SOCIAL CHARACTERISTICS OF SQUID FISHERMEN CONDITIONS IN IMPROVING HOUSEHOLD WELFARE AND INCOME, LAMPUNG

KARAKTERITIK SOSIAL NELAYAN CUMI-CUMI DALAM KESEJAHTERAAN DAN PENDAPATAN RUMAH TANGGA NELAYAN, LAMPUNG

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ABSTRACT

The level of income determines the welfare of fishermen, the welfare conditions of squid fishermen tend to be unstable due to fluctuations in marine commodity prices and varying risks of catches, apart from that, they are also faced with challenges in the form of climate change. This research aims to determine the relationship between the income level of squid fishermen and household income and the condition of squid fishermen. This research was conducted in Sukajaya Lempasing Village, Teluk Pandan District, Pesawaran Regency, Lampung from January to March 2021. Welfare in this research was analyzed using three methods, namely according to Sajogyo, based on the 2020 Lampung Province Minimum Wage and Based on the 2014 Central Statistics Agency. The research results show that squid fishing households with incomes above the minimum wage (prosperous) have side jobs that can increase their income to meet their daily needs. The welfare level of squid fishermen is in the poor to medium category. Education is a human right of every Indonesian citizen, thus every citizen has the right to receive a proper education. Education is an important indicator in measuring household welfare. These differences in education levels will of course influence the level of welfare obtained by each household. The majority of squid fishermen are in a prosperous condition because they have high scores on every welfare indicator, especially on education indicators, consumption levels and patterns as well as housing and environmental indicators..

Keywords: *income, Lampung; squid fisherman; welfare*

ABSTRAK

Tingkat pendapatan menentukan kesejahteraan nelayan, kondisi kesejahteraan nelayan cumi-cumi cenderung tidak stabil karena fluktuasi harga komoditas laut dan risiko tangkapan yang bervariasi, selain itu, mereka juga dihadapkan pada tantangan berupa perubahan iklim. Penelitian ini bertujuan untuk mengetahui hubungan antara tingkat pendapatan nelayan cumi-cumi dan pendapatan rumah tangga dengan kondisi nelayan cumi-cumi. Penelitian ini dilakukan di Desa Sukajaya Lempasing, Kecamatan Teluk Pandan, Kabupaten Pesawaran, Lampung pada bulan Januari hingga Maret 2021. Kesejahteraan dalam penelitian ini dianalisis dengan tiga metode yaitu menurut Sajogyo, berdasarkan Upah Minimum Provinsi Lampung Tahun 2020 dan Berdasarkan Badan Pusat Statistika Tahun 2014. Hasil penelitian menunjukkan bahwa rumah tangga nelayan cumi-cumi dengan pendapatan di atas nilai upah minimum (sejahtera) memiliki pekerjaan sampingan yang dapat meningkatkan pendapatannya untuk memenuhi kebutuhan sehari-hari. Tingkat kesejahteraan nelayan cumi berada pada kategori miskin sampai sedang. Pendidikan merupakan hak asasi setiap warga negara Indonesia, dengan demikian setiap warga negara berhak mendapatkan pendidikan yang layak. Pendidikan merupakan indikator penting dalam mengukur kesejahteraan rumah tangga. Perbedaan tingkat pendidikan tersebut tentunya akan mempengaruhi tingkat kesejahteraan yang diperoleh setiap rumah tangga. Sebagian besar nelayan cumi-cumi berada dalam kondisi sejahtera karena memiliki nilai yang tinggi pada setiap indikator kesejahteraan, terutama pada indikator pendidikan, tingkat dan pola konsumsi serta indikator perumahan dan lingkungan.

Kata kunci : *Kesejahteraan; Lampung; Nelayan Cumi-cumi; Pendapatan*

INTRODUCTION

Teluk Pandan district is located in Pesawaran Regency which has an area of 122.19 km² with the district capital is in Hurun Village. The natural wealth of marine products, including squid, fish, shrimp is a supporter in improving the welfare of fishermen. This wealth is inversely proportional to the conditions of poverty in various sectors. This is undesirable because it may worsen the economy of fishermen living in coastal areas. whereas, marine resources should be used as the main source of prosperity, a valuable source of income for fishermen living in coastal areas, and as the nation's economic strength in the future (Bax *et al.,* 2021). Fishermen are a group of individuals that rely on marine products for their livelihood, either by catching fish in the sea or cultivating them. Typically, fishermen live by the seashore, as a residential neighborhood adjacent to their activities. The fishing community relies on marine products for living and lives in coastal or coastal settlements. Generally, fishermen capture fish in three waves: peak season, mild season, and off season.

