Strategy and fish marketing systems in Kota Bawah Timur Fishing Port, Sabang Indonesia

M A Chaliluddin1,2, J M Affan2, A Rahmah2, R M Aprilla2 and C Z Ariani2

1Fishing Technology Laboratory, Faculty of Marine and Fisheries, Universitas Syiah Kuala, Banda Aceh, Indonesia;
2Department of Fisheries Resource Utilization, Faculty of Marine and Fisheries, Universitas Syiah Kuala, Banda Aceh, Indonesia.
*Corresponding author: chaliluddin@unsyiah.ac.id

Abstract. Kota Bawah Timur Fishing Port is a landing place that has a fairly busy activity and always routinely conducts fish auctions every morning. The dominant fishing gear used by fishermen in this port is hand line and hand line, landed fish are catches which have important economic value. The problem faced now is that the fisheries business system in this fishing port is still simple, the marketing channels still go through between regions and, facilities that could support marketing such as an ice factory were damaged. The purpose of this study is to provide recommendations and strategies regarding the marketing system for fish landing bases Kota Bawah Timur, this research was conducted in June 2020. The method used in this research is purposive sampling method using S.W.O.T analysis (Strengthen, Weakness, Opportunities, and Threats) where an effective strategy can be formulated systemically by comparing internal and external conditions. The results obtained are that fishing port has three marketing channels, namely: market channels, channel for household processing and channel for tuna collectors. Kota Bawah Timur Fishing Port also has an internal value of 0.43 and an external value of 0.28, of the two conditions factors have a positive value. These results indicate that the marketing growth in this fishing port has a strong performance and opportunities in its marketing.

1. Introduction
Marine and fisheries sector is the leading sector for the city of Sabang. Sabang city has a long coastline of 96.3 km² with three bays, namely sabang bay, peria laot bay, and balohan bay which have quite prominent marine and fishery potential, this can be believed to be able to open marketing channels both within the region and outside the region [1]. The area of Sabang City has a Fish Landing Base in Kota Bawah Timur. This Fish Landing Base has a strategic location, which is close to the central market of Sabang City. Kota Bawah Timur fishing port still occupies Class IV and type D. Kota Bawah Timur fishing port is an existing Sabang fisherman landing site which has a fairly busy activity, with fish auctions that are always routine every morning. Judging from the amount of fishing production at the Sabang City was recorded Marine and Fisheries Service, the amount of production in 2019 at 1,807 tons.

The Kota Bawah Timur Fishing Port has 5 types of fishing gear, namely liftnets, purse seine, gillnets, trolling lines, and hand lines, of the five fishing gears are dominated by trolling line and handline. The catch of fishing gear is classified as commercial fish which is in great demand by consumers, With the existence of this commercial fish, the marketing of fishery products will make this fishing port more and more visited by the public [2]. Problems faced by facilities that can support marketing such as the ice factory at Kota Bawah Timur fishing port are damaged so that fishermen get ice from the household processing unit. Freshness of fish depends on the availability of ice because it is perishable [3]. Able to
preserve fish, it is necessary to have sufficient impressions to keep the fish fresh [4]. Freshness of fish depends on the availability of ice because it is perishable [5]. To be able to preserve fish, it is necessary to have sufficient impressions to keep the fish fresh.

Problems faced by facilities that can support marketing such as the ice factory at Kota Bawah Timur fishing port are damaged so that fishermen get ice from the household processing unit [6]. A fishing port is a center for marketing of catches, where the role and facilities are very important in the economy of a port, starting from landing to marketing the catch [7]. In order to improve the existing fisheries marketing system in Kota Bawah Timur fishing port, a special strategy is needed, where this research is carried out in order to be able to provide recommendations regarding appropriate strategies for Kota Bawah Timur fishing port [8]. This is intended to help advance the capture fisheries marketing system and increase the marketing growth in Kota Bawah Timur fishing port so that in the future, the marketing at Kota Bawah Timur fishing port will be advanced and continue to develop [9].

2. Materials and Methods

2.1 Site and Time Research

This research was conducted for one month, namely in June 2020 at the Kota Bawah Timur Fishing Port, Sabang City.

