

Value-added and marketing analysis of blue swimming crab (*Portunus pelagicus*) floss processing at UMKM Bontings in Manggar Baru Village, East Balikpapan District

Putri Cinda Yani | Gusti Haqiqiansyah* | Doni Darmasetiadi

Department of Social Economic, Faculty of Fisheries and Marine Science, Mulawarman University
Jl. Gunung Tabur No. 1. Kampus Gn. Kelua Samarinda 75123

*E-mail: gusti.haqiqiansyah@fpik.unmul.ac.id

ARTICLE INFO

Research Article

Article history:

Received June 3, 2025

Received in revised form June 20, 2026

Accepted July 17, 2026

DOI: <https://doi.org/10.30872/1kt64780>

Keywords: East Kalimantan, food processing, invertebrate, profit



ABSTRACT

This study aims to analyze the income and value added of a crab floss enterprise located in Manggar Baru Village, East Balikpapan District, and to identify the marketing channels employed by this enterprise. The research was conducted from September 2024 to June 2025 at UMKM Bontings, Manggar Baru Village, East Balikpapan District. The data used consisted of primary and secondary data; data analysis was performed using the Hayami method, while data collection was carried out using a case study approach involving the owner of UMKM Bontings. The results indicate that, based on the Hayami method analysis, the value added generated from processing crab floss at UMKM Bontings amounted to Rp 270,067/kg of raw material, with a processor's profit share of 81.45% and a value-added ratio of 66.19%. This value added falls into the high category, as the value-added ratio exceeds 60%. The marketing channels employed in this enterprise are the zero-level channel and the one-level channel.

INTRODUCTION

The fisheries potential of Balikpapan City is fairly substantial, encompassing both capture fisheries and aquaculture. Capture fisheries and aquaculture production in Balikpapan City amounted to 5,525 tons/year in 2019, 4,482 tons/year in 2020, 5,833 tons/year in 2021, and 5,704 tons/year in 2022. From these data, it can be concluded that capture fisheries and aquaculture production varies across sub-districts in Balikpapan City, with annual production consistently fluctuating between increases and decreases (Balikpapan City Central Bureau of Statistics, 2022).

Bontings is a Micro, Small, and Medium Enterprise (MSME) that produces regional specialty souvenirs of Balikpapan and operates four (4) outlet branches, one of which is located on Jalan Cakalang, RT 23, No. 75, BTN Nelayan, Manggar Baru, East Balikpapan. Bontings MSME manufactures a variety of products, such as amplang (fish crackers) and crab floss, though crab floss remains its signature product. Floss represents an innovation in processed seafood products, exemplified by Bontings' crab floss. Bontings crab floss is an authentic food originating from Balikpapan City (Siman et al., 2022). Crab floss was first introduced in 2006 at an exhibition and culinary contest for Balikpapan City's specialty foods, subsequently adopting the Bontings crab floss brand (Tjoa A. et al., 2015). The crab species used in this floss product is the blue swimming crab (*Portunus pelagicus*). In the production process, blue swimming crab is more frequently used as the primary raw material due to the ease of obtaining this commodity.

Floss is a complementary food commonly consumed as a snack by its enthusiasts. It is typically made from shredded animal meat that is subsequently processed until dry and brownish in color, owing to the blend of spices that imparts flavor to the floss (Tjoa A. et al., 2015).

Bontings MSME's selection of blue swimming crab as one of the primary ingredients for its floss product is attributable to its high fatty acid content, which enhances the enjoyment for consumers. Irma et al. (2023) explain that blue swimming crab is relatively expensive because it has long been sought after by consumers both domestically and internationally. The benefits of blue swimming crab lie in its status as a high-quality food source rich in protein. Processed blue swimming crab meat is also among the most sought-after commodities, given its rising demand, which can further enhance the added value of the resulting product.

Furthermore, one indicator of success in fisheries enterprises is the generation of added value. This type of analysis serves to determine: (a) the amount of added value generated from specific treatments applied to fisheries commodities, (b) the amount of compensation received by owners and labor, (c) the number of employment opportunities created through the process of converting raw materials into finished products, and (d) the magnitude of opportunities and potential generated from the material processing process (adapted from Pratiwi, 2022).

