Business sustainability of fisheries utilization in Padang

H M Huda1,2, M Firdaus1, Mira1, S H Suryawati1, Y D Sari1, T Kurniawan1

1Research Center for Marine and Fisheries Socio-Economics, Jakarta, Indonesia
2Corresponding Author: hamihud@gmail.com

Abstract. Padang is one of the centers of economic growth in the West Coast of Sumatra. Its position in the coast makes Padang as the entrance of fish resources to fulfil the needs of fish in Padang and its surrounding areas. The purpose of this study is to analyze the level of utilization of fish resources in Padang, especially from the aspect of business sustainability. The data analysis was done descriptively describing the performance of the fishing business that landed fish in Padang. The results of the analysis show that various types of fishing gear that landed fish in Padang still provide business benefits so that business sustainability continues. The availability of fish landing facilities and better fishing needs is expected to increase the efficiency of fishing effort and improve the quality of the fish catch landed so that it has a higher selling value.

1. Introduction
The large potential of fisheries resources in WPP 573. Most of the utilization rate of fishery resources in WPP 572 is still in the moderate category so that fishing efforts can still be increased, especially for small pelagic fish, corals, crabs, small crabs, and squid. Meanwhile, the large pelagic, demersal, and lobster fish groups are in the fully exploited category of utilization so that fishing efforts can still be maintained. The effort to catch shrimp must be reduced because the level of utilization is overexploited.

The demand for fish protein will continue to increase as the population increases [1,2]. The need for fish in Indonesia will also continue to increase along with the population growth [3]. With the increasing need for fish, it is necessary to provide efforts so that the utilization of fish resources must be managed sustainably. The fishing business also provides economic benefits for the community and drive the regional economy [4,5,6,7,8].

The position of the city of Padang on the west coast of Sumatra has a comparative advantage in developing fisheries. The availability of fish landing facilities and the logistical needs of the fishing business has made the city of Padang as a place of departure for fishing and landing fish. Limited information on the performance of fisheries businesses and the potential use of fisheries resources is one of the problems in developing a sustainable fisheries business. This study aims to analyze the performance of fisheries in Padang.

2. Material and methods
The sampling method of respondents using the stratified sampling method. The number of respondents is 57 people who own the fishing vessel. Data obtained by interview and observation methods. Interviews were conducted to obtain business revenue and cost information. Business revenue data is for the last year, both in the peak season and the regular season and low season. Total costs consist of fixed costs and variable costs Secondary data were obtained from the Padang City Marine and Fisheries
Service and Bungus Ocean Fishing Port. Secondary data obtained include data on the fishing vessel, number of fishing gear, production and production value of fish. Data analysis was carried out descriptively explaining the performance of the fishing business through business financial analysis and explaining the opportunities and problems in fisheries development in Padang.

3. Result and discussion

3.1. Fisheries business characteristic in Padang

Capture fisheries potential in Padang City is found in seven coastal districts namely Koto Tangah, Nanggalo, North Padang, South Padang, West Padang, Lubuk Begalung, and Bungus. The number of sea fishermen in the city of Padang in 2018 reached 7,069. There are 1,717 fishing boat/boat in the city of Padang consisting of 4 units of motorized boats, 1,326 outboard motor units and 387 motorboats. Types of fishing gear: trolling, longline, payang, dogol, bottom lampara, purse seine, lift net, gillnet and trammel net. Most of the fishing gear is one-day fishing. Lift net vessels over 30 GT can catch a trip of 15 days, meanwhile vessels 15 GT and below carry out one-day fishing.

Fish production at PPS Bungus comes from the catch of fishing boats landed at the port, in the form of local fishing boats, purse seine, hand line, long line as well as collection and transport vessels. The volume of fish production in 2017 was 960.2 tons with a value of IDR 42,837,168,090. While the volume of fish production in 2018 was 1,112 tons with a value of IDR 36,153,003,258.

| Month  | Production (MT) | Value (IDR thousand) |
|--------|----------------|---------------------|
|        | 2017           | 2018                |
|        | 2017           | 2018                |
| January| 179.85         | 45.57               | 5,587,081 | 1,838,596 |
| February| 43.17         | 57.07               | 2,820,741 | 1,958,359 |
| March  | 164.34         | 41.98               | 7,989,777 | 1,735,212 |
| April  | 29.36          | 72.49               | 1,705,981 | 2,593,400 |
| May    | 72.66          | 165.28              | 4,288,994 | 3,370,900 |
| June   | 29.56          | 26.73               | 1,706,040 | 1,005,518 |
| July   | 54.33          | 77.87               | 2,959,010 | 2,860,212 |
| August | 58.35          | 113.52              | 2,609,911 | 3,664,642 |
| September| 40.56         | 112.16              | 2,054,181 | 3,746,518 |
| October| 76.69          | 162.98              | 3,051,538 | 5,400,307 |
| November| 132.67        | 118.39              | 4,840,248 | 3,871,889 |
| December| 79.08          | 118.96              | 3,223,666 | 4,107,448 |
| Total  | 960.62         | 1,112.99            | 42,837,168 | 36,153,003 |

Source: [9,10]

Based on the table above, it can be seen that although the production of fish landed in 2018 was higher than in 2017, the value of fishery production in 2018 was lower than in 2017. This could happen because of differences in the types of fish landed so that it affected the price of fish paid. Currently, there are still many fish landings in the city of Padang that land fish in private fish catchments/landings and their products cannot be monitored. It is important to record fishery production in the future because it is to determine the level of utilization of fishery resources.