![Figure 1. Map of the research location](image)

2.2 Method of Collecting Data

Data collection used is primary and secondary data. Primary data is obtained through direct observation (observation) in the field and secondary data is obtained from related institutions. The data collection method in this study uses purposive sampling. The sample collection method is purposive sampling, namely the sampling technique by determining certain criteria [10]. The criteria are determined from respondents who are active in the capture fisheries business at Kota Bawah Timur fishing port and from related agencies who will later help to compare the internal and external conditions in Kota Bawah Timur fishing port Sabang City. Respondents who will be taken from the capture fisheries business actor are 2 people trolling line fishermen, 3 people hand line fishermen, 3 people handline fishermen, 3 people toke bangku /wholesaler, 3 people muge (retailer) and 1 people fish transportation service. For the agency, the Head of the regional technical service unit of Fisheries and the Processing and Marketing Section of the Sabang City Fisheries Service.

2.3 Data Analysis

The data analysis used in this study is a SWOT analysis, which compares the internal and external environments of the port in terms of marketing. The internal environment deals with strengths and weaknesses. The external environment is concerned with opportunities and threats. This analysis is based on logic to maximize strength (Strength) and opportunities (opportunities), but simultaneously can minimize weaknesses and threats [11]. The stages of analyzing with SWOT are as follows:
1. Analyze the strengths, weaknesses, opportunities and threats.
2. Creating an internal matrix and an external matrix.
3. Giving values, this stage, the \( w \) values range from 0 (not important) to 1 (very important) so that a scale that shows the importance of each factor is necessary using a pairwise appeal matrix [12].
4. Giving a rating using a Likert scale starting from: rating 4 (very influential), 3 (influential), 2 (less influential) and 1 (not influential)
5. A development strategy that uses the Evaluation factor internal and Evaluation factor external matrices, produces four sets of possible alternative strategies, SO (Strengths - Opportunities), WO (Strengths - Threats), ST (Weaknesses - Opportunities), and WT (Weaknesses – Threats) [13].
6. The last stage is the stage of determining the SWOT analysis diagram, which here will show the port position in a quadrant. The quadrant consists of starting from quadrant I (positive, positive), Quadrant II (positive, negative), Quadrant III (negative, positive), Quadrant IV (negative, negative)

### 3. Results and Discussions

#### 3.1 Fish Marketing Strategy
Kota Bawah Timur fishing port requires directing the marketing system, this is aimed at helping business actors in the capture fisheries business at the Kota Bawah Timur fishing. To be able to formulate the right strategy, a SWOT analyst is needed in order to be able to formulate alternative strategies that can help the internal conditions of the port and its external conditions [14]. The strategy factor can be seen from the results of the score for each factor. In table 1 an explanation of the internal and external factors is shown in table 1.

#### Table 1. Internal factor SWOT analysis calculation

| No | Internal factors | Value | Rating | Score |
|----|------------------|-------|--------|-------|
| **Strength** | | | | |
| 1 | Have commercial fish catch | 0.02 | 4 | 0.07 |
| 2 | Routine fish auction activities every morning | 0.01 | 4 | 0.06 |
| 3 | The smooth availability of clean water | 0.11 | 2 | 0.22 |
| 4 | Kota Bawah Timur fishing port access is quite good | 0.09 | 3 | 0.27 |
| 5 | Fishing ports are open ports | 0.01 | 4 | 0.06 |
| 6 | Cleanliness is good enough | 0.13 | 3 | 0.40 |
| 7 | Like a dock for loading and unloading activities | 0.04 | 4 | 0.14 |
| 8 | There is a toke bench check for tuna fish | 0.07 | 3 | 0.21 |
| 9 | The lighting is adequate | 0.03 | 3 | 0.10 |
| **Total** | | | | **1.52** |
| **Weakness** | | | | |
| 1 | The ice factory is in disrepair | 0.21 | 1 | 0.21 |
| 2 | The utilization of TPI has not been utilized | 0.08 | 1 | 0.08 |
| 3 | Fish conveyance is still open | 0.04 | 2 | 0.07 |
| 4 | For placement of large fish do not use mats | 0.05 | 1 | 0.05 |
| 5 | There is no place for borrowing baskets yet | 0.07 | 2 | 0.14 |
| 6 | If the price of fish is cheap, Sabang fishermen will immediately market the fish to Kutaraja fishing port | 0.04 | 3 | 0.11 |
| **Total** | | | | **1.00** |
Table 2. External factors SWOT analysis calculation