The added value derived from crab floss production using blue swimming crab needs to be supported by high-quality marketing. According to Assauri (n.d.), as cited in Pratiwi (2022), marketing is understood as an activity directed toward fulfilling and satisfying needs through an exchange process. Every producer continually strives, through the products it generates, to achieve the company's goals and objectives. The resulting products can be sold to or purchased by end consumers at price levels that yield long-term profitability for the company.

Findings from Siman's (2022) study indicate that in its operations, Bontings MSME possesses an organizational process structure, market orientation, and utilization of information systems. The operational management processes of Bontings MSME are considered fairly sound and active, indicating that the enterprise's operations are, in general, relatively stable.

Based on the discussion above, it is evident that the already-stable operations of this MSME warrant further investigation through an analysis of added value and marketing arising from its ongoing production activities. An examination of these two aspects will complement existing studies on the existence of Bontings MSME, thereby facilitating its future business development. These conditions have motivated the researcher to conduct a study to further investigate "Value-Added and Marketing Analysis of Blue Swimming Crab (*Portunus pelagicus*) Floss Processing at UMKM Bontings in Manggar Baru Village, East Balikpapan District." According to research by Haqiqiansyah and Oktawati (2024), fisheries product processing enterprises exhibit a value-added ratio of 66%. This finding has further motivated the researcher to investigate more deeply the topic of "Value-Added and Marketing Analysis of Blue Swimming Crab (*Portunus pelagicus*) Floss Processing at UMKM Bontings in Manggar Baru Village, East Balikpapan District."

METHODOLOGY

This research was conducted from September 2024 to June 2025. The research location was UMKM Bontings, Manggar Baru Village, East Balikpapan District.

The data used in this study comprised primary and secondary data. Primary data, the main data source used in this research, were obtained through direct interviews with the owner of the crab floss enterprise using a questionnaire developed in accordance with the research objectives. Secondary data served as supporting data obtained from government institutions such as the Central Bureau of Statistics and the

Fisheries Service, as well as from other relevant studies supporting the objectives of this research, including theses and scientific articles published in research journals.

A case study approach was employed as the research method, involving in-depth analysis conducted comprehensively and thoroughly on an individual, family, group, institution, or other social unit, using a structured questionnaire as the primary data collection instrument to obtain specific information (Pollit & Hungler, 1999). The respondent was the owner of UMKM Bontings.

Data analysis began with a description of income results, followed by cost analysis and value-added analysis using the Hayami method. Value-added analysis using the Hayami method is a straightforward approach for measuring added value. The Hayami method is one technique for estimating changes in raw materials following processing treatment. The added value generated during the processing stage is derived from the difference between the product's value and the cost of raw materials and other inputs (Yosifani et al., 2021).

RESULT AND DISCUSSION

Profile of UMKM Bontings

The owner of Bontings is Mr. Ansori, who holds a bachelor's degree (S1). This educational background has not deterred him from continuously learning to develop his business to the point where it is well known throughout Balikpapan City today. Processing crab into crab floss has been his main occupation from 2006 to the present. UMKM Bontings is a business engaged in the processing of fishery and agricultural products, located in Manggar Baru Village, Balikpapan City. The business was originally established after observing the relatively abundant fishery resources in Manggar Baru, particularly crab. The owner initially pursued the culinary business by sending crab meat to an exporting company. Over time, the owner began experimenting with processing crab meat independently, which led to the creation of the product under the name Bontings. This process was not without challenges, particularly in developing a distinctive flavor. However, after continued experimentation, the owner succeeded in finding the right taste for the processed product.

In 2006, the public began to recognize the product under the Bontings brand—an abbreviation of "abon kepiting" (crab floss)—after which the owner began marketing the product by placing it on consignment in shops throughout Balikpapan City. Subsequently, in 2007, the owner expanded the business by renting a space for the first outlet. UMKM Bontings began operations with initial capital sourced from personal funds. Through persistence and determination, the owner succeeded in developing the crab floss product further. Over time, UMKM Bontings has been able to diversify its product line to include items such as amplang, mantau, jerky (dendeng), crab snacks, and crab sticks.

