

The welfare of tuna fishermen in Gorontalo District; (Case study in the village of Kayubulan, Gorontalo)

Alfi Sahri R. Baruadi^{1*}, Lis M. Yapanto¹, Abdul Rahman Akuba²

¹Management Resources and Aquatic Departement, Faculty of Fisheries and Marine Science
Gorontalo State University

²Student of Management Management Resources And Aquatic Departement, Faculty Of
Fisheries And Marine Science. Gorontalo State University

Correspondent author*: alfisahribaruadi@ung.ac.id

Abstract

The research was conducted in the village of Kayubulan Batudaa Regency of Gorontalo. The fundamental reasons for choosing this location because in the village of the District Kayubulan Batudaa Pantai has fishers catch of tuna; also, the research location easily accessible by researchers who expected to make it easier for researchers to collect data. The research implementation plan is for \pm three months, August to October 2018. The use of a quantitative approach with an explanatory, descriptive type aims to Obtain information as well as an overview of the Data about the object under study through a data subject as it is, without conducting analysis and making conclusions that apply to the public. This study is the level of welfare of the tuna fishermen in Kayubulan Village, Gorontalo Regency. Efforts to measure fishers had Analyzed by calculating the exchange rate of Fisherman Exchange Rate (NTN) and the characteristics of fishers based on Certain criteria. The results showed 56 people (100%) tuna fishermen had higher income than their expenditure, or experienced a surplus ($NTN > 100$). There is non- tuna fisherman whose income is the same or lower than the expenditure of household consumption costs and fishing costs ($NTN \leq 100$).

Keywords: Prosperity level, NTN, Fisherman Exchange Rate, capture fisheries, Gorontalo, income

Introduction

Natural Resources (SDA), which is Indonesia's natural wealth includes Natural Capital form (*Natural Resources stock*), Such as watersheds (*watershed*), lakes, protected areas, coastal and others, and in the form factors of production (commodities) such as wood, rattan, water, minerals, fish, mine and so on (Nurjaya, 2009). Indonesian ocean area contained marine economic potential is very large. There are 13 (thirteen) sectors were at sea, which can be developed and contribute to the economy of the people of Indonesia, which include: fisheries, aquaculture, processing industry Farmed, industrial biotechnology, and marine, mining and energy, tourism nautical, maritime transport, maritime industries and services as well as small islands, non-conventional resources, marine construction, precious objects, and cultural heritage, and the conversion and environmental services *biodiversity* (Retnowati, 2011), the various potential marine economy is very large and diverse causes many coastal communities who utilize this potential as a source of their livelihood. However, many people who work as fishers have a level of well-being that low. Fishers are a group of people whose livelihood depends directly on the outcome of the sea, either using arrest or favor. They generally live on the beach, a residential neighborhood close to the activity (Imron, 2003). Fishers are people who live on the livelihoods of marine products. Indonesia, the fishermen,

(unstructured interviews) to the fishermen by focusing on matters relating to the matter being investigated.

3. Documentation

The results of the questionnaires and interviews will be more effective or credible if backed up data such as matters related to research issues that need to be documented.

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Data analysis technique

In this study, data analysis techniques directed to determine the level of welfare of the tuna fishermen in the village of Kayubulan Batudaa pantai. Attempts to measure fishermen's welfare level can be analyzed by calculating the exchange fishermen (NTN) and the characteristics of fishing based on certain criteria. The Ministry of Maritime Affairs and fisheries (2015) stated that NTN is one proxy indicator for the welfare of fishermen in the countryside in a specific year and month compared to the base year. NTN can be a measuring tool exchange capability produced goods fishermen for goods/services needed for household consumption and production needs.

NTN analyzed by recording all income and expenses from fisheries and fishers, both non-fishery fields, then compare total revenue with a total expenditure of fishers. The ratio value obtained is then used to determine the welfare of fishers. NTN calculation formula, according to Basuki et al. (2001) as follows:

$$NTN = \frac{Y_t}{E_t} \times 100$$

$$Y_t = YFt + YNFt$$

$$E_t = EFT + EKT$$

Where:

YFt = Total revenues fishermen from fishing effort (USD) in the period t

YNFt = Total revenues of fishermen from non-fishery (USD) in the period t

EFT = Total expenditure fishers to fishery activities (Rp) in the period t

EKT = Total expenditure fishermen fishing for family consumption (USD)

period t

t = Period (months)

Conditions:

- When $NTN > 100$ means reception/income of fishermen better than the situation in the base year, fishermen have higher revenues than expenditures or have a surplus.
- If $NTN = 100$ means reception/fishing income equal to the situation in the base year, the revenue results of operations and spending on household consumption and business needs.
- If $NTN < 100$ means reception/fishing income declined compared to the situation in the base year, fishermen expenditure for household consumption and the cost of fishing effort is higher than the income generated by the business.