| No | Opportunity                                                                 | Value | Rating | Score |
|----|------------------------------------------------------------------------------|-------|--------|-------|
| 1  | Close to the central market of Sabang City                                  | 0.13  | 4      | 0.52  |
| 2  | Availability of adequate fish resources                                     | 0.08  | 4      | 0.32  |
| 3  | There is a demand for fish from outside the region.                         | 0.13  | 2      | 0.25  |
| 4  | There are ships from other areas loading and unloading at Kota Bawah Timur fishing port | 0.06  | 4      | 0.23  |
| 5  | The number of resorts available                                             | 0.05  | 2      | 0.11  |
| 6  | Large vessels can enter the waters of Kota Bawah Timur fishing port         | 0.03  | 3      | 0.08  |
| 7  | Having human resources who are experienced in fisheries                     | 0.03  | 3      | 0.08  |
|    | **Total**                                                                    | **1.62** |       |       |

| No | Threat                                                                 | Value | Rating | Score |
|----|------------------------------------------------------------------------|-------|--------|-------|
| 1  | Household fishery product processing still relatively few               | 0.15  | 2      | 0.31  |
| 2  | Bad weather affects catch production                                    | 0.14  | 2      | 0.28  |
| 3  | The occurrence of price fluctuations                                    | 0.09  | 2      | 0.19  |
| 4  | Fish export marketing is still through Kutaraja fishing port            | 0.06  | 3      | 0.17  |
| 5  | The number of rotten fish in postharvest time due to insufficient ice availability | 0.06  | 2      | 0.11  |
|    | **Total**                                                                | **1.00** | **1.06** |       |

3.2 SWOT Matrix Analysis

Based on the identification of internal and external factors that in Kota Bawah Timur fishing port, this matrix analysis will show the alternative strategies that are intended for each factor.

Table 3. SWOT matrix

| Strength                                                                 | Weakness                                                                 |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1. Have commercial fish catch                                           | 1. The ice factory is in disrepair                                       |
| 2. Routine fish auction activities every morning                        | 2. The utilization of TPI has not been utilized                           |
| 3. The smooth availability of clean water                               | 3. Fish conveyance is still open                                          |
| 4. Access to Kota Bawah Timur fishing port is quite good                 | 4. For placement of large fish do not use mats                           |
| 5. Kota Bawah Timur fishing port is included in the category of fishing port open to the public | 5. There is no place for borrowing baskets yet if the price of fish is cheap, Sabang fishermen will immediately market the fish to Kutaraja fishing port |
| 6. Kota Bawah Timur fishing port cleanliness is good                     |                                                                          |
| 7. There is a toke bangku check for tuna fish                            |                                                                          |
| 8. The lighting is adequate                                              |                                                                          |
### Opportunity

1. Close to the central market of Sabang City
2. Availability of adequate fish resources
3. There is a demand for fish from outside the region.
4. There are vessels from other areas loading and unloading
5. Large vessels can enter the waters of Kota Bawah Timur fishing port.
6. Having human resources who are experienced in fisheries

### S-O

1. Increase the quantity and quality of commercial fish.
2. Expand marketing and distribution of fish along with the demand for fish.

### W-O

1. Repair the ice factory so that fishermen and fisheries business actors can keep the quality of the fish fresh.
2. Has a base for large fish and closed equipment so that the fish are protected from the sun.
3. Improve the performance of the facilities it serves for expedite marketing activities.

### Threat

1. Household fishery product processing still relatively few
2. Bad weather affects catch production
3. The occurrence of price fluctuations
4. Fish export marketing is still through Kutaraja fishing port
5. The number of rotten fish in post harvest time due to insufficient ice availability

### S-T

1. Optimizing fish processing businesses so as to produce quality fishery products with high added value.
2. There is a need for post-harvest handling training when the peak season arrives.

