Marketing Margin of Climbing Perch with Biofloc Culture System in Banjarmasin City South Kalimanta

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Abstract
This research aims to determine the pattern of marketing channels and marketing margin of climbing perch produced by the biofloc system cultivation in Banjarmasin, South Kalimantan. The sample of the producers was determined using the census method, while the sample of middlemen was determined using the snowball sampling method. The analysis used are (a) analysis of marketing channel patterns and (b) analysis of marketing margins, the data used consists of primary data and secondary data. The results of the analysis show (a) the marketing of climbing perch from the cultivation of the biofloc system consists of two channels and (b) the total amount of marketing margin is 11.300 IDR with details (a) the marketing cost incurred by the middlemen is 2.500 IDR and by the retailers is 2.456 IDR; (b) the profit received by the middlemen is2.800 IDR and the retailers 3.544 IDR. The profit distribution is bigger than the distribution of the marketing costs, as a result, the profits received by the seller (i.e. middlemen, retailers) are higher than the amount of marketing costs incurred. These conclude that marketing from the side of seller (i.e. middlemen, retailers) is efficient.

Keywords: Climbing perch, middlemen, retailers, marketing channels and marketing margins.

Introduction

Climbing perch (*Anabas testudineus*), known as "*Papuyu*", is favorably considered as one of commercially important freshwater fish species (Ahmadi, 2019). The fish are usually served as delicious food with high quality meat. During this time, the need for climbing perch seeds and the consumption still relies on the fish catching, this tends to cause the decrease in the population of climbing perch in the wild (Akbar, J., 2018). The data production of climbing perch catching in the public waters of South Kalimantan from 2013-2017 can be seen in Table 1.

Table 1. Climbing perching production data in the public waters of South Kalimantan from 2013-2016

No.	Districts/City	Production Volume (ton)				
		2012	2013	2014	2015	2016
1.	Tanah Laut	448,2	606,7	650,5	468,5	-
2.	Kotabaru	3.724,4	4.142,3	2.410,6	27,2	303,3
3.	Banjar	251,4	82,9	100,3	11,8	-
4.	Barito Kuala	-	-	-	509,8	-
5.	Tapin	430,8	444,7	451,3	8,8	-
6.	Hulu Sungai Selatan	1.185,2	1.306,5	1.302,2	1.441,8	-
7.	Hulu Sungai Tengah	720,8	737,3	718,0	20,5	432,9
8.	Hulu Sungai Utara	1.352,4	1.152,3	1.154,8	879,1	788,5
9.	Tabalong	241,7	247,9	250,3	-	1.525,0
10.	Tanah Bumbu	471,1	480,3	665,1	274,4	893,4
11.	Balangan	265,6	249,5	249,5	90,0	230,1
12.	Banjarmasin	8,3	9,2	12,1	11,1	220,5
13.	Banjarbaru	21,2	20,5	21,7	-	15,8

Total	9.161,2	9.480,0	7.986,3	3.743,1	4.409,5

Source: Department of Fisheries and Marine of South Kalimantan Province, 2017

The catch of climbing perch in the swamp of South Kalimantan tends to decrease yearly, as seen in the Table 1, caused by: (1) the decrease of the water quality due to environmental pollution from the household and industrial water (Akbar J, 2017), (2) global warming (Utomo AD, and Prasetiyo D, 2005), (3) Erosion which causes some water areas to be silting so that the water utilization is not optimal (Mamodol MR, 2018), (4) The loss of climbing perch in the nature through catching juvenile fish which is also used for the public consumption (Mustakim et al, 2009) and (5) Part of the river is closed due to road widening (Purwantara, S., 2015).

An alternative business policy for increasing climbing perch production is by developing aquaculture, which is biofloc system. Biofloc is a cultivation system using floc-forming bacteria (Floc Forming Bacteria) in the waste cultivation. (Nahar, et al, 2015; Nugroho E, 2020). This technology utilizes the results of fish metabolisms that contain nitrogen to be converted into protein and can be utilized directly by the fish (Hastuti and Subandiyono, 2014), so that the cultivated fish get additional protein from natural feed, which is flocks that are good for the fish growth (Arief M., Fitriani N. and Subekti S., 2014). According to Mursidin et al (1995), the biofloc method is expected to (1) hold the stock of the climbing perch in the market no matter the season is, (2) community demand can be fulfilled and (3) the price of climbing perch will not fluctuate and be stable.