Some types of income and expenditures of the NTN's material are modified based on time of period calculation:

1. Type of income covered from fishery tuna fishing effort in the form of (a) the value of tuna catches per month, and (b) the value of fish other than tuna catches per month.
2. Types of income covered non-fishery from the business home value per month apart from the fisheries industry, but revenues from other businesses such as trade, agriculture, labor, business services, and others.
3. Type of household consumption expenditure fishermen, namely: (a) the value of consumption expenditure on food, and (b) the value for non-food consumption expenditure.

usually live in coastal areas. The fishing community is a group of people whose livelihood seafood and live in villages or coastal (Sastrawidjaya, 2002). According to Sufirudin (2016). Fishing is defined as a person whose main job is in the waters by fishing or fish farming in the sea.

Mulyadi (2005), defines the fishermen is not an easy task considering several aspects must be considered, such as the fishermen refers to the work, residence, or employment status. Fishers are actively engaged in fishing activities, either directly (such as and user nets) or indirectly (such as the captain of a fishing boat motor, ship's engineer, fishing vessels), as the eye livelihood. Referring to these terms, households with main activity are not catching fish, but using fish as a material production process is not categorized as domestic fishermen. Similarly, though fish traders living on the beach also does not belong in the category of fishing. Different fishers with fish farmers. The fundamental difference is that fishers take advantage of the coastal area as a place of work, while fish farmers manage areas, rivers, fields, and the like to manage fish and other fishery products. Directorate General of Fisheries (2000) defines fishing as people who actively perform the fishing operation (other aquatic animals, plants). People who are just doing a job like webs, involving scientific equipment in the boat/ship is not categorized as a fisherman, even though they do not directly perform Undang Nomor catch. In Law 45 of 2009 on the amendment of Law No. 31 of 2004 on fisheries Article 1 Paragraph 10, fishing is defined as a person whose livelihood is fishing. Directorate General of Fisheries (2000) defines fishing as people who actively perform work in the fishing operation (other aquatic animals, plants). The fishing communities are part of the people who live in coastal areas (Directorate PMP 2006 in Muflikhati, et al., 2010). Geographically, the fishing community is the people who live, grow, and thrive in coastal areas, which is a transition area between land and sea (Kusnadi, 2009). Fishers are a group of people whose lives depend directly on the sea, either using catching or farming. They generally live in verges beach, a residential neighborhood near the location of the activity (Imron in Subri, 2005). Earned income will be allocated to satisfy all the needs of fishers.

Methods

The research was conducted in the village of Kayubulan Batudaa Regency of Gorontalo. The fundamental reasons for choosing this location because in the village of the District Kayubulan Batudaa Pantai has fishers catch of tuna; also, the research location easily accessible by researchers who expected to make it easier for researchers to collect data. The research implementation plan is for \pm three months, August to October 2018.

Technics Data collection

The collected research data using a research instrument. A research instrument is a tool that is selected and used investigators to collect data in order to be easy and systematic activities (Arikunto, 2010). The data collected are:

Associated with the implementation, data collection techniques used in this research as follows:

1. questionnaire

A questionnaire is data collection is done by giving a written set of questions or statements intended to obtain information about the welfare of the tuna fishermen in the village of the Kayubulan Batudaa pantai. The questionnaire model in this study was a questionnaire enclosed with using a Likert scale, making it easier for respondents to answer quickly and also allows researchers to analyze the data of all questionnaires that have collected.

2. Interview

Interviews are used to obtain comparable data which can not be processed statistically and help the subjectivity of the research results obtained from the questionnaires to support the research data—the form of interview used in the form of unstructured interviews. According to Sugiyono (2013), an unstructured interview is an interview that is free where researchers did not use the interview guides that have arranged in a systematic and complete collection. Researchers conducted interviews

Results and Discussion

According to Basuki *et.al* (2001), revenue capture fisheries is the personal income of fishermen from fishing activities, while non-fisheries income is the income of fishermen who come from outside the fishing activities. If the tuna fishermen earn income from fishing activities, then time is entered as revenue fishery. Revenue tuna fishers in the district Batudaa daily and not be determined, but can be predicted based on tuna fishing experience. The amount of income depends on the results of operations of tuna fishing, the season, and means arrest.

