



Economic Value of Fishery Fishing Tools In Kajuara District, Bone Regency

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Keywords

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Abstract

The income of coastal communities as fishermen is relatively low because the economic operation of the fishing gear used is not optimal. The purpose of this research is to analyze the economic value and productivity of fishing gear that provides optimal income. The research was conducted in the Kajuara District, Bone Regency. The location determination was carried out purposively with the consideration that the Kajuara District area is in the southern part of Bone Regency. This type of survey research uses qualitative and quantitative analysis methods. The research results obtained stated that the fishing gear with the highest economic value in Kajuara District was the purse seine type. The second result identified that the fishing gear that has the highest productivity in Kajuara District is the fixed net type.



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1. Introduction

Bone Regency with quite large fishery potential has 10 coastal districts as the center of the fish landing area (KKP, 2018). one _ district that has potency fisheries Enough Good that is subdistrict Kajuara which is located in the section south Bone District. Society depends its life on fisheries sector by utilizing marine and coastal resources for fishing activities fish in the sea and aquaculture in public waters. However, potential marine fishery resources of the Gulf Bones in particular yes Subdistrict Kajuara which is so large has not been able to fully bring the coastal community of Bone Bay on desired level of income and well-being. Poverty still lingers as identity in coastal communities. Poverty in fishing communities in fact occurs in everywhere. The magnitude potency of marine is often No compared straight with level of well-being of the fisherman (Humaedi, 2012; Zebua, Wildani, Lasefa, & Rahmad, 2017).

Study related to fishermen's income has been carried out a lot. Income is matter most importantly affecting the poverty level of fishermen (Ismiwati & Septiana, 2022). The wrong one recommendation to increase income is the development of an empowerment program economy potential with focus on development sustainability for public cost. The elaboration of the program is contained in the agricultural-based economic development strategic program (Fishery), development infrastructure, create fieldwork on sector industry, trade, cooperatives, MSMEs and open investment opportunities. Programs are included in the Directorate General of Capture Fisheries Strategic Plan 2020 to 2024. All the efforts that have been made have not been sufficient. The income of coastal communities from the eye Livelihoods as fishermen are still relatively low. In general, causal factors low income is level education, knowledge,

management And No exists strategy For increase income And production (Nainggolan, Aritonang, Ginting, Sihotang, & Gea, 2021).

Data statistics Regency bones year 2020 show exists gap amount production between fishery sea And pond with difference Enough significant. Year 2018 marine fishery production of 46,641.3 tons, and pond fishery production in the same year namely 187,534.5 tons. The gap that occurs between the amount of marine fisheries production and pond fishery production has a correlation with the availability of fishing gear owned or used by fishermen on the coast of Bone Regency. This is in line with (Dewanti, Apriliani, Faizal, Herawati, & Zidni, 2018) that success business arrest determined by component knowledge about behavior , tool catch (fishing gears), as well as method operation tool catch (fishing technique) owned and used. Bone Regency statistics record the total number of species 21 types of fishing gear operating in Bone Regency (Regency BPS Bone, 2021), while eight are operating in the waters of Kajuara and Tellu Siattiange type of fishing gear from the total type of fishing gear used by fishermen. This data explains that potential management sea fisheries Bone County Not yet exploited optimized (BPS Bone Regency, 2020) . This study aims to analyze the economic value of fishing gear and productivity of fishing gear used by fishermen, to get recommendations tool type catch Which have value greatest benefit to fisherman.

2. Materials and Methods

The research was conducted from March to August 2022 in the District Kajuara Regency of Bone Province South Sulawesi. The location is deliberately chosen (purposive). consideration that the waters of the District Kajuara is located in the southernmost part of Regency bones, abut with Regency sinjai, And distance from Mother city Regency around 52 km.

Data Which used in study This is data primary And secondary. Survey And interviews were used to collect primary data, while secondary data was obtained from previous studies as well as from the Department of Fisheries and Maritime Affairs. Population 65 units in Kajuara waters. Sample set respectively 30 units each, with the sampling technique using the Gay & Diehl theory (1992 in (Indrawan & Yaniawati, 2014).

In the process of data analysis, to answer the first problem, namely about income fishermen use income analysis, namely revenue (TR) minus costs (TC). For answer the problem The second is about productivity catching tool, used productivity analysis that is total production (output) divided by the total inputs (costs).

3. Results and Discussions

A. Mark Economy Tool Catch Fisherman

Basically, variations in fishing gear in the Kajuara waters relatively the same with tool caught in other waters in Bone Regency . In Kajuara waters there are seven types of fishing gear, consisting of three fishing gear passive (ie: bubu, stake and step chart) as well as four tool catch active (consist from fishing rod, *gillnet* , boat chart and *purse seine*). with explanation as following.

