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Analysis of Productivity of Purse Seine Catch Fisheries in Tpi Lonrae, Bone Regency of South Sulawesi

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Abstract— *The purpose of this study was to analyze the productivity level of purse seine in Bone Regency, South Sulawesi. The study was conducted from August to November 2020. The method used is Quantitative Descriptive by using questionnaire tools. The method used is the Random Sampling method with the number of 10 fishermen. The data analysis used is the total production of handlers by summing the catches per season in one year. The results showed that the productivity of purse seine fishery products was quite profitable with an average receipt of Rp. 2,690,038,750 per year. Explained that the total revenue in 1 year of fishermen purse seine in TPI Lonrae amounted to Rp. 2,690,038,750 the largest income was in the eastern season of Rp. 1,561,146,340.00 while the smallest income was in the western season of Rp. 323,830,295.00. This difference in income is caused by the difference in sea trip thus resulting in a difference in the number of catches and the amount of operational costs incurred.*

Keywords— ***Operating Expenses, Productivity and Revenue.***

I. INTRODUCTION

Bone County is one of the potential areas in the field of marine and fisheries. Over the past five years the number of fishing gear, especially purse seine fishing gear has increased in 2015 the number of fishing gear by 115, in 2019 increased to 183 units. Fish that are the main destination for fishing from purse seine are fish that pelagic shoaling species" or pelagic fish that cluster (Zulkarnain et al., 2020) Thus, the catch of this seine purse fishing gear affects the production of fishing products (Rosana & Viv Djanat Prasita, 2018).

The production of fishery products achieved through fishing efforts at sea in 2019 production amounted to 34,556 tons, and decreased production when compared to 2020 production of 33,504 tons and 2018 production of 25,073.4 tons (Utami et al., 2020) Of the fishing gear that dominates catches, especially fishing, is purse seine fishing equipment where in 2013 the amount of production is 2,306 tons, While in 2018 there was an increase in the amount of production by 15,137 tons. (Bone county Marine and Fisheries Service, 2015-2019).

Based on the data shows that purse seine fishing gear is still productive and still a prima donna. But on the one hand the condition of the field shows that purse seine fishing gear made tends to vary, this can be seen from the capacity of large ships but fishing gear is small and vice versa the capacity of small boats but fishing gear is long and deep, there are also variations that occur based on the use of ship dimensions and machinery, in addition to the design and construction of purse seine fishing gear is generally assembled by itself and based on the experience of fishermen for generations. (Rumpa A, Najamuddinr, 2017).

Productivity of fish catches using purse seine fishing gear is related to the effect of suitability of fishing gear dimensions, ship capacity and fishing aids. Some studies on the analysis of technical aspects related to the design and construction of purse seine include research on

the speed of sinking purse seine fishing gear (Dwi Ujiti, 2017).

Purse seine is a fishing tool whose productivity and effectiveness are relatively higher when compared to other fishing tools, because in its optimization can catch large amounts of fish, which is as much as 435.79 tons. The development of purse seine fishing methods is influenced by the main target fish resources of purse seine fishing efforts. The existence of fish resources can be known by the level of vertical distribution and horizontal distribution (swimming layer) of pelagic fish, because the type of pelagic fish is a fish that lives in the middle layer (mid layer) to the surface of the water. Pelagic fish can be divided into two groups, namely small and large pelagics (Mirnawati et al., 2019).

II. RESEARCH METHODS

A. Time and Place

This study was conducted during 4 months August-November 2020. As for the location of this research in TPI Lonrae District Tanete Riattang, Bone Regency. The sample of this study is an ABK fisherman who destroys all his work on the ship.

B. Type of Research

This research is conducted by survey methods, namely by conducting observations in the field and interviews directly with respondents, and using questionnaires as data collection tools that have been obtained quantitatively analyzed.

C. Sampling Methods

This study uses the Random Sampling method where respondents or samples are randomly selected by taking the research location as a fishing base, namely TPI Lonrae in Tanete Riattang District, Bone Regency.

