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# **Analysis of the Welfare Level of Gillnet Fisherman in the Nusantara Fishery Port Palabuhanratu, Sukabumi**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

The condition of natural resources, especially in the field of fisheries, which is very abundant, does not guarantee the economic life of the community is prosperous. This is supported by previous research that discusses the problems of the economic life of the fishing community in Palabuhanratu which is still below the poverty line, especially traditional fishermen and laborers. This study aims to analyze the welfare level of gillnets Fisherman in the Nusantara Fisheries Port, Palabuhanratu, Sukabumi. This research was conducted from Februari 2022 to June 2022. The method used is a descriptive method with a case study approach. Welfare level is analyzed using qualitative data and primary data that is scored on welfare indicators according to the modified Central Statistics Agency (2015). Data collection using questionnaires and documentation techniques. The sampling technique used in this research is the census. Technique census sampling is using the entire population to be used with total of 24 respondents. The results showed that the average score of the welfare level of drift gillnet fishermen in Palabuhanratu, Sukabumi was 2.27, which means that it belongs to the moderate level of welfare. The most influential factor in the level of fishermen's welfare is income. The income of fishermen is not stable due to the uncertain number of catches, extreme weather, irrelevant fishing gear and fishermen still relying on ship owners. Fishermen must have a side income in order to increase income to fulfill their daily needs. Besides that, there needs to be a government institution that is able to fight for fishermen in obtaining capital and reactivate existing cooperatives.

*Keywords: Welfare level; drift gillnet fishermen; central statistic agency; income.*

## 1. INTRODUCTION

The Palabuhanratu Nusantara Fishery Port (PPN) is a capture fisheries sector or area that has abundant natural resources. The southern coast of West Java has become one of the main fisheries potential areas for the coastal communities of West Java because it is directly related to the Java Sea fishing area and the Indonesian Exclusive Economic Zone (ZEEI) [1] in the waters of the Indian Ocean. Economically, fishery resources can produce benefits in the long term for fishermen. The large fishery potential in Palabuhanratu makes most of the people there have fishermen's livelihoods who depend their lives on the natural wealth in Palabuhanratu. However, the utilization of this potential cannot be managed properly, it can be seen from the background of fishermen who are still identical with poverty (Rahman & Alhifni, 2018). The condition of natural resources, especially in the field of fisheries, which is very abundant, does not guarantee that the economic life of the community is guaranteed.

Furthermore, in order to improve the standard of living of gillnet fisherman in Palabuhanratu, there are factors that must be understood so that fishermen can be said to be prosperous. Welfare is a human condition in a state of well-being both physically, mentally and socially [2]. High and medium welfare are distinguished by the level of income and education of the head of the household, as well as household facilities [3]. This research is expected to provide recommendations for appropriate actions and strategies in providing assistance and also appropriate policies for drift gillnet in Palabuhanratu.

## 2. MATERIALS AND METHODS

Nusantara Fishing Port Palabuhanratu is a fishing port located in the Sukabumi district, precisely in Palabuhanratu. Palabuhanratu is located in Sukabumi Regency, West Java Province, Indonesia. According to the Center for Statistics and Information of Sukabumi Regency in 2013, Sukabumi Regency is located between 106° 49' to 107°00' East Longitude and 60° 57' to 70° 25' South Latitude. Palabuhanratu Archipelago Fishery Port, in October 2021 – May 2022. The method used for this research is a descriptive method with a case study approach. This method has a purpose in making a

description, and an accurate picture in accordance with the existing facts and the phenomenon being investigated. The object of this research is specifically for fishermen who use drift gillnet. The sampling method used is census, which is using the entire population as respondents. The population in this study were gillnet fishermen who landed fish in Palabuhanratu totaling 24 people.

### 2.1 Welfare Level Analysis

The fishermen's welfare level is analyzed using quantitative data that is scored on welfare indicators according to the modified Central Statistics Agency (2015). Modifications are made by entering the income calculation criteria on the household income indicator with the Regional Minimum Wage standard for Sukabumi Regency and the Minimum Physical Needs standard on the household expenditure indicator based on 9 basic ingredients in a year

#### 2.1.1 Regional minimum wage (UMR)

Each region has its own set UMR by the Governor at the provincial level and the Regent/Mayor at the Regency/City level. The regional minimum wages for Sukabumi Regency in 2020-2021 are: IDR 3,028,531

#### 2.1.2 Minimum physical needs standards (KFM)

Family expenditures can be measured using the Minimum Physical Needs Standards (KFM) for clothing and food for fishermen's households based on the value of consumption in a year from local prices (Sobari and Suswanti 2007 in Maryani [4]). Based on the prices prevailing at the time of the study, the number of Nine Basic Ingredients in a year is IDR 3,639,000 and IDR 303,250/month.