- a. Bubu, According to Sudirman and Mallawa (2004) traps are fishing gear that are permanently installed in water for a certain period of time which makes it easier for fish to enter and difficult to get out. In general, the shape of bubu is very diverse, such as: rectangular, trapezoidal, cylindrical, oval, round, semi-circular, rectangular, or other shapes (Martasuganda , 2008). The shape of the trap is usually adjusted to the fish that is the target of the catch. However, the target of the same fish often changes the shape of the trap depending on the habits or knowledge of the fishermen operating it. Bubu used by sub-district fishermen Kajuara rectangular in shape with the main material made of woven bamboo or rattan. Bubu which is a type of passive fishing gear and is made of bamboo. Main catch target is crab mangrove And crab. Average amount snapper catches in the waters Subdistrict Kajuara as much as 15 kg per trip, with an economic value of Rp. 120.000,- each kg as well as mark economy crab crab as big Rp. 20.000,- per kg. Results calculation using *total revenue* (TR) obtained economic value for fishermen who are in the waters Kajuara Rp. 1.200.000,- per trip. This condition is caused the condition of the selling price is relatively large enough.
- b. Sero is a passive fishing gear. The working system of sero fishing gear is to trap and block fish by utilizing currents from upstream rivers and tidal currents without using bait (Sudirman, 2013; Salim et al., 2019; Yuni & Zainuri, 2021). Sero fishing gear is an environmentally friendly fishing gear and does not damage coral reefs (Marni et al., 2021). According to (Anggraini, Rahmani, & Limbong, 2021), Sero is a type of fishing gear used by fishermen on the coast in the form of large permanent traps. Generally, this fishing gear is made of pieces of bamboo and rattan which form several triangular-shaped chambers arranged one behind and this gear is

generally placed lengthwise in a direction perpendicular to the shoreline. Sero usually consists of an arrangement of fences that will guide the fish to the trap. Sero installed in estuary And time his arrest followed the ups and downs water. Dominant catch on location study These are baronang fish , bete-bete, peperek, mullets, white shrimp, mangrove crabs, crab crab, grouper, seed jackfruit, And milkfish Average amount catch sero from kajuara waters, as much as 35 kg per trip with a selling price of Rp. 24,500,- per kg and the price selling mud crab Rp. 120.000,- per kg. Calculations using TR obtained values Rp. 1.057.000,- per trip.

- c. Step Chart is one _ tool catch lots of passive operated fishermen along _ coast Special South Sulawesi coast its Bone Regency Beach , where chart step on use light light as internal tools _ its operation. Step chart Lots use fisherman Because cost relatively low operational and technical relatively easy operation (Sudirman & Natsir Nessa, 2011). chart used fishermen in the District Kajuara average sized small until medium. Target catch main is fish pelagic small. Method the operation is lifting and using lights to collect fish. Catch dominant fishermen in the waters kajuara is bar o nang, song, bete-bete, peperek, white shrimp mullet, crab, laying, and rebon shrimp. Average amount the catch of the lift net from the Kajuara waters, the average number of catches of the lift net step as much as 530 kg per trip with a selling price of Rp. 18,110,- / rkg. *Total revenue* value (TR) waters Kajuara as big Rp. 5.300.000,- per trip
- d. Fishing line , which includes active fishing gear. The principle of fishing line is to attach the bait to the eye fishing rod. Fishing rod is one _ tool catch the most common known by the public , especially in circles fisherman . In principle , fishing rod consists from two component main that is rope (line) and eyes fishing line (hooks). Rope fishing rod usually made of from cotton yarn , nylon, polyethylene , plastic (string), and others. By and large end eye fishing rod the hooked up back , however some are not Catch dominant on location study This that is cob, cakalang, mackerel, kuwe, white snapper, grouper, and red snapper. Average number of catches fishing rod from waters Kajuara, average amount catch type fishing rod as much 107 kg per trip with price sell fish Rp. 46.250,- per kg. Results calculation with using TR the value of Kajuara waters is Rp. 2.460.000,- per trip.
- e. Chart Boat, which includes a active gear. This type of fishing gear is also called the type of chart boat, square shape length with the same length and width. Nets, bamboo, pipes iron, rigging, lights, and motorboats used in the construction of boat fishing gear chart. The dominant catches at this research location were anchovies, tembang, bete-bete, peperek, mullet, white shrimp and crab. The average number of fishing catches from Kajuara waters, the average number of catches is 1,035 kg per trip with the selling price of fish Rp. 20.000,- per kg. The TR value achieved in Kajuara waters is Rp. 14.055.000,- per trip.
- f. *Gillnet* , which includes category tool catch friendly environment, with size eye net (*mesh size*) can be designed according to the target fish (Sudirman & Mallawa, 2012). Gill net is a passive fishing gear, this tool is operated to catch various types of fish that live in bottom waters (demersal), including the elephant fish and various other species. Tool parts gill nets (*gillnets*) are generally rectangular in shape and consist of the main net, rope top rise, rope bottom rise, buoy, and rope slow. Catch dominant ie betta, pepper, snapper, mullet, white shrimp, crab, stingray, adjacent, kuro, lane, jackfruit seeds, And coals horse. Average number of catches *gillnet* from kajuara waters, average amount *gillnet* catch of 83 kg per trip with the same fish selling price of Rp. 23,750 per kg. The TR value achieved in Kajuara waters is Rp. 1.860.000,- per trip.
- g. *Purse Seine* , or also called purse seine, is an active fishing gear used for catch pelagic fish. Purse seine is a fishing gear in the form of a bag equipped with a ring and purse line rope which is located under the bottom line which functions to unite the bottom of the net during operation by pulling the purse line so that the net forms a pocket. Purse seine fishing gear is included in the classification of purse seines. Purse seine is a more effective fishing gear for catching pelagic fish near the surface of the water. Purse seines are made with long walls of netting, with the bottom length of the net being the same or longer than the top. With this form of net construction, there are no permanent pockets in purse seine nets. The characteristics of the purse seine net are located in the ring at the bottom of the net (Hety et al, 2012).

