano, green mussel, mud crab, mullet
Note: This data derived from "Middle person survey".

the price was determined by the buyer (only if they are restaurants). The selling price increased by 25% (depending on the aquatic animal species) when the first middle person sold the aquatic product to the second middle person or other buyers. The price of squid would be increased in average by 40 Baht·kg^{-1}, however, it depended on its size. If the size is small, the price would be increased by around 20 Baht·kg^{-1} but if big, the price would be increased by 40-60 Baht·kg^{-1}. For blue swimming crab, the price of the small size would be increased by 20-30 Baht·kg^{-1} while the price of the big size would be increased by around 60-70 Baht·kg^{-1}. Besides, the price of fish would be increased by around 20 Baht·kg^{-1}. Fishers (22.4%) selling the products directly to customers would use the same price that they used with middle persons. However, they could also increase the price by 25% to be the same as the market price.

For the payment system, 85.6% of the middle persons would receive the cash upon selling the aquatic products while 14.4% would sell for credit, getting the money later. The due date for payment depended on the agreement between the middle person and the buyer, usually payment was done within 2-7 days after selling, and could be extended to 30 days in case of selling to restaurants.

The fish distribution from fisher to end customer via the middle persons (from Part 2 and Part 3)

Regarding the percentage based on quantity of annual average, fishers sold 62.5% of their catch to middle persons, while 22.4% were sold directly to end customers, 9.6% to fish retailers, and 5.5% to restaurants.

The middle persons bought 86.0% of their aquatic products from fishers, 11.0% were bought from buyers, and 3.0% were from fish vendors. After buying the aquatic products, they sold them to local people at the markets (66.0%), restaurants (27.0%) and other middle persons (7.0%) (Figure 5).

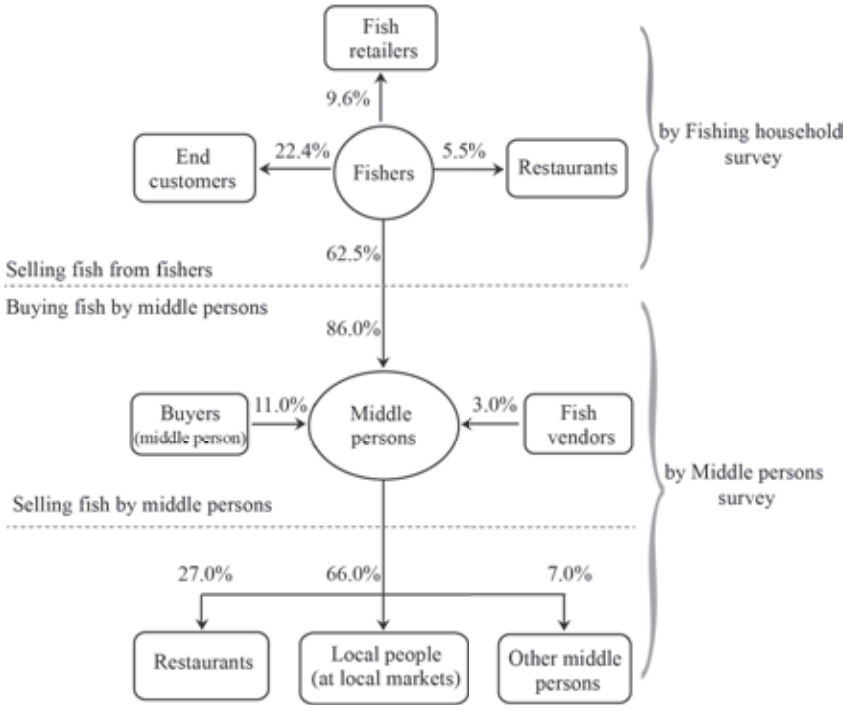

Figure 5. Flow chart of small-scale marine capture fishery products distribution

Loan and processing (from Part 4)

The middle persons (60%) provided loan or fishing gear to sellers (fishers) in order to help fishers with their fishing operation costs. This loan could support the fishers, particularly in the case that the fishers had no additional occupation or less income especially during the low season or low amount of catch.

After the fishers fished the aquatic products, they needed to sell all their products to the middle persons. Around 40% of middle persons did not provide any loan and/or fishing gear to fishers, 30% provided loan and/or fishing gear to three to six, 20% provided loan and/or fishing gear to just one fisher, as well as 10% middle persons provided loans to 8 to 10 fishers (Figure 6).

For middle persons who did not provide any loan and/or fishing gear to fishers, they could still buy fish from the fishers. Whatever the aquatic products were high or low quality, big or small amount, and high or low price, the middle persons basically bought all products from the fishers. The fishers did not sell to other middle persons. If the fishers sold to other middle persons, the previous middle persons would not buy their products next time. In addition, if the middle persons did not buy the products from the same fishers, the latter might sell their products to other middle persons and would not sell to them next time. This is called the "Mutual System".