#### 2.1.3 Central statistics agency (2015)

The level of welfare can also be based on the criteria used by the Central Statistics Agency (2015) with ten indicators of welfare. In general, it can be formulated as follows:

1. Household Income (IDR/month)
2. Household Consumption/Expenditure (IDR/month)
3. Living Condition

4. Housing Facilities
5. Health of Household Members
6. Ease of use of facilities health workers
7. Ease of enrolling children in education
8. Quality of education for household members
9. Sense of security from criminal disturbances
10. Ease of accessing information and communication technology

Based on the welfare indicators above from expert judgment [4], tabulation and classification are then carried out to determine the total score obtained. The criteria for each classification into three parts are as follows:

1. Score between  $> 2.31$  (high welfare level);
2. Score between  $1.65 - 2.3$  (medium level of well-being);
3. Score between  $0.99 - 1.64$  (low welfare level).

### 3. RESULTS AND DISCUSSION

#### 3.1 Characteristics of Fishermen

The respondents in this study were fishermen in Palabuhanratu who used drift gill net fishing gear. The drift gill net fishermen in Palabuhanratu are divided into two types, namely the captain, who is in charge drives the boat and determine the fishing ground. Also the crew or who in charge to catching fish. Drift gillnet fishermen in Palabuhanratu can be said to be laborers, this means that fishermen do not have boats and do not carry out marketing activities because they are only in charge of catching fish and cannot determine the price of their own catch. This is because the fishermen have made an agreement with the ship owner. The deal is the ship owner covers all the needs for fishing activities such as boats, fishing gear, supplies such as fuel, oil, ice cubes, food and cigarettes. Through the agreement the fisherman must submit all the catch to the owner of the ship and the owner of the ship will sell the catch to the other marketing agencies.

##### 3.1.1 Age

Productive Age Population according to BPS is the population in the age range of 15-64 years. Based on the results of the research, the age of fishermen range from 21-80 years and the average age of the most was 31-40 years.

##### 3.1.2 Education

According to [5] said that formal education can be used as an indicator to measure productivity, the higher level of education it has, the higher productivity done in developing business. In general, drift gill net fishermen in Palabuhanratu only reached the level of elementary school education (SD) with a percentage reaching 96% or in the sense that 23 out of 24 respondents graduated from elementary school and only 4% graduated from junior high school (SMP). It can be concluded that the education level of fishermen in Palabuhanratu is very low.

##### 3.1.3 The number of dependents

According to Hasyim [6] the number of dependents is a factor that need to be considered in determining income to meet needs. The number of dependents of families of drift gillnet fishermen in Palabuhanratu on average is between 1-6 people. The large number of dependents can affect household expenses. The greater the number of dependents, the greater the family expenses.

##### 3.1.4 Work experience

Drift gillnet fishermen have worked as fishermen for more than 20 years. The longer experience that fishermen have in catching fish, of course, the possibility of these fishermen being more proficient and skilled. From the interview it is known that the drift gillnet fishermen in Palabuhanratu currently only fishermen who have experience or high flying hours in using the fishing gear. This is because to operate the drift gill net is quite difficult and fishermen must be able to read the field conditions related to the fishing ground that change over time

#### 3.2 Welfare Analysis According to Indicators from the Central Statistics Agency (BPS)

##### 3.2.1 Household income indicators

Income is all the results received by a person in an economic activity, both from the field of services, agricultural industry and others [7]. Fishermen drift gillnet in Palabuhanratu is obtained through a profit sharing system. The amount of the profit sharing comes from an agreement that has been agreed by both parties between fishermen and ship owners. The monthly income of fishermen's family members

comes from all family members including fishermen, wives and children. The fishing trip for drift gillnet is divided into one day trips with an average income of IDR 50,000-IDR.150,000 and a 3-day trip with an average income ranging from Rp.250,000-Rp400,000. The income of drift gillnet belongs to the low income category, this can be proven by the total average income of members family of IDR 749,028/month is smaller than the UMR of Sukabumi Regency, which is IDR 3,028,531. Economic welfare should include discussions about rents and surpluses. Depending on the fish handling effort and the output price is constant and not constant. Based on research conducted [8] states that the actual cost is greater than the opportunity cost. This means that the costs incurred are greater than the profits.