Business Costs and Production

The research findings on crab floss product processing at UMKM Bontings indicate that crab floss production is carried out over 7 production cycles per month. The costs incurred consist of an investment cost of Rp 136,210,000, a fixed cost of Rp 903,958, and a variable cost of Rp 37,618,000/month, while the revenue obtained amounted to Rp 85,680,000/month.

Value-Added Analysis

The value-added analysis calculated in this study represents the added value generated from processing crab into crab floss, computed using the Hayami method. The value-added calculation was based on a monthly production cycle of 7 production runs. The production costs of crab floss consist of raw material costs, other material costs, labor costs, and equipment depreciation. The raw material for Bontings' crab floss is crab meat, while the other materials consist of spices, cooking oil, and flavor enhancers, each present in varying quantities.

Table 1. Results of the value-added analysis of the crab floss business

Variable	Formula	Value
Output, Input, and Price		
1. Output (kg)	-1	126
2. Input (kg)	-2	210
3. Labor (Man-Days/HOK)	-3	50.4
4. Conversion Factor	$(4) = (1)/(2)$	0.6
5. Labor Coefficient (HOK/kg)	$(5) = (3)/(2)$	0.24
6. Output Price (Rp/kg)	-6	680,000
7. Labor Wage (Rp/HOK)	-7	80,000
Revenue and Profit		
8. Raw Material Price (Rp/kg)	-8	100,000
9. Contribution of Other Inputs (Rp/kg)	-9	37,933
10. Output Value (Rp/kg)	$(10) = (4) \times (6)$	408,000
11a. Value Added (Rp/kg)	$(11a) = (10) - (8) - (9)$	270,067
11b. Value-Added Ratio (%)	$(11b) = (11a/10) \times 100\%$	66.19
12a. Labor Income (Rp/kg)	$(12a) = (5) \times (7)$	19,200
12b. Labor Income Share (%)	$(12b) = (12a/11a) \times 100\%$	7.11
13a. Profit (Rp/kg)	$(13a) = (11a) - (12a)$	250,867
13b. Rate of Profit (%)	$(13b) = (13a/10) \times 100\%$	61.48
Returns to the Production Owner		
14. Margin (Rp/kg)	$(14) = (10) - (8)$	308,000
14a. Direct Labor Income Share (%)	$(14a) = (12a/14) \times 100\%$	6.23
14b. Other Input Contribution Share (%)	$(14b) = (9/14) \times 100\%$	12.32
14c. Processor's Profit Share (%)	$(14c) = (13a/14) \times 100\%$	81.45

Based on the value-added analysis presented in Table 1, the price of the raw crab meat was Rp 100,000/kg, with an input quantity of 210 kg yielding 126 kg of crab floss, resulting in a raw material (input)-to-output conversion factor of 0.6. This means that 1 kg of raw crab meat, combined with supporting ingredients, yields 0.6 kg of crab floss. This conversion factor is comparable to the findings of Dzulmawan et al. (2019), who reported that processing 1 kg of tuna into tuna floss yields a conversion factor of 0.528 kg of fish floss.

According to Ash'ari et al. (2023), the product conversion factor of an agricultural commodity depends on the condition of the raw material and its freshness or quality level, as agricultural products are inherently perishable and thus require appropriate handling. Higher raw material quality positively affects the conversion factor ratio of a processed or post-harvest product, since more efficient processing results in less raw material waste.

The contribution of other inputs in the Bontings crab floss business consists of sugar, cooking oil, coriander, galangal, ginger, shallots, garlic, lemongrass, salt, kaffir lime leaves, coconut milk, and flavor enhancers, calculated per production cycle/kg of raw material, yielding a value of Rp 37,933/kg of raw crab meat processed into crab floss.

Bontings crab floss is sold in 50-gram packages priced at Rp 34,000 per package. Setting an affordable price can serve as one factor influencing consumer preference to purchase a product; prices set too high can adversely affect consumer interest and loyalty, potentially causing consumers to switch to similar products offered at lower prices. According to Sari and Maryam (2020), the pricing of a food product

must be appropriate and reasonable relative to the quality of the product offered. A higher price must correspond to the benefits received by the consumers who purchase it. Consequently, the quality and availability of crab floss have a significant influence on consumer loyalty. Determining the selling price of a product is a fairly difficult decision for producers; among the factors that can be considered by producers in setting their product's selling price are the cost of the primary raw material, supporting raw materials, and other production support materials (Ash'ari et al., 2023).