### W-T

1. To attract fishery investors to kesabang so that they can revive the cold storage in Sabang.

### 3.3 Grand Strategy

The grand strategy is used to select 4 quadrant levels obtained from the SWOT matrix analysis, by placing the total score on internal factors and external factors [15]. Judging from the SWOT matrix analysis, there are several strategies that must be reconsidered so that the marketing system in Kota Bawah Timur fishing port continues to improve.

- **S-O strategy**
  1. Increase the quantity and quality of commercial fish.
  2. Expand marketing and distribution of fish along with the demand for fish.
  3. Increasing fish production by utilizing fishery resources.
  4. Expand fishing ground with fleet upgrades.

- **W-O strategy**
  1. Repair the ice factory so that fishermen and fisheries business actors can keep the quality of the fish fresh.
  2. Has a base for large fish and closed equipment so that the fish are protected from the sun.
  3. Improve the performance of the facilities it serves for expedite marketing activities.

- **S-T strategy**
1. Optimizing fish processing businesses so as to produce quality fishery products with high added value.

2. There is a need for post-harvest handling training when the peak season arrives.

• W-T strategy
  1. To attract fishery investors to Sabang so that they can revive the cold storeg in Sabang.

Kota Bawah Timur fishing port have the marketing quadrant, located in quadrant I where quadrant one is related to strengths and opportunities. This quadrant can be seen in the SWOT matrix diagram image which shows the internal score obtained is 0.43, while for external factors it is 0.28. From internal and external factors, the score obtained has a positive value. This is evidenced from the analysis obtained from the SWOT matrix diagram, that Kota Bawah Timur fishing port occupies the quadrant I position, which states that ports in this position have strong performance and have the opportunity to grow their marketers. The strategy to be used for this Kota Bawah Timur fishing port is the S-O strategy, where S-O has a strategy [16].

Kota Bawah Timur fishing port which is the landing site is quite busy and always routinely conducts fish auctions every morning. Judging from the fishing fleet located at Kota Bawah Timur fishing port, at this fish landing base, the most dominant fishing gear is bottom hand lines and trolling lines. There are several types of fish caught from fishing gear that dominate the Kota Bawah Timur fishing port which enter into commercial fish, among others yellowfin tuna (Thunnus albacores), Skipjack (Katsuwonus pelamis), Banded Barracuda (Sphyraena), indo-pacific sailfish (Istiophorus platypterus), Swordfish (Xiphias gladius), Bigeye trevally (Caranx sexfasciatus). Commercial fish can increase marketing that in the growth of consumer marketing, they are starting to realize and like the product, the products here are in the form of landed fish catches, commercial fish are in great demand due to their affordable prices so consumers do not hesitate to buy fish [17]. There are several types of fish that are not included in commercial fish, such as reef fish, namely grouper fish (Serranidae). This is because the grouper (Serranidae) has a low catch and the price is high, making this fish less attractive to consumers [18].

The marketing system consists of local marketing and inter-regional marketing of Kota Bawah Timur fishing port. Inter-regional marketing occurs when the peak season arrives and regional marketing also occurs for tuna commodity, which is in demand at Kutara fishing port. Kota Bawah Timur fishing port has three marketing channels, namely: I: fishermen - toke benches Toke bangku / wholesaler - fish market - consumers; channel II: fishermen - Toke bangku / wholesaler - processing of fishery products - consumers; channel III: fishermen - Toke bangku / wholesaler - collectors - consumers. Marketing institutions at fishing ports greatly affect the price of fish [19], which can be seen from the marketing channels of institutions that play an important role in Kota Bawah Timur fishing port, namely toke bangku / wholesaler, because there are no large collectors or investors at the landing sites. Generally, toke bangku / wholesaler at Kota Bawah Timur fishing port take 7-10% profit from fishermen, and the marketing margins they get are not too high.
Fishermen at Kota Bawah Timur fishing port land their catch twice at the jetty, the first landing takes place in the morning from 06:00-09:00 WIB, while at night fish catching occurs from 17:00-21:00 WIB. If the landing of the catch occurs in the morning, the catch will be auctioned directly at the pier. The auction starts at 06:00-10:00 WIB if the fish is not sold out, the fish will be stored back in the cold box that has been prepared by the toke bangku/wholesaler. Here the auction activity is carried out every morning. Kota Bawah Timur fishing port fishermen are still classified as small scale fishermen, this can be seen from the size of the fishing boats at Kota Bawah Timur fishing port which are at 0-5 GT. Kota Bawah Timur fishing port capture fishery product production is still influenced by the season because fishermen are still classified as small-scale fishermen in the peak season fishing can land the catch of 300 kg/trip and when the fishing season arrives fishing rods can land their catch as much as 50 kg/trip [20]. The positive impact that is given from this fisherman can also help the availability of fish supply at Kota Bawah Timur fishing port, because fishing rodents at Kota Bawah Timur fishing port are still classified as oneday fishing [21].