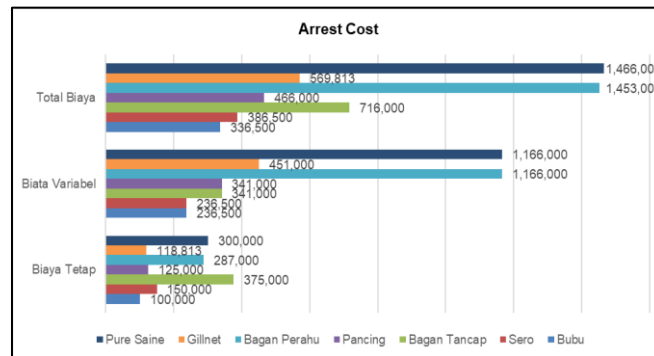
The way to operate is by circling a school of fish, then the drawstring (*purse line*) is pulled from the ship to form a net resembling a bowl. Fisherman in region Kajuara use tool catch *purse seine* , with catch dominant consisting of crabs, tuna, skipjack, kuwe, bloating, overpasses, male bloating, stingrays, chairs, mackerel, and yellowfin. The amount of catch is relatively large, reaching 633 kg per trip. The average catch selling price is Rp. 40.000,- per kg; with a catch value (TR) of Rp. 20.140.000,- pertrip.

Cost Arrest

Cost is an element that cannot be separated from the activity of Fishing Efforts . Cost is defined as a resource that is sacrificed (sacrificed) or released (forgone) to achieve certain goals (Horngren, et al, 2008). According to Bustami and Nurlela (2006), costs are sacrifices of economic resources measured in units of money that have occurred or are likely to occur to achieve certain goals. Meanwhile, according to Kuswadi (2005), costs are all expenses to obtain goods or services from third parties, whether related to the company's main business or not. Cost is measured in monetary units and is used to calculate the cost of the products a company manufactures.

Costs are sacrifices incurred to finance fishing activities for fishermen benefit, expressed in currency units based on current market rates. Cost is the monetary value or the amount of money spent by a company to produce a product or service. Classification cost is a grouping process based on objective from the information presented For make it easy in do recording and compilation report finance as well as give description accurate information . _ Based on activity costs shared _ be costly _ fixed _ and variable. Cost Fixed costs are costs that are fixed or do not change within a certain period of time, regardless of the size of business sales or production . Examples of fixed costs are building rent, employee salaries, taxes, insurance costs, loan repayment costs, and so on. This cost expenditure must consider the company's production and sales capacity plans for the next few years because once these costs are decided it is difficult for management to change them and the next management action is how to carry out efficient operational activities with this pattern that has been formed . Investment costs include depreciation costs, fees or taxes, siup, and sipi are known as fixed costs. Variable costs are operational costs fishing for fishermen consisting of consumption costs, gasoline or diesel costs, ice cube costs, and fees repair (*maintenance costs*).