The output value in the Hayami method value-added analysis is obtained by multiplying the conversion factor by the output price of the product (Rp/kg). Based on this calculation, the output value in processing crab meat into crab floss is Rp 408,000/kg. The higher the conversion factor, the higher the resulting output value.

The value added from processing crab meat into crab floss represents the difference between the output value and the raw material price (Rp/kg), minus the contribution of other inputs (Rp/kg). Based on this calculation, the resulting value added is Rp 270,067/kg of raw material.

The value-added ratio in the Hayami method is obtained by dividing the value added (Rp/kg) by the output value (Rp/kg) and multiplying by 100%. Based on this calculation, the value-added ratio in processing crab meat into crab floss is 66.19%, which falls into the high category. According to the testing criteria of Hubeis (1997), as cited in Rahmawati et al. (2020), the value-added ratio is considered low if it is below 15%, moderate if it falls between 15–40%, and high if it exceeds 40%. Based on this classification, the value-added ratio for processing crab meat into crab floss is categorized as high.

The profit from processing crab meat into crab floss represents the difference between the value added and labor income/compensation. This profit value constitutes the net added value received by the industry. The profit obtained is Rp 250,867/kg, meaning that every 1 kg of crab floss produced can generate a profit of Rp 250,867/kg, which represents 61.48% when calculated as profit divided by output value multiplied by 100%.

The resulting labor income of Rp 19,200/kg indicates that for every 1 kg of raw material processed, a cost allocation of Rp 19,200 is designated for labor. This value is obtained by multiplying the labor time conversion of 0.24 HOK/kg by the labor wage of Rp 80,000/HOK. The labor income value-added ratio is 7.11%, meaning that of the total value added of Rp 270,067 generated per 1 kg of raw material, only approximately Rp 19,200—or 7.11%—constitutes the labor income share. This indicates that although the business generates a fairly substantial amount of added value, the portion received by labor is relatively small compared to the total value added generated.

From the margin calculation results obtained from processing raw crab meat into crab floss, this margin is distributed among labor income, the contribution of other inputs, and the processor's profit. Margin refers to the difference between the product value and the price of raw crab material per kilogram. The margin indicates that for every 1 kg of crab meat processed, a margin of Rp 308,000 is generated, which is distributed among the respective factors as follows: 6.23% to labor income, 12.32% to the contribution of other inputs, and 81.45% to processing profit.

Marketing of Crab Floss

UMKM Bontings employs interdependent marketing channels involved in distributing ready-to-consume crab floss products. The marketing channels for UMKM Bontings' crab floss are distinguished by the length of the distribution channel, either long or short. This is consistent with the following interview: *"As for the channels, yes, there's the one that goes directly from the producer to the consumer, and there's also the one that goes from the producer to shops and then to the consumer"*. Based on the interview excerpt above, it is evident that UMKM Bontings utilizes two marketing channels: a zero-level channel and a one-level channel.

a. Zero-Level Channel

In this marketing channel, the business owner sells directly to consumers (producer–consumer). Through this channel, UMKM Bontings maintains its own point of sale within the production facility, enabling it to market its products directly. UMKM Bontings also sells through social media platforms such as Shopee and Instagram, with the aim of increasing product recognition among the residents of Balikpapan City and surrounding areas. In addition, consumers may visit the UMKM Bontings production facility in person to make purchases face-to-face.

b. One-Level Channel

In this marketing channel, the business owner collaborates with intermediary traders (retailers) to distribute products to consumers (producer–retailer–consumer). UMKM Bontings markets its products through intermediary traders, referred to as retailers or collectors, distributing to several shops within Balikpapan City as well as outside the city, such as souvenir centers in Samarinda City. UMKM Bontings' retailers and intermediary traders also sell products through social media platforms such as Shopee and Instagram.