Table 8 shows the amount of loans provided to fishers, where 25.0% of middle persons provided a loan of 2,000 Baht to 3 three fishers and 16.7% of middle persons provided a loan of 100,000 Baht to 14 fishers. This shows that middle persons were also important for fishers in order to support their fishing operations. The middle persons did not have any loan contract with the fishers, as it was just only by oral agreement. If the fishers did not return the money to the middle persons, the latter would deduct the it from the amount they would pay when the fishers sold the aquatic products to them.

In addition, 65.0% of the middle persons also had loan for their business operations. Around 33.3% of the middle persons loaned money from local community groups while 16.7% loaned the money from local private banks, and the same percentage loaned money from the government bank and their relatives.

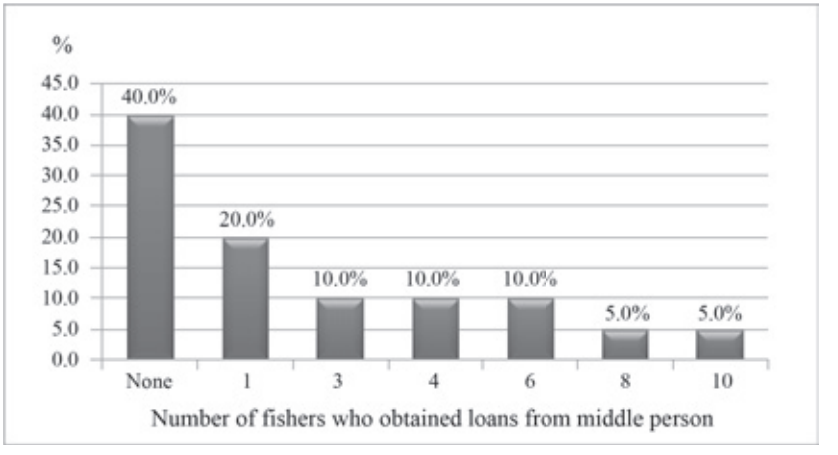

Figure 6. The percentages of middle persons who provide loan and/or fishing gear to fishers
Note: This data derived from "Middle person survey".

Table 8. Amount of loans given by middle persons to fishers per year

Loan (Baht)	Frequency	Percentage
1,000	1	8.3
2,000	3	25.0
5,500	1	8.3
10,000	1	8.3
13,500	1	8.3
90,000	1	8.3
100,000	2	16.7
200,000	1	8.3
288,000	1	8.3
Total	**12**	**100.0**

Note: This data derived from "Middle person survey".

Middle persons (44.7%) also processed seafood products such as crab meat, oyster meat, and dry mackerel. In terms of satisfaction, 90.5% of the middle persons were satisfied with their job. It means that this job could support their livelihood. However, 47.2% of them did not want their children to succeed their job because it was too hard, while 9.5% of them said that it depended on the children. However, their children have achieved a higher level of education now, and they did not want to do this job.

In terms of competition, 42.9% of the middle persons did not have any competitor because they had their own regular sellers (or suppliers/fishers). However, 57.1% of middle persons had competitors. The proportion of the competitors could be divided into 50.0% of competitors bought blue swimming crab while another 50.0% of the competitors bought the various fish, cuttlefish, green mussel, mud crab, and mackerel (16.8%, 8.3%, 8.3%, 8.3%, and 8.3%, respectively). Around 33.3% of middle persons had 1-3 competitors, 37.5% had 4-6 competitors, and 29.2% had 7 competitors.

CONCLUSION

In this research, the middle persons were the ones who collected the aquatic products from the fishers, buyers, and fish vendors and then sold them on to local people (customers), local restaurants, and other middle persons. The main small-scale marine capture fishery products distribution channel in Rayong Province was basically from the fishers to the middle persons, and from the middle persons to the local markets. Furthermore, it was also noted that small-scale marine capture fishery products were distributed and consumed locally.

The middle persons bought all the species and sizes from the fishers including aquatic products that were considered low quality. The prices were not fixed, and depended on the market price. In case of the fishers taking loan from the middle persons, when the fishers sold their aquatic products to middle persons who lent them the money, the middle persons would pay equitable price for the aquatic products. The fishers and the middle persons thought that it was like a "Mutual Relationships System" between them. The system

was practiced along the distribution channel in this area.

However, in the future, the number of middle persons might decrease because of few successors. If the number of middle persons decrease but they integrate, they might have high buying power. Therefore, it is necessary to promote and install small-scale marine capture fishery products co-management system among the fishers and/or middle persons with the support from the local government. This system will provide higher selling power to the fishers which they could use to negotiate the most reasonable price with the middle persons. However, the fishers could not sell the products by themselves because most of them obtained loans from the middle persons. In order to solve this problem, it is important to find the way to push the fishers away from the loan system. If the fishers can sell their products by themselves, they would get more benefits from this system.

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