The results of this study identified fishing gear operating in Kajuara waters with the largest total cost (TC) is the type of *purse seine* , namely Rp. 1.466.000,- per trip; and followed type of boat chart Rp. 1.453.500,- per trip. Ratio of total cost of *purse seine* and chart type the boat obtained is very small, namely only 0.85 percent. Rather, the total cost ratio bubu type, sero, bangan tancap, fishing line and *gillnet* obtained very large; where is the TC ratio of *purse seine type* is 77.1 percent larger than the bubu type, 73.6 percent larger than the sero type, 51.2 percent larger than the type of step chart, 68.2 percent greater than the type of fishing line, and 61.1 percent more big of *gillnet type*.



Picture 1. Cost Arrest

The results of this study identified fishing gear operating in Kajuara waters with the largest total cost (TC) is the *purse seine fishing gear* , which is Rp. 1.466.000,- each trip; and followed by the type of boat chart Rp. 1.453.500,- per trip. Type total cost ratio *purse seine* and type of boat chart obtained very small, that is only 0.85 percent. On the contrary, the ratio of the total cost of catching traps, sero, bangan tancap, fishing line and *gillnets* is very large; namely that the TC ratio of the *purse seine type* is 77.1 percent greater than the trap type, 73.6 percent larger than the sero type, 51.2 percent larger than the step chart type, 68.2 percent larger of kind fishing line, and 61.1 percent greater than type *gillnet* .

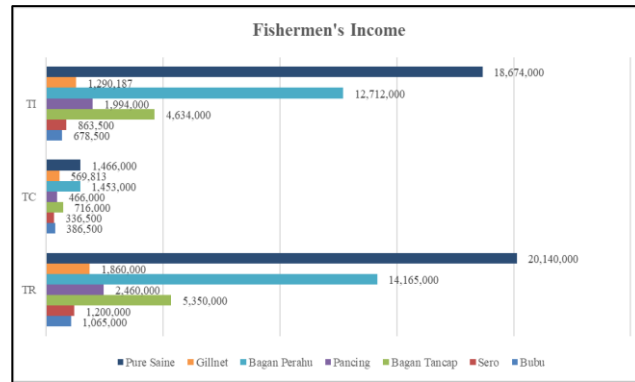
Income Tool Catch

Income is a result received by a person or household from trying or working. There are various types of people, such as farming, fishing, raising livestock, laborers, and trading and also work in the government and private sectors (Nazir, 2010,17). According to Sukirno (2000) income is a very important element in a trading business, because in doing a business one would want to know the value or amount of income earned while doing the business.

Income (*income*) is the difference between total receipts (TR) and total costs (TC) in one period during period certain, And related tightly with use factor production And production capability (Soekartawi, 2010).

As above income, that income is a picture of the economic position of the family in society, therefore everyone who works in a certain type of work including work in the formal sector seeks to increase income from hard work which is useful for meeting the needs of his family and the income earned. can improve the standard of living of his family.

Figure 2 shows that fishing gear *purse seine* has the highest revenue value in Kajuara waters, reaching Rp. 18,674,000,- each This fishing gear trip is a type specific to that region. This type of *purse seine* is only used by fishermen Kajuara.

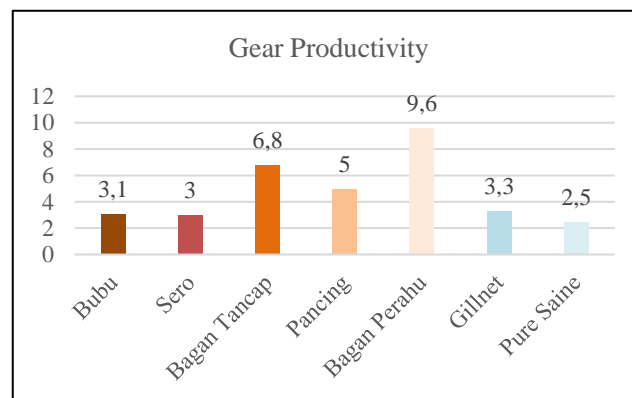


Picture 2. Fishermen's Income per Tool Catch

In side other, tool catch with income Lowest obtained by fisherman Which using sero type and bubu type. Fishermen's income from using sero fishing gear in Kajuara waters only Rp. 678,500,- per trip . Revenue ratio between types of *purse seine* as the highest income fishing gear and sero as the lowest income type is reached 96.4 percent.

Productivity Tool Catch

Productivity is Wrong One indicator For know ability activity arrest fish which is conducted with use something type catching tool fish. kindly mathematical, productivity formulated as comparison between input (*input*) And output (*output*). *Input* is the total number of catches of fishermen (TR) from each fishing gear, while *output* is the total expenditure from fishing activities based on fishing gear Which used (TC).