Having researched the 56 respondents, it turns tuna fishing income of tuna fishing activities in the sea every month is different. This is because the number of catches different, so affecting different numbers of tuna fishing income. Once the data is processed according to the narrative of respondents associated with their catches, the average monthly income of fishermen tuna di fisheries ranging from Rp 1,000,000 to Rp 3,500,000. The data is then analyzed to determine the monthly average income of the overall fishing effort in the field of Tuna fisheries. Calculations are done by adding all the average monthly income in a fishing effort for each fishing of tuna, divided by the number of fishers. According to the calculation, the number of average monthly income in the fishing effort of all tuna fishing Rp 109.15 million. The average monthly income of the overall tuna fishermen to venture into the field of fisheries as follows.

$$\begin{aligned} \text{the mean PendapatanflatMonthly fisheries} &= \frac{109.150.000}{56} \\ &= 1949107 \end{aligned}$$

Based on the analysis, it was found that the average monthly income of fishermen in fishing tuna effort Rp 1,947,107. Corresponding production data tuna fishing in the District Batudaa Pantai (Appendix 4) is known that the production of a variety of tuna per year. The data is a reference from the department of fisheries and marine Gorontalo regency. Results of the analysis of secondary data show that over a span of years 2011-2017, the number of the lowest production as much as 38212.7 kg or within the production price of 1,040,452,200 rupiahs. The highest production amount as 2,486,724,9Kg, with a value of 87,035,317,500 rupiahs. This shows that there is a big difference in the production of tuna in the District Batudaa Coast every year. This is certainly consistent with the narrative of the tuna fishermen in the village of Kayubulan Batudaa pantai. The results of the tuna fishing every month or even every year is different.

Non-Fishing Income effort Tuna Fishermen

From the research results at 56 respondents, in addition to the existing fishing effort, of course, there are the efforts of non-fishery carried out by a family of fishermen. So that the tuna fishermen also have an income other than fishing effort undertaken such as farming, labor, trade, services, and others. According to Nasution *et al.* (2004), diversification of livelihood as a fisherman in addressing the economic condition is relatively rare in the respondents. According to Sahami, F.,Yapanto, L.M.,Monoarfa A, Enterprises floating cages in the lake Village IlutaLimboto potential to be developed, the government should pay attention to it the problems that occur in areas with business cage-culture in the LakeVillage.

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In accordance with the results of the data analysis, the average expenditure in the business of non-fishery after the data is processed, the field of non-fisheries expenditure on average per month is Rp 720 536. Spending tuna fishing in non-fisheries between each other different course this is due to differences in the number of dependents head of the family. According to research conducted, Purwanto and Taftazani (2018) concluded that the number of dependents could affect the level of the economic well-being of the family. His influence did not happen immediately involve another aspect is the level of income and expenditure. The number of dependents affects the level of expenditure of a family, given the need for daily consumption will more as a large number of dependents.

Exchange Rate Fishermen (NTN)

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According to Basuki et al. (2001), Exchange Rate Fishermen (NTN) is the ratio of total revenue to total household expenditure fishermen for a certain time period. After knowing the huge total revenue and total expenditure tuna fishermen household, it can be seen the level of household welfare tuna fishermen. The level of welfare can be determined by using the Exchange Fisherman (NTN). The results of the data analysis of the exchange rate fisherman tuna in the Village District of Batudaa Beach Kayubulan in Annex 3. Analysis of the data exchange fisherman The tuna is done by counting total revenues and dividing the result (Yt) with total expenditures (Et), then the result is multiplied by 100. Total revenues (Yt) calculated by summing the total acceptance of every fisherman from fishing effort period t (YFt) with total income from non-fisheries period t (YNFt). Results of the calculations reception (Yt) of 56 respondents tuna fishermen Rp. 135.5 million with an average per month as follows.

$$\begin{aligned} \text{Yt average per month} &= \frac{\text{Total Yt}}{\text{The number of Tuna fishermen}} \\ &= \frac{135.500.000}{56} \\ &= 2419643 \end{aligned}$$

Appropriate data analysis showed that the reception (Yt), on average, each fishing of tuna per month Rp. 2419643. The total expenditure (Et) is calculated by summing the total expenditure of effort every fisherman fishing period t (EFT) with a total expenditure from non-fisheries period t (EKT). The results of the calculation of the total expenditure (Et) of the 56 respondents tuna fishermen, obtained a total expenditure (Et) Rp. 76.9 million with an average per month as follows.

$$\begin{aligned} \text{Et average per month} &= \frac{\text{Total Et}}{\text{The number of Tuna fishermen}} \\ &= \frac{76.900.000}{56} \\ &= 1373214 \end{aligned}$$

The result showed that spending (Yt), on average, each fishing of tuna per month Rp. 1373214. Overall, the exchange rate fisherman tuna in the village of the Kayubulan Batudaa Pantai Gorontalo Regency when referring to the average receipts per month tuna fishing (fishing effort income and non-venture fishery) as big as Rp. 2,419,643 and the average expenditure per month tuna fishing (fishing effort and expenditure on non-fishery) Rp. 1373214 can be calculated as follows.