The marketing system at Kota Bawah Timur fishing port is still relatively simple, and the marketing margins that are obtained are not too high. For the market, the marketing margin is IDR 17,143, the marketing margin for household scale processing is IDR 30,000. The marketing margin for tuna collector level is divided according to the freshness quality of the tuna grade found in Kota Bawah Timur fishing port, namely grade B and grade C, with a marketing margin of IDR 5,000 per kilogram for grade B tuna and IDR 3,000 for grade C.

4. Conclusions
Kota Bawah Timur fishing port has three marketing channels, namely; market channel, household processing channel and tuna collector channel. Institutions that play an important role in the marketing channel are toke bangku/wholesaler Kota Bawah Timur fishing port has a positive value from both environmental factors, namely internal factors of 0.43 and external factors of 0.28. The two factors indicate that Kota Bawah Timur fishing port occupies the position of quadrant I with the strategy shown as S-O strategy, because with the S-O strategy the development of Kota Bawah Timur fishing port will continue to increase.

References
[1] Anonymous 2017 Masterplan Sentra Kelautan dan Perikanan Terpadu Kota Sabang (Jakarta: Kementerian Kelautan dan Perikanan)
[2] Acha S, Destiningsih R and Hirawati H 2020 Journal of Management and Entrepreneurship 5 1-17
[3] Hardiyanto A, Soejanto I and Berlianty I 2018 Journal of Industrial Optimization Systems 11 1-13
[4] Sokoastri V 2020 Agribusiness Forum 10 145-154
[5] Teti A, Sultan D and Ihsan 2019 Journal of Indonesian Tropical Fisheries 2 18-31
[6] Ariastini N N, Widhiarini N M A N and Oktaviani P E 2018 Prosiding Seminar Nasional Multi Disiplin Ilmu 419-424
[7] Lubis E 2011 Journal of Aquatic Resources 2 1-11
[8] Anwar K and Irhammi G T 2020 Scientific Journal of Business Economics 6 12-25
[9] Sasangkaadi H 2020 Journal of Agribusiness 20 14-23
[10] Mukhsin R, Mappigau P and Tenriawaru A N 2017 Journal of Analysis 6 188-193
[11] Rangkuti F 2014 SWOT Analysis (Jakarta: Gramedia)
[12] Baroto T and Purbohadiningrat C 2014 Journal of Industrial Engineering 15 88-102
[13] Howara D 2013 Agroland Journal 17 75-81
[14] Rizky F D 2018 Thesis (Bandar Lampung: Lampung University)
[15] Tampubolon C N 2019 Thesis (Bogor: IPB University)
[16] Suhartina 2017 Journal of Policy and Public Services 3 45-54
[17] Arif Z, Nisah F D, Hermawan D and Husein M T 2020 Journal of Rausyan Fikr 16 118-137
[18] Yon I J, Pribadiono and Noviandari I 2017 Branchmark Management Journal 3 593-607
[19] Paramansyah A 2020 Journal of Economics, Finance and Islamic Business 2 161-173
[20] Prastyo R I, Sukanata I K and Dwirayani D 2020 Paradigma Agribisnis Journal 3 54-66
[21] Ambarphati S 2020 Schemata 9 103-124