Fisheries play a significant role to livelihoods, food and nutrition security, and welfare of coastal community. Squid fisherman face significant levels of poverty and vulnerability at the household level as a result of diminishing ecosystem health and climate change (Stacey *et al.,* 2021). In developing countries, the small-scale fisheries sector operating across marine systems employs approximately 33.1 million full- or part-time fishermen, with an extra 2-3 people for each fisherman (Gibson *et al.,* 2021). The fishing sector depends on an occasional and seasonal basis (Béné *et al.,* 2010). These activities have a direct contribution to food security and nutrition through the provision of fish for household consumption. Indirectly, through increasing income which can be used to purchase other foods, such as lower-cost staples and fish, as well as pay for other goods and services. Squid is a superior commodity with high economic value.

Study that has developed includes the relationship between production and price of squid (*Loligo* sp.) (Kusuma *et al.,* 2014). In terms of high price, squid can increase squid fishermen's income and welfare; however, it is still unknown how large the level of household income and household welfare of squid fishermen is until now. Therefore, a study on how much income and household welfare level of squid fishermen in Sukajaya Lempasing Village, Teluk Pandan District, Pesawaran Regency is required.

METHODOLOGY

Time and research site

The study was conducted in Sukajaya Lempasing Village, Teluk Pandan District, Pesawaran Regency. The study took place between January and March, 2021. This location was chosen for this study because it is one of the regions where many people work as squid fisherman. The respondents of this study were the people of Sukajaya Lempasing Village who worked as squid fishermen. The number of respondents from squid fishermen in Sukajaya Lempasing Village was 20 people. Determination of squid fishermen respondents was carried out by means of a census, namely taking the entire population used as samples.

Household Welfare of Squid Fishermen

Based on the Sajogyo Indicator, welfare is the satisfaction obtained from the results of utilizing or consuming the income received, but the level of welfare is relative depending on how much satisfaction is obtained. The concept of needs and the concept of welfare are interrelated, that is, if a person's needs are met, then can be categorized as prosperous. The total household expenditure is then converted into the exchange rate of rice per kilogram using the prevailing rice price in the study area, which is 10,000.00 IDR. The distribution of the welfare level of squid fishermen can be seen in Table 1.

Net income

Fishermen's net income is the difference between income and the total costs incurred by fishermen and can be calculated using the following formula (Soekartawi, 2013).

Table 1. Distribution of the welfare level of squid fishermen

Group category	Score Interval (equivalent to rice/year)
The poorest	< 180 kg
Very poor	181 – 240 kg
Poor	241 – 320 kg
Near- poor	321 – 480 kg
Moderate	481 – 960 kg
Live well	> 960 kg

п = TR − TC or п = TVP − TFC ....(1)

Note: п= Net income, TR = Total revenue, TC = Total cost, TVP = Total value of product, TFC = Total factor cost

Total cost

Total cost (TC) is the sum of fixed costs and variable costs which is formulated as follows.

TC = TFC + TVC .... (2)

Note: TC = total cost (IDR), TFC = Total of fixed costs (IDR), TVC= Total of variable costs (IDR)

Analysis of Household Welfare Based on Minimum Wage of Lampung in 2020

Measurement of welfare level based on income can be done by comparing the minimum wage of Lampung in 2020, which is 2,432,000 IDR, if the income of squid fishermen is above the minimum wage stipulation, it is categorized as prosperous and not prosperous if the income is below the minimum wage stipulation.

Welfare of Squid Fisherman Households Based on the Central Bureau of Statistics of republic of Indonesia in 2014

The following analysis will use seven indicators from the Central Bureau of Statistics in 2014 to determine the level of squid fishermen's welfare, including population, health and nutrition, education, employment, consumption levels and patterns, housing and environment, social, and other variables. There are two types of households in terms of welfare classification: prosperous and not prosperous households. Classifications and scores for observational variables might show the degree of the classification of these indicators. The classification level scores on the seven welfare indicators are calculated based on the guidelines for determining the range score. The range score is calculated using the following formula:

$$RS = \frac{SkT - SkR}{JKl}$$

Note: RS = range score, SkT = highest score (7 x 3), SkR = lowest score (7 x 1) (7 = number of BPS welfare indicators, 3 = highest score in BPS indicators (good), 2 = moderate score in BPS indicators (medium), 1 = lowest score in BPS indicators (poor), JKl = number of classifications used (2)

The results of the calculation based on the formula obtained a range score (RS) of seven, indicating that the score interval will characterize the level of welfare of the squid fishermen household. The score interval and the level of welfare have the following relationship: If the score is between 7 and 14, the squid fishing household is not prosperous. The squid fishing household is prosperous if the score is between 15 and 21.