CONCLUSION

The value added generated from processing raw crab meat into crab floss is Rp 277,381, with a value-added ratio of 72.23%. This value-added ratio is classified as high, as it exceeds 40%. The profit margin for crab floss is Rp 284,000, with a profit share of 89.22%, which is distributed among the respective factors, including a labor income share of 8.45% and an other-input contribution share of 2.33%.

Based on the research findings, UMKM Bontings conducts marketing activities through several channels, namely: a. Direct marketing channels (producer–consumer) through sales at the production facility and via social media platforms. b. Indirect marketing channels (producer–intermediary trader–consumer) through collaboration with intermediary traders.

REFERENCES

- Ash'ari, F., Suslinawati, S., Ifada, I. I., & Pangestu, R. F. (2023). Dampak Kenaikan Harga Bahan Baku dan Minyak Goreng terhadap Nilai Tambah Keripik Singkong di Kecamatan Banjarmasin Barat Kota Banjarmasin. *AgriFo: Jurnal Agribisnis Universitas Malikussaleh*, 8(2), 38-48.
- Dzulmawan, Muhammad, Laode Geo, and Abdul Gafaruddin. 2019. “Analisis Nilai Tambah Pengolahan Abon Ikan Tuna Di Kelurahan Mata Kecamatan Kendari Kota Kendari (Studi Kasus Industri Rumah Tangga Dzakiyah Permata).” *Jurnal Ilmiah Agribisnis* 4(2):29–34.
- Qur'ain, S. P., Haqiqiansyah, G., & Oktawati, N. O. (2024). Analysis of amplang business in Babulu Laut Village, Babulu District, North Penajam Paser Regency. *Jurnal Ilmu Perikanan Tropis Nusantara (Nusantara Tropical Fisheries Science Journal)*, 3(2), 85-92.
- Irma, Wa, M. Said Karyani, and Dhamas M. Amarlita. 2023. “Analisis Kitin Dari Cangkang Kepiting Rajungan (Portunus Pelagicus).” *HORIZON: Indonesian Journal of Multidisciplinary* 1(2):105–16. doi: 10.54373/hijm.v1i2.941
- Pramiyati, T., Jayanta, J., & Yulnelly, Y. (2017). Peran Data Primer Pada Pembentukan Skema Konseptual Yang Faktual (Studi Kasus: Skema Konseptual Basisdata Simbumil). *Simetris : Jurnal Teknik Mesin, Elektro Dan Ilmu Komputer*, 8(2), 679. <https://doi.org/10.24176/simet.v8i2.1574>
- Sari, D., & Maryam, A. (2020). Persepsi Harga, Kualitas Produk Dan Ketersediaan Kerupuk Amplang Terhadap Loyalitas Konsumen Di Kabupaten Sambas. *PATANI (Pengembangan Teknologi Pertanian Dan Informatika)*, 4(1), 21–25. <https://doi.org/10.47767/patani.v4i1.8>

- Pratiwi, P. M., Widjayanti, F. N., & Prawitasari, S. (2022). Efisiensi dan strategi pemasaran usaha pembenihan ikan nila (*Oreochromis niloticus*) di Balai Benih Ikan Rambigundam. *Jurnal Agribest*, 5(2), 1-15.
- Rahmawati, R., & Soedarto, T. (2020). Pengolahan Kopi Dan Analisis Nilai Tambah Kopi Robusta Di Kecamatan Tukur Kabupaten Pasuruan. *Agridevina: Berkala Ilmiah Agribisnis*, 8(2), 135-144.
- SIMAN, S. (2022). Evaluasi Tingkat Kematangan Proses Bisnis Umkm Kuliner Kota Balikpapan;(Studi Kasus).
- Tjoa, A. W., Negara, I. N. S., & Aryanto, H. (2015). Perancangan Promosi Abon Kepiting” Bontings” Khas Kota Balikpapan. *Jurnal DKV Adiwarna*, 1(6), 12.
- Yosifani, D. Y., Satriani, R., & Putri, D. D. (2021). Nilai tambah kedelai menjadi tahu kuning dan faktor-faktor yang memengaruhinya. *SEPA: Jurnal Sosial Ekonomi Pertanian dan Agribisnis*, 18(1), 101-111.