3.2. Performance of fisheries business in Padang

In this study, 5 groups of fishing gear were analyzed for their business performance, namely gill net, lift net under 30 GT, lift net above 30 GT, nylon, and payang. The business performance of the vessel and fishing gear group can be seen in the following table.

Based on the table above, it can be seen that the fishing business in Padang City is a viable business to develop. The biggest profit is obtained by lift net business owners over 30 GT, which reaches 930 million in one year. In the long term, fishing business in Padang also provides benefits as indicated by
a positive NPV value. Some studies have also shown that the lift net gives beneficial results [11,12,13,14,15].

### Table 2. Performance of fisheries business on Padang City.

| Fishing gear       | Investment (IDR thousand) | Annual Total cost (IDR thousand) | Annual Total Revenue (IDR thousand) | Annual Total Profit (IDR thousand) | R/C Ratio | NPV (IDR thousand) |
|--------------------|----------------------------|----------------------------------|-------------------------------------|-----------------------------------|-----------|--------------------|
| Gill net           | 26,686                     | 33,152                           | 41,623                              | 8,471,479                         | 1.26      | 27,352             |
| Lift net under 30 GT | 95,650                     | 286,028                          | 434,643                             | 148,642                           | 1.52      | 859,268            |
| Lift net above 30 GT | 632,205                    | 1,548,690                        | 2,500,333                           | 951,643                           | 1.61      | 5,320,188          |
| Nylon              | 36,633                     | 29,693                           | 37,500                              | 7,807                             | 1.26      | 20,437             |
| Payang             | 55,725                     | 384,532                          | 536,775                             | 152,243                           | 1.40      | 873,982            |

Sales of catch fish usually have cooperation with regular traders to be marketed in Padang, Jambi, Medan and other cities. In one shipment, fish traders usually carry around 1-2 tons of fish in one trip delivery.

Lift net is a fishing tool that has become the local wisdom of the people of West Sumatra because it has been hereditary. Lift net fishermen expects a special policy regarding the license to operate boats above 30 GT. Lift net encourages the economic growth of society because it involves a large number of workers. Currently, there are about 500 units of lift net boats over 30 GT in West Sumatra. The catch of lift net above 30 GT beside supplying fish in the West Sumatra region but also supplies to neighbouring provinces in West Sumatra.

In the last few years, fishermen have increased the size of their vessels, and they reasoned that they use lift net boats above 30 GT because for security because their operations are facing the ocean where there are often sudden big winds / bad weather. By the big size of the boats, they can still survive or can quickly find refuge on a nearby island.

#### 3.3. Problem identification of fisheries business in Padang

The opportunity that supports the fishing business in Padang is the availability of logistics at PPS Bungus for fishing activities is relatively sufficient both in terms of fuel, ice, water, and other supplies. Several problems in fisheries business in Padang, especially large vessels, often complain that fisheries business licensing must involve several agencies. Currently, lift net fishermen in Padang and its surroundings tend to reduce the size of the GT of their ships so that the licensing process only reaches the provincial government and the cost of obtaining SIPI is cheaper. Until now, there is no fish auction system which is expected to increase the selling price of fish caught.

The limited educational background of fishermen is also an obstacle in implementing existing regulations. For example, related to e-log books, most fishermen are still not familiar with the android e-logbook application. The most types of exploitation violations are lift net boats over 30 GT catching fish in route II, especially during the anchovies season. The fisheries office, along with the enactment of the local government law, currently only guides fishermen in the city of Padang. There are still many fish landings in Padang City that land fish in tangkahan and their production results cannot be monitored. It is important to record fishery production in the future because it is to determine the level of utilization of fishery resources. In addition, with the elimination of fisheries fees, regional revenue from the fisheries sector is low. This condition makes the development of the fisheries sector difficult to develop.

[17] Government policy through the Minister of Marine Affairs and Fisheries Regulation Number 71 of 2016 has a positive impact in the form of controlling the amount of catchable fish that fishermen
get and will help in conserving fishery resources, especially in West Sumatra Province (WPP 572) as the largest boat lift net user in Indonesia. However, the negative impact is that the fishermen's economy will decline drastically from before.

4. Conclusions
The best performance of catching business is a floating lift net with a vessel size more than 30 GT. The catching area needs to be adjusted according to the size of the vessel and fishing gear. The availability of fish landing facilities and better fishing needs is expected to increase the efficiency of fishing effort and improve the quality of the fish catch landed so that it has a higher selling value.

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