RESULTS AND DISCUSSIONS

Distribution of the welfare level of squid fishermen

The welfare level of squid fishermen is in the poor to moderate category. The near-poor group is the group that has the largest percentage, that is 55 %, the moderate group has a percentage, and the poor group has a percentage of 15 % (Table 1). Most fishermen belong to the near-poor group because squid fishermen still depend on customers (*langgan*) to sell the squid catch, usually, customers (*langgan*) charge a lower price than selling directly to consumers.

Table 1. Distribution of the welfare level of squid fishermen

Group category	Score interval (equivalent to rice/year)	Percentage (%)
The poorest	< 180 kg	0
Very poor	181 – 240 kg	0
Poor	241 – 320 kg	15
Near- poor	321 – 480 kg	55
Moderate	481 – 960 kg	30
Live well	> 960 kg	0

This difference can occur due to differences in household income and household expenditure of fishermen. The household income and expenses obtained by squid fishermen in Sukajaya Lempasing Village are 21,937,709.52 IDR and 18,234,950 IDR per year, while the income and household expenses earned by fishermen in Teluk Betung Selatan District are 30,187,572 IDR and 30,187,572 IDR per year. The income obtained by squid fishermen in Sukajaya Lempasing Village is less because the type of fishing gear used is still relatively simple, namely in the form of fishing rods, so that the catches obtained are not maximized and the selling price of squid is also influenced by customers. There are many other things that can cause differences in income, one of which is the condition of

the number of fish in the sea. The results of research by Nugraha, *et al*., (2020) show that there is a very significant decrease in income between season and off-season, this occurs because of the reduction in the number of fish. fish when it's not in season. Apart from that, Piradana, *et al*., (2017) further explained that differences in fishermen's income can be caused by several factors in the catch obtained, the fishing season, and also factors in the success of the fishing effort.

Indicators of squid fisherman's household

The population indicator is an indicator that can be used to determine the general explanation of squid fisherman families in Sukajaya Lempasing Village. The population indicator relates to the number of family members in each household. The number of family members can be used to see the household's ability to meet family daily needs. The more dependents in one family, the more expenses to meet the needs each month. The research results show that the number of family members has an influence on family welfare, the two have a positive relationship, where increasing the number of family members will increase welfare (Utaminingsih & Suwendra, 2022). The condition of the population in squid fisherman households in Sukajaya Lempasing Village can be seen in Table 2.

Based on Table 2, the scores obtained on the population indicator are mostly in the 9-12 interval, totaling 17 households (85.00 %), this means that most of the population conditions of squid fishermen in Sukajaya Lempasing Village are in a fair condition. Meanwhile, the other 3 households (15) are in the interval 5 – 8, which means that the population condition of these households is in the poor category. On average, squid fishermen have ≤ 4 family members; the number of outsiders staying ≤ 1 person; have dependents in the family ≤ 4 people with each male and female members ≤ 3 people.

The level of health is an important indicator in describing the quality of human development in an area, the healthier the condition of a society, the more it supports the process and dynamics of the economic development of a country/region for the better, especially in increasing productivity level. The health and nutrition of family members will affect the welfare level of a

household. The better the health and nutrition of family members, the more prosperous the family will be. This welfare can be achieved if squid fishermen have enough income to meet the needs of healthy and nutritionally balanced food so that the health and nutritional status of family members can be fully fulfilled. Good health and nutrition can also support squid fishermen in carrying out their business activities. The scores for the health and nutrition indicators of squid fishermen can be seen in Table 2.