### 3.2.2 Family expenditure indicators

Based on the prevailing prices at the time of the study, the price of basic raw materials according to minimum physical needs (KFM) standards is IDR 3,639,000 per year and IDR 303,250 per month. So when compared with the expenditure per member of the fishermen's family with an average of IDR 514,727 per month it can be concluded that 24 fishing families are included in the non-poor criteria, because the expenditure is greater than KFM. The form of fisherman's expenditure consists of two types, that is food and non-food. Expenditure on food is the most widely spent basic needs, namely basic necessities.

Non-food expenditures include education (children supplies and children's books), health (using over-the-counter drugs or going to the doctor). One thing that must be changed from these fishermen is the extravagant lifestyle. When they get big profits from fishing, they immediately spend their money to buy things they don't need without setting aside money for saving, so that when the catch is few or even non-existent, they have no money saved.

### 3.2.3 Living condition

The criteria for living conditions for drift gillnet fishermen as a whole can be said to be good. But, based on direct research in the field, the houses inhabited by fishermen are generally still under construction, such as some unfinished rooms or unpainted walls, the fishermen continue to build their houses if they get a large income from the sea. Their living condition can be said to be feasible they have used walls, roofs use tiles,

the status of their own houses, non-ground floors and a land area of >8m<sup>2</sup>. Although many of them are still renting.

### 3.2.4 Housing facilities

Facilities are factor that will support the comfort of the home you have. The living facilities for drift gillnet fisherman in Palabuhanratu can be said to be good, supported by the availability of clean water, proper sanitation and good lighting. The facilities in question include lighting sources that already use electricity, water sources from PAM, toilets that already use their own bathrooms and use gas as fuel.

### 3.2.5 Health indicators for household members

Health is a healthy state, both physically, mentally, spiritually, and socially that allows everyone to live socially and economically productive lives [9]. Determining the health of fisherman's family members can be seen from how often family members get sick in a month. If it is calculated that the fishermen of drift gillnets answer that their health is good and they rarely get sick. Respondents said that only minor illnesses such as flu and cough were enough to be treated with over the counter medicines. But there are also some respondents who have quite severe diseases such as diabetes and stomach. Many fishermen also experience decreased hearing and vision due to their old age and fishing activities for decades [10,11].

Drift gillnet fishermen's health in Palabuhanratu is good when compared to Gulf of Mexico (GoM) fishermen according to research [12] deregulation related policies that occur have caused a decrease in economic opportunities for fishermen such as lower wages, job insecurity, loss of social protection benefits that directly have long-term implications for health and well-being.

### 3.2.6 Ease of use of facilities health workers

Facilities Fishermen rarely use hospital health facilities due to the distance from their homes which is quite far. The fishermen also complained about the assistance they should have received but it didn't arrive because there were people who took advantage of it. Some fishermen also said they had not received health insurance program (BPJS) because they were not registered and felt unable to pay BPJS

contributions. The fishermen who use BPJS still have to incur large costs. Facilities at Palabuhanratu hospital are incomplete, one of which is eye care that must be referred to an eye hospital outside the city because eye health facilities in Palabuhanratu are inadequate, so fishermen have to spend large costs for transportation and housing during treatment. Fishermen also want accident insurance while at sea, considering the risk of accidents at sea is very large.

### 3.2.7 Ease of enrolling children in education

According to the interview results, admitting children to education is easy and affordable, but the respondents still find it difficult because there are many unexpected costs needed to support the learning process. These costs include uniforms and LKS books. It is not uncommon for children to go on strike because they are ashamed that they can't buy LKS books. This is due to the uncertain income of fishermen. Not only sending their children to education, fishermen's parents are also obliged to supervise and provide facilities for their children's growth and development. This is in line with the opinion [13] which says that the role of parents is very necessary so that their children can grow and develop healthily and intelligently.

### 3.2.8 Quality of education for household members

The quality of education for family members of *drift gillnet* in Palabuhanratu is sufficient. Some fishing communities cannot read and write due to the lack of quality education as a child caused by limited economic costs so they cannot continue their elementary school. Fishermen have an understanding that education or schooling does not need to be high because school fees are expensive and in the end they will only become fishermen. However, many of them still try to learn to read and write with the help of relatives and family members who can read. Sustainable development in social sector can ensure education fisherman [14].

### 3.2.9 Sense of security from criminal disturbances

All fishermen's families feel safe from being harassed by crime. The life of the fishing community in Palabuhanratu is very close and takes care of each other. In addition, in the village they always hold night patrols to avoid thieves who intend to take valuables or crimes that can threaten life. Research results [15] It is

known that the poverty rate is influenced by population, education and unemployment while crime is influenced by population, education, unemployment and poverty levels.