Picture 3. Productivity Tool Catch Fisherman

Figure 3 explains that all fishing gear that operates well in Kajuara waters is tool catch productive. Average mark productivity of all fishing gear is worth greater than one. The most productive fishing gear in Kajuara is the lift net with a productivity value of 9.6 .

Discussion

Subdistrict Kajuara is one _ existing district _ in waters Bay bones with specific characteristics. the region is a coastal area with clusters of coral reefs. reef coral is important ecosystem continuity resource region coast Because become source life for biota sea (Suryono, Wibowo, Ario, SPJ, & Azizah, 2018); (Arisandi, Tamam, & Fauzan, 2018).

Variations in the distribution of fishing gear in Kajuara waters were identified dominated by active fishing gear. Of the seven fishing gears in operation, 60 percent are geared active fishing, namely fishing line, *gillnet*, boat chart, and *purse seine*; while 40 percent are passive fishing gear, namely sero, trap and lift net. Usually passive fishing gear has a target for capturing the main organism, and an active target for capturing passive organisms (Pramesthy & Mardiah, 2019).

Purse seine is a fishing tool that has economic value and productivity value is greater than the tool catch another. This type of *purse seine* is used by fishermen in the waters Kajuara with venture capital enough catch big, however the results obtained are also included Enough big. In the process of being arrested use tool catch the *purse sein* requires enough time many. Based on results man method For one capture process need at least 3-5 days. Tool catch *purse seine* become tool catch Which productive For catch fish pelagic Which life in groups, including crabs, tuna, cakalang, kuwe, mackerel, flying catfish, male mackerel, rays, chairs, mackerel, and yellowfin. *Purse seine* fishing gear is quite effective in catching species which is the target of his capture. Pelagic fish resources (small and large) are targeted species of *purse seine* fishing gear, including kites, skipjack, tuna, tembang, mackerel, And fish anchovy; with catch dominant that is fish bloating, kite, And bloating man. (Najamuddin & Sarira, 2017). The number of catches is relatively large. In line with the results of the study (Supriadi, Saputra, & Yeka, n.d.) that flying fish and mackerel are the dominant types of fish caught with fishing gear *purse seine*. Fishing gear the most productive and The efficient method used by fishermen in Bone Regency to catch fish in the sea is *purse seine* (Rumpa, Hermawan, Maskur, & Yusuf, 2021), (Rumpa & Najamuddin, 2017); Imron *et al.*, 2020).

Productivity tool catch is indicator And parameter important For knowing ability or performance something tool catch (Prayitno, Simbolon, Yusfiandayani, & Wiryawan, 2017); (Alhuda & Rustikawati, 2016). Productivity can be used as a basis for studying the efficiency and vulnerability of fish stocks (Yonvitner, 2019). Productivity is related to the use of *inputs* and the use of *inputs* which is a reflection from efficiency. Efficiency defined as ratio output to input (*inputs*), amount output (*output*) resulting from one input (*input*), or effort to use input (*input*) as small Maybe for produce amount the *outputs* most big.

Efficiency can be classified as a technical component, with the understanding that efficiency is the ability to get the maximum *output from one* existing *input unit* (Soekartawi, 2003). Efficiency is the ability to use *inputs* in optimal proportions based on *input* prices (Adhawati, Sumarauw, Fakhriyyah, Tahang, & Gosari, 2020). In this research topic, efficiency refers to the feasibility of the results profitable catch. Efficiency also has a close relationship with selectivity catching and friendly fishing gear to the environment, so that the analysis can be used to know efficiency level from operating activities fish catching. Efficiency assessment done with compare between magnitude *inputs* And magnitude *inputs* from each units.

In the process of catching in the waters Kajuara Bone district tools catch the most productive is tool catch chart boat, where mark productivity reached 9.6 more productive compared tool other catches in the waters Kajuara.

4. Conclusion

Purse seine fishing gear in Kajuara waters is a specific type for that water area because of the type of *purse seine* only used by Kajuara fishermen. The economic value of the *purse seine* fishing gear is quite large; otherwise the economic value of the tool catching sero and bubu is relatively small. All fishing gear used in Kajuara waters is productive, with an average productivity value of more than one. On waters Kajuara, the fishing gear with the lowest productivity is the sero type while the highest is a type of step n chart

The type of *purse seine* is the recommended priority fishing gear that can be used by fisherman in waters Kajuara with ratio _ income between type *purse seine* as tool catch with the highest income and sero type as the fishing gear with the lowest income reached 96.4 percent.

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