Table 2. Indicators of squid fisherman's household

No	Category	Interval class	(%)
1	Population		
	Good	13 – 15	0
	Fair	9 – 12	85
	Poor	5 – 8	15
	Good	22 – 27	30
2	Health and Nutrition		
	Fair	16 – 21	70
	Poor	9 – 15	0
	Good	15 – 18	70
3	Education		
	Fair	11 – 14	30
	Poor	6 – 10	0
	Good	22 – 27	45
4	Employment		
	Fair	16 – 21	55
	Poor	9 – 15	0
	Good	10 – 12	80
5	Consumption		
	Fair	7 – 9	20
	Poor	4 – 6	0
	Good	36 – 46	20
6	Housing and environment		
	Good	36 – 46	20
	Fair	26 – 35	0
	Poor	15 – 25	0
7	Social and others		
	Good	36 – 46	20
	Fair	26 – 35	0
	Poor	15 – 25	0

Table 2 shows that squid fishermen on health and nutrition indicators are in the interval 16-21 or in the fair category with the greatest number of which are 14 squid fishermen or 70 %. Other squid fishermen are in a good category, as many as 6 squid fishermen or 30 %, and none of the squid fishermen are in the poor category. This situation shows that the average squid fisherman has fairly good health and

nutritional condition. However, sometimes squid fisherman respondents find health complaints such as flu, headache, fever, and so on that can interfere with daily activities.

Most of the income earned by squid fishermen in Sukajaya Lempasing Village is not allocated to a special health fund, but a small number of squid fishermen sometimes have allocated monthly health budget. This condition can cause the health of squid fishermen to be quite good. This condition is supported by the results of research by Amru & Sihaloho (2020) which explains that the allocation of funds for health and illness has a negative relationship. This means that if less funds are allocated for health, the higher the morbidity rate will be.

I general, squid fishermen utilize the Public Health Center as a health facility if they experience minor health problems. Squid fishermen usually get medicine from public health centers and stalls. The most common and frequent health worker that they come to get service from is the midwives, who also help in the delivery process. The type of treatment chosen by the family is modern medicine and with affordable medical costs.

The higher the education achieved, the greater the hope to get a decent job to improve the quality of family life. The score of the education indicators of squid fishermen's families can be seen in Table 2. Based on Table 2, there are 14 squid fisherman households (70%) in the interval 15-18, which means that the education of the fishermen's households is in a good category. While the other 6 fishing households are in the 11-14 interval, which means the education of the fishermen households is in the fair category. The average household education of squid fishermen is in the good category because all squid fishermen are aware of the importance of education for their children. The average education of squid fishermen's children is at the Elementary School (SD) level, squid fishermen have made efforts for their children's educational needs, but children's awareness of the importance of education makes them not want to pursue the next level.

Some of the other fishermen's children's education is at the Junior High School (SMP) level, most squid fishermen are able to send their children to junior high school level but they are not able to send them to a higher level because of the low household income. According to the opinion of most respondents, education outside of school is necessary but the most important is formal education up to the high school (SMA) level. The level of knowledge of farmers in the field of social and economic activities is supported by the level of education. Due to farmers' low levels of formal education, efforts to expand their knowledge through supplementary informal education such as training are being made (Hartoyo *et al.,* 2021).

Employment is a big issue that the government pays attention to. Employment is an indicator to see the level of household welfare of squid fishermen. The more family members who have found work, the greater the income earned and the more prosperous the fishermen's households. The score of the squid fisherman employment indicators can be seen in Table 2. Based on Table 2, most of the squid fisherman households in Sukajaya Lempasing Village have quite productive conditions with a percentage of 55%. On average, every squid fisherman household contains at least two family members over 15 years old who are working and two family members who are not yet working. The number of hours needed by family members of squid fishermen to do their work is more than 35 hours per week.

Family members of squid fishermen, apart from trying to catch squid, also have additional jobs, which on average are fisherman laborers. Squid fishermen do additional work when the squid season is completely over and the average time to do additional work is seven hours or more. According to squid fisherman respondents, additional work as fisherman labor does not really require expertise and the income received is still not appropriate compared to the energy to work. Although the income from additional work is not appropriate, the squid fisherman respondents still do it to meet the daily needs when the squid season has ended. Fisheries livelihoods in coastal communities are the center of household socio-cultural identity (Cinner & Bodin, 2010), while household activities are used to secure income and/or food throughout the year (Mills *et al.,* 2017).