The market opportunity for climbing perch is quite good because (a) the price is high in the range 38.000 IDR – 72.000 IDR/kg (Izmaniar et al, 2018), (b) climbing perch is resistant to the environmental changes and immune to disase (Lungphai, P; C. Wongsawad; K. Kumchoo, and P. Sripalwit., 2004) and (c) the taste of the meat is delicious to that it is widely consumed by the public (Farisni T.N., Hasanah U and Arphi N., 2019). The price of climbing perch in South Kalimantan in 2019 can be seen in Table 2.

Table 2. Price of climbing perch in South Kalimantan Province in 2019

No.	District/City	Pirice (IDR/kg)
1.	Tanah Laut	44.000
2.	Kotabaru	38.000
3.	Banjar	39.236
4.	Barito Kuala	37.000
5.	Tapin	43.000
6.	Hulu Sungai Selatan	48.000
7.	Hulu Sungai Tengah	59.000
8.	Hulu Sungai Utara	41.000
9.	Tabalong	57.000
10.	Tanah Bumbu	70.000
11.	Balangan	70.342
12.	Banjarmasin	60.000
13.	Banjarbaru	58.224

Source: Department of Fisheries and Marine of South Kalimantan Province, 2020.

The high price of climbing perch is the main attraction for producers and the seller (i.e., middlemen and retailers) to sell fish to the main markets in several area in South Kalimantan, especially Banjarmasin City, with the result that allows the movement of climbing perch from production areas to consumption areas relatively fast (Junius Akbar, 2018). High prices at the producers level will have a positive impact, this is because the profits received by producers will be higher and will stimulate producers to increase the amount of production, and vice versa (Lilimantik, 2011). Price at the retail level will be the basic thing for determining the price for the middlemen and to producers and vice versa (Jamali, A. 2013). The price received by producers will determine how much volume of the production they produce and then sell it to middlemen or retailers (Husen, M.A., 2019). If the producers is satisfied with the price, the production offered to the market will increase, and vice versa (Hanafiah and Saefuddin, 1996). The increase in production is expected to be able to meet consumer demand and climbing perch can be evenly distributed in all regions (Akbar, J., 2019).

Fulfilling consumer demand is depend on how the market system has been formed (Lilimantik, E., 2013). When the marketing is done effectively and efficiently, it can encourage improvements in producer's income, increase profits for the middlemen, and increase consumer purchasing power (Ali, E.A.; Gaya, H.I.M. and Jampada, T.N, 2008). Market efficiency occurs when: (a) deliver the products from producers to consumers at the lowest possible cost (Huger, LB and Hirenath, KC, 1984), and (b) able to make a fair share of the total price paid by consumers to all parties who participate in the marketing activities (Mubyarto, 1985), while the measurement of marketing efficiency are (a) marketing profits, (b) marketing costs, (c). prices received by consumers (Piggot, 1979). To understand comprehensively about the marketing activities it is necessary to analyze marketing margin (Theodore N. Beckman and Robert D. Buzzell, 1955).

Methodology
1. Study sites
The researcher determine the research site purposive sampling in Banjarmasin City with the consideration that many of these area cultivate climbing perch using the biofloc system. The research activities were started by visiting the fish farmer groups of climbing perch with biofloc culture system in Banjarbaru and then moved into local fish markets located in Banjarmasin, Marabahan, and Kapuas District of Central Kalimantan, Indonesia. Retailers in the fish market are mostly women, while sales activities in the fish market start in the morning until late in the afternoon or evening (Lilimantik E., Ahmadi., 2020). This fish market usually conjoined with a wet market, which also sells fresh meat, dried fish and other perishable items such as vegetables and fruit (Husni Buton H, Pontoh O and Manoppo V.E.N., 2017).

2. Characteristic of Responden

A total of 20 respondents who directly involved in marketing channels were selected comprising 7 fish farmers, 2 wholesalers and 11 retailers. The age of respondents varied between 40-48 years old with the duration of business experience range of 2-5 years.