Alternative livelihoods that there is more to do family members such as his wife and child. They work as traders or as well as farmers. Related to this, of course, uncertain of their income, but respondents can give a prediction of the results of the efforts made. Monthly income average in the field of non-fishery, ranging from Rp 100,000 to Rp 1,500,000. According to the calculation, the number of average monthly income in non-fisheries business all tuna fishermen Rp 26.35 million. The average monthly income of the overall tuna fishermen to venture into the field of fisheries as follows.

$$\begin{aligned}\text{Income flat/monthly -field of non-fisheries} &= \frac{26.350.000}{56} \\ &= 470.536\end{aligned}$$

The analysis found the average monthly income of tuna fishing in non-fisheries Rp 470.536.

Tuna Fishermen expenditure in the Business Fishery sector

Tuna fishermen household expenditure consists of expenditure in the field of fisheries and non-fisheries. Expenditure in the field of fisheries, namely the expenditure for the tuna fishing, while spending on non-fisheries that for household expenditure. Tuna fishers in doing business tuna fishing must pay both for fuel, fishing equipment, materials to catch tuna, engine, boat equipment, consumption, and so forth. In accordance with the narrative of the respondents, average monthly expenditure in the field of fisheries ranging from Rp 250,000 to Rp 1.500.000. The data is then analyzed to determine the average monthly expenditure overall fishing tuna to venture into the field of fisheries. Calculations are done by adding all the average monthly expenditure effort in each fishing tuna fishery, then divided by the number of fishermen. According to the calculation, the number of average monthly expenditure efforts in the field of fisheries all tuna fishermen Rp 36.55 million. The average monthly expenditure overall fishing effort in the field of tuna fisheries as follows.

$$\begin{aligned}\text{Spending Average monthly layout fisheries} &= \frac{36.550.000}{56} \\ &= 652.679\end{aligned}$$

According to the data analysis results, expenditure the monthly average in the fisheries field, which is issued by the tuna fishermen of Rp.652.679.

Tuna Fishermen expenditure in the Business Sector Non Fishing

Household spending tuna can be grouped into everyday consumer goods and materials monthly consumption. In the grouping type of expenditure, fishermen families daily and monthly can not tell for certain, but respondents can predict for overall expenses per month. In accordance with the narrative of the respondents, average monthly expenditure in the field of fisheries ranging from Rp 400,000 to Rp 1,500,000. The data is then analyzed to determine the average monthly expenditure overall tuna fishing to non-fishing businesses in the area. Calculations are done by adding all the average monthly expenditure effort in the field of non-fishing each fishing of tuna, then divided by the number of fishermen. According to the calculation, the number of average monthly expenditures in non-fisheries business all tuna fishermen Rp 40.35 million. Thus, the average monthly expenditure overall fishing effort in the field of non-tuna for fisheries as follows.

$$\begin{aligned}\text{Spending Average monthly procedures in non-fisheries} &= \frac{40.350.000}{56} \\ &= 720.536\end{aligned}$$

$$\begin{aligned}
 \text{NTN all fishermen} &= \frac{\text{Yt average per a month}}{\text{Et average per a month}} \times 100 \\
 &= \frac{2.419.643}{1.373.214} \times 100 \\
 &= 1,762 \times 100 \\
 &= 176.2
 \end{aligned}$$

The analysis showed that NTN whole fishermen tuna amounted to 176.2. The overall results of the analysis can be found in Appendix 3. Based on the results of the analysis, welfare respondents by exchange fishermen when working as a tuna fisherman can be seen in Table 1.

Table 1. The welfare of tuna fishermen in Kayubulan Village, Batudaa District, Gorontalo Regency is based on Fishermen Exchange Rate

Exchange Rates Fishermen	Number of people	Percentage (%)
NTN > 100	56	100
NTN = 100	0	0
NTN < 100	0	0
amount	56	100

Source: Primary Data, 2018

It is known that as many as 56 respondents (tuna fishermen in the village of the Kayubulan Batudaa) have reception/earnings better than the situation in the base year (NTN > 100). Non-fishing of tuna income business results equal or lower to spending on household consumption and the need for fishing effort (NTN ≤ 100). Fishing tuna communities 100% into the category of being. The level of family welfare in each region or area is certainly different from one another. Can impact the characteristics of each region or regions different from each other. Research on the level of family welfare has also by Rosni (2017), with the title Analysis of the level of welfare of fishermen in the village sub-district-wide Dahari Talawi Coal County. Research results concluded that the level of welfare of fishermen in the village is as much as 63.63% belong to the under privileged, 31.82% belong to the prosperous I, and 4.56% belong to the prosperous II.

Conclusion

Based on the results of the analysis of the research data it was concluded that the level of welfare of tuna fishermen in Kayubulan Village, Batudaa Pantai District is included in the welfare category. The results showed 56 people (100%) tuna fishermen had higher income than their expenditure, or experienced a surplus (NTN > 100). There is non-tuna fisherman whose income is the same or lower than the expenditure of household consumption costs and fishing costs (NTN ≤ 100).

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