The pattern of household consumption is one indicator that can be used as a measure of household welfare. The size of the proportion of expenditure on food consumption to all household expenditures can illustrate the welfare of the household. This is further clarified from the results of research by Arimawan & Suwendra (2022) which states that there is a positive and

significant influence between consumption patterns on the welfare of fishing families in Bunutan Village, Abang District. This shows that fulfilling the consumption needs of fishing families will have an impact on their level of welfare. The indicator scores for the level and consumption patterns of squid fishermen can be seen in Table 2. Table 2 shows that most of the levels and patterns of household consumption of squid fishermen are in good condition with a percentage of 80.00 percent, while a small proportion are in fairly good condition. The entire family of squid fishermen consume rice as their staple food. The average family income earned by squid fishermen is enough for their food and non-food consumption. Research conducted by Hanum & Safuridar (2018) which analyzed the influence of income on welfare, with consumption as an indicator of welfare, found that the two had a significant and positive relationship. Most respondents never spare funds for clothing and housing needs and if the income obtained is excessive, then they will save it. Housing and the environment are an indicator to determine the welfare of a household. The better the housing conditions and the environment for the squid fishermen, the more prosperous the fishermen's households are. The scores for the housing and environmental indicators for squid fishermen can be seen in Table 2.

Table 2 shows that all the squid fishermen respondents have good housing and environmental conditions. The status of residential houses and the status of land owned by squid fishermen are mostly private property and with permanent type of housing. Most of the respondents' houses from squid fishermen use tile roofs and cement walls and the type of floor is made of cement. The floor area is mostly enough for each family member. All squid fisherman households use electricity as their lighting and the fuel used is LPG. The source of clean water used by squid fishermen is wells and for drinking water they use boiled water. All squid fishermen have sanitation facilities in the form of squat toilets with an average distance of 5-10 meters from water sources and have trash holes for garbage disposal.

The last indicator used to determine the level of household welfare is social and others. The higher the level of household welfare, the lifestyle of the household also tends to change by fulfilling tertiary needs. The scores for social and other indicators of squid fisherman households can be seen in Table 2. Table 2 shows that most squid

fisherman households (65%) are quite good in social indicators and others. Meanwhile, the rest of the fishermen's households (35%) are in poor condition. Respondents of squid fishermen do not often travel to tourist attractions, although near the study area there are tourist attractions. All respondents of squid fisherman have never traveled or visit any tourism area with a distance of 100 kilometers in a period of 6 months. It is due to the squid fisherman living area has tourist attractions and they do not have a vehicle and lack in financial capacity. The cost for entertainment and sports is quite affordable for a squid fisherman family. Squid fishermen are not yet able to operate a computer, but on average they already use smartphones in daily lives. The class average of each welfare indicator can be seen in Table 3.

The average time spent by fishermen's wives in social activities is 2.5 hours or 10.4% of their total time. Fishermen's wives participate social events (Wantini *et al*., 2020). The average conditions of fishermen's homes and environments are generally characterized by relatively high air velocity, air temperature, and air humidity (Handri *et al.,* 2021). Analysis of Household Welfare Based on the minimum wage of Lampung in 2020

Welfare is a condition desired by society in general, including squid fishermen. One indicator that can be used as a benchmark for a prosperous household or not is income. The higher the income earned by a household, the higher the level of welfare of the household. The distribution of the welfare level of squid fishermen based on the Provincial Minimum Wage can be seen in Table 4. Table 4 shows the welfare level of squid fishermen households in Sukajaya Lempasing Village based on the 2020 Provincial Minimum

Table 3. The class average of each welfare indikator

Indicator	Class		
	Good	Fair	Poor
Population		√	
Health and nutrition		√	
Education	√		
Employment		√	
Levels and patterns of consumption	√		
Housing and environment	√		
Social and others		√	

Table 4. The level of household welfare of squid fishermen based on the Provincial Minimum Wage