3. Sampling Date Method

The data collection is using survey and interview methods. The survey method is a method by direct observation and data collection on research objects in the field (Elliott M, Olson K., 2020), using a questionnaire as a tool of collecting primary and secondary data (West, Brady T., and Michael R. Elliott., 2014). The interview method is by asking directly to the subjects. In this interview, there was a communication and interaction between the researcher as the interviewer and the respondent as the party who was expected to provide an answer (DiCicco-Bloom B, Crabtree BF., 2006). In the interview techniques, there are two known approach methods, namely structured interviews in which the interviewer prepares to conduct interviews with respondents, while the other one is the unstructured interviews, where the interviewer does not prepare a list of questions and the question is carried out spontaneously (Corbin J, Morse JM., 2003).

The data used are primary data and secondary data. Primary data is data obtained directly from research subjects using measurement tools or direct data collection tools on the subject as a source of information (Lowry, L.D., 2015). While secondary data is the data that does not directly provide to the researcher (Castle J,E., 2003), for example, the research must done through other people or search through documents (Pamela E. Windle, 2010).

4. Sampling method
The sampling method for climbing perch cultivators is the Census Method system, which is a sampling technique when all members of the populations are used as samples (Waksberg J and Pritzker L, 1969). This is often done when the population is relatively small, that is, if the sample size is less than 30 people (Biemer P, Woltmann H, Raglin D and Hill , 2001). Then the sampling of marketing agencies (i.e. middlemen, retailers) uses the snowball sampling method, which is a method for identifying, selecting and taking samples in a continuous network or chain of relationships (Blanken P, 1992), or sampling techniques that are initially small in number, then this sample selects its peers to be sampled and so on until the number of samples collected increase (Atkinson, R. and Flint, J., 2001).

5. Date Analysis Method

5.1. Marketing Channel Analysis

The analysis of the climbing perch cultivation marketing channel with the biofloc method in Banjarbaru City uses a descriptive method, namely research that seeks to describe a symptom, event and incident that occurs at the present time where the researcher tries to photograph the events and incidents that are the center of attention then to be described as the main attraction to be described as it be to see the marketing involved and the marketing channels that passes from the cultivator to the consumer (Nassaji H, 2015).

5.2. Marketing Margin Analysis

Marketing margin aims to explain the phenomenon that bridges the gap between the market at the producer level and the market at the retailer level (Abassian M. Bidabadi F.S and Ebrahimzadeh H, 2010). The trading margin is the difference between the price paid by the consumer and the price received by the producer (Schroeter J., Azzam A., 1991), the value of services in the implementation of trading activities from the producer level to the last consumer level (Reed A. J., Elitzak H., Wohlgenant MK., 2002), the price difference paid by the last consumer with the price received by the producers (Kohls and Uhls 1990). The price difference in each marketing agency varies widely, depending on the level of profit that taken by each marketing agency (Wohlgenant M., 2001). Marketing profit or marketing margin is the difference between the prices paid to producers and the price provided by consumers (Omar, MI; Dewan, MF; Janifa, UA and Hoq, MS, 2014), causing prices at the producers level lower than the price at middlemen, and the price at middlemen lower than the price at the retailers (Rahman, Ahmadi and Mahreda, ES, 2019).

It can be simply expressed as marketing margin (%) = (Selling price – purchase price)/ selling price x 100 It can also be started in the percentage (Flowra et al., 2012) or MM = Pr–Pf, stated in IDR (Waugh F.V., 1964).

Results and Discussion

1. Marketing Channel

The marketing channel for climbing perch cultivated by the biofloc system in Banjarmasin City, South Kalimantan, consists of 2 pattern which can be seen in Figure 1.
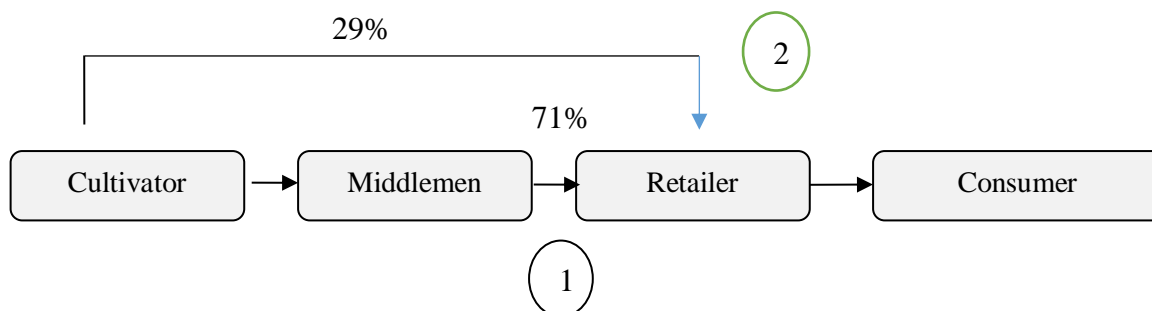