### 3.2.10 Ease of accessing information and communication technology

The criteria for the ease of accessing information and communication technology can be categorized into moderate criteria. Fishermen said that they prefer to use old school cellphones (not *touchscreens*) because their operation is more efficient because they will not be damaged quickly when exposed to water when go to sea. Currently mobile phones, sophisticated gadgets to support online learning during the Covid-19 pandemic. Drift gill net fishermen in Palabuhanratu also rarely use GPS technology to determine fishing areas, because they prefer to use their fishing instincts that have been around for year. In addition, the lack of optimization of assistance and training using GPS causes fishermen to lack knowledge about GPS. So that there is a need for further counseling about the efficiency and use of GPS for fishermen. Research [16] hypothesized a positive and significant effect on the acceptance of GPS technology on fishermen in Pangandaran.

### 3.2.11 Average recapitulation of welfare level indicators for fishermen's households

Based on the table above, it can be seen that the average score of the welfare level of drift gill net fishermen in Palabuhanratu of 2.27, which means that it belongs to the moderate level of welfare. Overall, drift gillnet in Palabuhanratu are in good condition, quite different from the economic situation several years ago as evidenced by research [17] which states that the welfare level of fishermen in Palabuhanratu is less prosperous. is different from the results of research [18] which states that as many as 56.67% percent of small-scale fishermen around the Sunda Strait waters already have a high level of welfare. This is because fishermen in the Sunda Strait have a high level of income and high expenditure. Meanwhile, the income of drifting gill net fishermen in Palabuhanratu is still low because it is smaller than the minimum wage. This is because many of the fishing families only rely on the head of the family to earn a living. So that their income depending on the results of catching fish in the sea alone without any side jobs. Meanwhile, the wives of the fishermen only act as housewives.

**Table 1. Average recapitulation of welfare level indicators for drift gillnet fishermen in palabuhanratu**

No	Indicator	Weight	Score
1.	Household Income	25%	0.25
2.	Household Expenditure	25%	0.75
3.	Living Condition	10%	0.3
4.	Facilities Residence	4%	0.12
5.	Household Health	10%	0.3
6.	Ease of Utilization of Health Personnel Facilities	5%	0.1
7.	Ease of Enrolling Children in Education	5%	0.15
8.	Quality of Education	10%	0, 2
9.	Sense of Security from Crime Disorder	3%	0.09
10.	Ease of Accessing ICT	2%	0.01
<b>Average score</b>			<b>2.27</b>

\*Analysis Primary Data

The number of human resources who use drift gill net fishing gear is also starting to decrease. This is because the fishing ground for this fishing gear is blocked by other fishing gear, namely Fish Agregating Device (FADs) and Fish Charts. Palabuhanratu is a gulf, so the presence of FADs in the middle of the sea causes schools of fish to gather around FADs and fish do not enter the gulf. In addition, the maintenance and repair of expensive nets is also a factor for fishermen to move and use other fishing gear. This is evidenced by research [19] which states that most gillnet fishermen switch to troll line fishing gear. Besides that, The COVID-19 pandemic also has an impact on income caused by the declining purchasing power of consumers, due to restrictions on human contact so that fish purchases from fishermen are reduced. The price also decreased because there was a lot of stock but no one bought it. So it is true that the COVID-19 pandemic has an impact on the number of fishing trips, the number of catches and the price of the product [20].

#### 4. CONCLUSION

The conclusion that can be drawn from this research is that the average score of the welfare level of drift gillnet fishermen in Palabuhanratu is 2.27, which means that it belongs to the moderate level of welfare. The most influential factor in the level of fishermen's welfare is income. The income of fishermen is not stable due to the uncertain number of catches, extreme weather, irrelevant fishing gear and fishermen still relying on ship owners. Fishermen must have a side income in order to increase income to fulfill their daily needs when the catch is small. In addition, the fisherman's wife is also advised to be more creative to process fishery products into

frozen food so that the fish can be absorbed in the market and have a high selling value. In addition, There needs to be a government institution that is able to fight for fishermen in obtaining capital and reactivate existing cooperatives

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Based on the results of research on the welfare level of gillnet gill net fishermen in Palabuhanratu, the suggestion that can be given is that fishermen should diversify for abundant fish products so that they can be absorbed by the market and can increase their income. In addition, there is a need for government institutions that are able to fight for fishermen in obtaining capital and reactivate existing cooperatives.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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