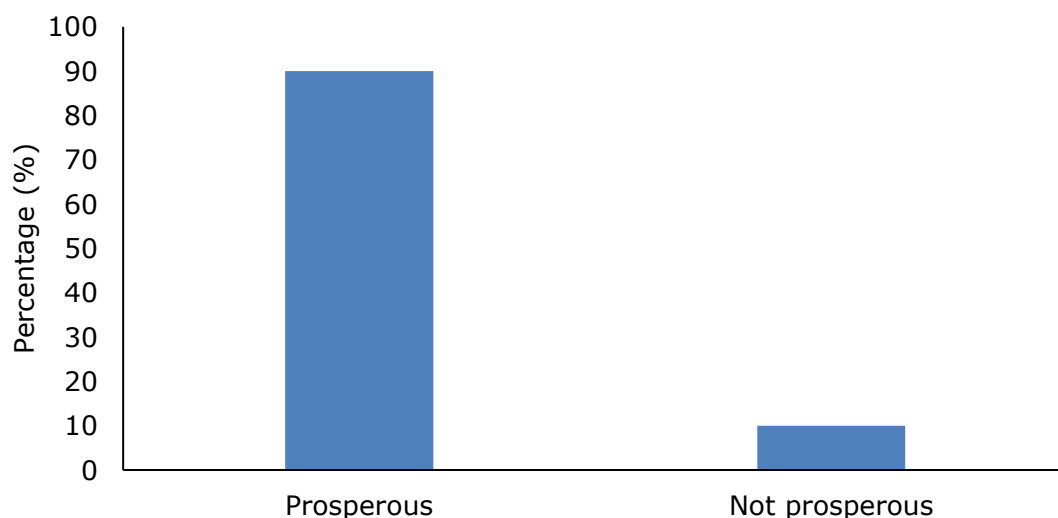| Category	Household Income (Rp/month)	Percentage (%)
Prosperous	≥ 2.432.001 IDR	20
Not Prosperous	< 2.432.001 IDR	80
Total		100

Wage provisions, there are 16 (80 %) squid fisherman households whose income is below the minimum wage because not all family members have jobs and only 4 (20 %) of squid fisherman households whose income is above the minimum wage. These results are consistent with (Saputra *et al*., 2018) that most payang fishermen (60.71 %) have incomes below the minimum wage. Squid fisherman households with income above the minimum wage (prosperous) value have side jobs that can increase their income to meet the daily needs. The relationship between income and welfare is further clarified based on the results of research by Arimawan & Suwendra (2022) that there is a significant and positive relationship between income and welfare, meaning that the higher the income, the more prosperous a fishing household is.

Central Bureau of Statistics of Republic of Indonesia in 2014

The analysis of household welfare of squid fishermen based on the Central Statistics Agency (BPS) 2014 uses seven indicators consisting of: population, health and nutrition, education, employment, consumption levels and patterns, housing and environment, social and others. The description of the seven indicators of the welfare of squid fishermen. Based on the seven indicators described above, four of the seven indicators of welfare are in a fair class, namely indicators of population, health and nutrition, employment, and social and others. While the other three indicators, namely education, level and pattern of consumption as well as housing and the environment are in a good class. Indicators of population, health and nutrition, education, and social and others (Arifin *et al*., 2020). The average score on each of these indicators shows that squid fishermen in Sukajaya Lempasing Village, Teluk Pandan District, Pesawaran Regency, have a better level of welfare than fishermen in Bogak Village, Tanjung Tiram District, Batu Bara Regency. The distribution of household welfare of squid fishermen can be seen in Figure 1.

Based on Fihure 1, almost all the squid fisherman households are in a prosperous condition (90%) and only two fishing households are in a less prosperous condition (10%). Most of the squid fishermen are in a prosperous condition because they have high scores on every welfare indicator, especially on education indicators, consumption levels and patterns as well as housing and environmental indicators. Two squid fishermen are not yet in a prosperous condition because the points obtained on each welfare indicator are relatively low, especially on employment indicators and social indicators, and others. The results show that marine resources are abundant, but the economic conditions of fishermen are far from expectations (Tan *et al*., 2021).

Figure 1. Welfare distribution of squid fisherman households

Welfare measures can be explained based on the geographic and socio-cultural settings, dominating the sources of income. The results emphasize the cross-cutting value of development interventions informed by contextual analyses of livelihoods and welfare outcomes (Mills *et al*., 2017). Government intervention through access to institutions and credit facilities, technology packages based on agro-ecology (Aalam *et al*. 2016).

CONCLUSIONS

The welfare level of squid fishermen is in the poor to medium category. The majority of squid fishermen are in a prosperous condition because they have high scores on every welfare indicator, especially on education indicators, consumption levels and patterns as well as housing and environmental indicators. The income from fishing is not enough to meet the daily needs of the family due to the low productivity of the catch and the selling price of raw fish. Squid fishing households with income above the minimum wage (prosperous) have side jobs that can increase their income to meet their daily needs. Pendidikan merupakan indikator penting dalam ukuran kesejahteraan rumah tangga. Perbedaan tingkat pendidikan tersebut tentunya akan mempengaruhi tingkat kesejahteraan yang diperoleh setiap rumah tangga. District and provincial governments do not have the clarity and concrete policies to resolve firmly and thoroughly the economic problems of fishermen living in coastal areas

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