D. Data Source

The data sources used in this study are primary and secondary data including:

1. Primary data is primary data conducted with a structured interview using a list of questions (questionnaires) supported by direct observation of the activities of kite fishing fishermen.
2. Secondary data collection is obtained from the Marine and Fisheries Service, Subdistrict Office, Village Office and BPS. The data collected includes geographical conditions and regional administration, population conditions, state of fishery facilities and infrastructure, kite fishing effort data and kite fish production data over the past 10 years (2010-2019).

E. Data Retrieval Techniques

The research data is obtained with the following stages:

1.Field observation to find out the general condition of the research site

2. Questionnaire (questionnaire)

Questionnaire or questionnaire is a technique of collecting data by giving a set of written questions to the recess to be answered. Literature studies are collecting data with documentation studies, reading literature or research results that are considered relevant to the research theme.

F. Data Analysis

Data obtained both primary data and secondary data in quantitative and qualitative analysis.

To answer the first problem how the level of productivity and income of fishermen catch purse seine in Bone Regency, South Sulawesi, then in the following analysis:

a. total production of arrests

To find out the total production of purse seine capture units is calculated by summing the catch per season in one year (eastern season, transition season, and western season).

$$\text{Productivity} = \frac{\Sigma \text{ production of pelagic fish}}{\Sigma \text{ attempted capture of purse seine}}$$

Where:

Σ Production is an attempt to combine input factors at a given level of technology to produce as efficiently as possible.

Σ capture efforts to produce fish production using purse seine fishing gear.

III. RESULTS AND DISCUSSIONS

The results of identification in the field there are 3 types of catches that are dominantly caught in this study. The three types of catches are small pelagic fish. The three small pelagic fish include: Kite (decapterus ruselli), Bentong selar (Selar crumenopthalmus) and Sunglir (Elagatis bipinnnulata). The number of catches per type can be seen in the chart below.

Table 1. Percentage of purse seine productivity during study

Number	Type Of Fish	Month (Kg)				sum (Kg)	Percentage
		August	September	October	November		
1	Layang	5,987	4,345	3,023	3,022	16,377	87%
2	Selar Bentong	1,024	481,25	366,22	300,13	2,171	12%
3	Sunglir	176,25	44,5	21,3	13	254	1%
Sum						18,802	100%

In table 1 above, the number of catches tends to decrease month by month during the study. Sunglir which was still able to be found in the first 3 months of research (August to October), which is from 176, 25; It is then significantly reduced to 20 kg, in the fourth month disappearing as the eastern season enters. Selar bentong which in the 1st month (August) amounted to 1024 Kg, significantly reduced to 481.25 Kg in the 2nd month (May), which was further gradually reduced until the 4th month (November). In contrast to the condition of the kite which although declining significantly, but still consistent with its appearance. The increase in the number of kites at the end of the study amounted to 2,595 Kg in October to 2,645 Kg in November. Consistency is likely to rise slowly as the entry of the western season transition begins (January-March).

The phenomenon of succession of abundance of natural resources from season to season is common, considering the dynamic of the factors forming the seasons. The fishing season by purse seine from Bone County lasts all year round and this reality is not in line with the existence and abundance of some types of catches.

Table 2. Average productivity (Kg/trip)

Month	**Productivity (Kg/Trip)**
August	**898, 375**
September	**608,75**
October	**426,25**
November	**416,875**

In Table 2, the productivity of catches obtained is August amounted to 898,375 Kg, September 608.75 Kg, October 426.25 Kg, and November amounted to 416,875 Kg. Based on the results in table 2 can be seen again where productivity in August-November can be said to decrease because in that month it is known by fishermen in Kab Bone as the famine season.

Fluctuations in fish production above are understood by fishermen as a phenomenon that routinely occurs in the gulf of bone, where January - March by bone regency fishermen is known as the peak fishing season in July - September as the fishing panceklik season. The months that last both seasons are known as the transition season or the regular season. The phenomenon of this fishing season directly affects the efforts of fishing by purse seine fishermen.

IV. CONCLUSION

Based on the results of research that has been conducted in TPI Lonrae District Tanete Riattang Bone Regency, it can be concluded that:

The highest production of purse seine catch unit yields at TPI Lonrae in the eastern season, which led to greater fishermen's revenues in the eastern season in one year.

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