Fig 1. The marketing channel for climbing perch cultivated by the biofloc system in Banjarmasin City

There are 7 cultivators using biofloc system for climbing perch in Banjarmasin City, where (a) 5 people (71%) sell their fish to middlemen and then forwarded to retailers and (b) 2 people (29%) sell fish to retailers. Channel 1 is the most used pattern because (1) cultivators are more interested in making transactions directly with middlemen by calculating transport costs and the risks that will be borne (Courtois, P. and Subervie J., 2014), (2) the middlemen usually come to the cultivation location to buy and immediately transport the fish to be distributed to the next buyer (i.e retailer) (Gawa et al, 2017), (3) the middlemen make payments to the cultivators after the fish have been sold out (Acharya, SS and Agarwal, NL, 2002), (4) middlemen have their own subscriptions, which are retailers in several market areas, so that they will directly distribute the fish purchased from cultivators to retailers (Qureshi, NW and Krishnan, M., 2015) and retailers typically make payments in cash (Chahal, SS, Singh, S. and Sandhu, JS, 2004).

2. Marketing Margin

There was a variation in the fish price at different marketing channels. The lowest fish price usually goes to the fish farmers and then increasingly at the wholesalers and terminates in the retailer leading to variation in the marketing margin (Table 3).

Table 3. The marketing margin of climbing perch cultivated by the biofloc system in Banjarbaru City, South Kalimantan

No.	Details	IDR/Kg	Percentage (%)
1	Producers (Cultivators)		
	a. Selling Price	59.700	
2	Middlemen		
	a. Purchase Price	59.700	
	b. Marketing Costs	2.500	22
	c. Selling Price	65.000	
	d. Profit	2.800	25
	Marketing Margin	5.300	
3	Retailers		
	a. Purchase Price	65.000	
	b. Marketing Costs	2.456	22
	c. Selling Price	71.000	
	d. Profit	3.544	31
	Marketing Margin	6.000	
4	Consumer's price	71.000	
	Total Marketing Margin	11.300	100

Source: primary date, 2020

The amount of the marketing margin is calculated from the selling price minus the purchase price of each marketing agency (Kaygisiz F, Eken M., 2018). The margin value is influenced by the marketing costs incurred and the profits taken by each marketing agency. Table 3 explains the low margin value in the middlemen's margin distribution, namely 5.300 IDR/kg due to the large transportation costs due to the far distance from the producers to the retailers (Abassian, M., Karim, M. H., Esmaeili, M., and Ebrah Imazadeh, H., 2012). The middlemen must determine the appropriate selling price so there will be no experience losses (Ali, E.A., Gaya and Jampada, T.N., 2008). The highest margin value in the retailers' margin distribution is 6.000 IDR/kg, this is because the costs they spend in climbing perch marketing are not much (Izmaniar et al, 2018).

The value of marketing profits is obtained from the marketing margin minus the marketing costs incurred (Aswathy, N., Narayakumar, R and Harshan, N. K., 2014). The highest profit in climbing perch marketing is at the retailer level, which is 3.544 IDR/kg, and the lowest profit is at the middlemen level, which is 2.800 IDR/kg, this is because middlemen with large sales volumes only take a small profit per unit of kg and the retailers with small sales volumes take larger profits per Rupiah costs (Topcu, Y., 2003). Overall, from the sellers side (i.e. middlemen, retailers) it can be explained that the distribution profits is higher than the distribution of marketing costs, it indicates that marketing from the side of the sellers (i.e. middlemen, retailers) is efficient (Yildirim, BR, and Akyol, O., 2012).

Conclusion
1. There are two marketing channel patterns for climbing perch cultivated by the biofloc system in Banjarmasin City, South Kalimantan, which are (1) cultivators sell their fish to the middlemen then forwarded to retailers and (2) cultivators sell their fish directly to the retailers.
2. The total amount of marketing margin is 11.300 IDR, with the distribution of profits is higher than the distribution of marketing costs, so that the profits obtained by the seller are higher than the amount of marketing costs incurred. It means that marketing from the seller is efficient.

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