Survival strategies of gill net fishermen households in North Bontang District, Bontang City, East Kalimantan

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ABSTRACT

This study aims to determine the socio-economic conditions and survival strategies of gillnet fishermen households in maintaining their lives. The research was conducted for 11 months from July to May 2024 in Bontang Kuala Village, North Bontang District, Bontang City. The method used in sampling fishermen is simple random sampling with a total of 34 respondents. The analysis method uses qualitative descriptive analysis. The results showed that the socio-economic conditions of the majority of gill net fishermen were productive age 53-59 years, the average education level was elementary school 26 people, fishermen's income ranged from IDR 420,000 - IDR 3,000,000 per month with an average per fisherman IDR 2,031,470. Their status is owner fishermen with fishing fleets in the form of boats with no engine, boats with ketinting engines and boats or boats with dompeng engines. Fishermen's residences are generally semi-permanent houses with good physical conditions and the land ownership status of the house building is Hak Guna Bagunan (HGB). Fishermen's survival strategies are carried out in three ways, namely, active strategies by doing side jobs, optimising the role of family members (wife and children) and increasing working hours at sea. Passive strategies, reducing the cost of food, clothing, education and setting aside money or saving money from fish sales. Network strategies, making loans through horizontal social networks (family) and vertical social networks (collectors), as well as economic or financial institutions, such as cooperatives, banks, People's Business Credit (PBC) through fisheries organisations and utilising poverty programs.

INTRODUCTION

Bontang City, one of the 14 regencies/cities in East Kalimantan Province, covers an area of 49,757 hectares, consisting of 34,977 hectares (70.3%) of marine area and 14,780 hectares (29.7%) of land area. Since the enactment of Regional Regulation No. 17 of 2002 concerning the Establishment of the Bontang Barat District Organization on August 16, 2002, Bontang City has been divided into three districts: Bontang Selatan, Bontang Utara, and Bontang Barat. Bontang Kuala is one of the urban villages (kelurahan) in Bontang Utara District. The residents of Bontang Kuala live in settlements where 9 neighborhood associations (RT) are located on land and 11 RTs are located over the sea (BPS Bontang Utara District, 2022). The occupations of Bontang Kuala residents are quite diverse; however, those living over the sea are mostly fishermen.

Septiana (2018) states that fishing communities have unique social characteristics that differ from those of land-based communities. In some rapidly developing coastal areas, the social structure is heterogeneous, with a strong work ethic, high social solidarity, openness to change, deep social interactions, and generally low income. Fishermen's incomes are very different from those in other types of livelihoods, such as traders or farmers. Traders can calculate their monthly profits, and farmers can predict their harvests each month. In contrast, fishermen's activities are full of uncertainties and are speculative and fluctuating in nature (Kusnadi, 2009). Therefore, fishing households need strategies to meet their economic needs.

Strategy is an effort that must be made by individuals or groups with the hope of sustaining their livelihoods and facilitating daily activities. A survival strategy, namely security and stability strategy, is the minimum effort made by a person to sustain life. This strategy is employed in various ways by all social classes (upper, middle, lower) to survive. In other words, all income is used to meet basic subsistence needs such as food and daily necessities (Dharmawan, 2001).

Andriati (1992) states that one adaptation strategy employed by fishing households to overcome economic hardship is to encourage wives and other family members to also earn a living. Income and sources of livelihood are crucial aspects of household life, as they determine a household’s ability to meet its needs. Engaging in side businesses aims to ensure that fishermen are not solely focused on fishing, but can also be directed toward other types of work outside of fishing. These side jobs are expected to provide added value for fishermen’s families. By pursuing alternative livelihood opportunities, fishermen can increase their income during times when they are unable to go out to sea, or fill idle time to cover their daily household needs. Most of the Bontang Kuala community depends on fishing and relies on weather conditions during fishing trips. If the weather is unfavorable, they often return with no catch. Even if there is a catch, it is often only sufficient for household consumption, leading to unstable earnings. Over time, household goods and living expenses have become increasingly expensive. This situation has driven them to take action or start other ventures aimed at fulfilling their household needs.

The lives of gillnet fishermen in Bontang Kuala are heavily dependent on marine catches, which presents fundamental problems in meeting basic needs such as food, clothing, and shelter. This condition arises from the uncertain nature of fishing, which is vulnerable to economic fluctuations due to unpredictable natural conditions. As a result, there is potential for economic decline at the household level, affecting their welfare. As time goes on and the cost of household goods continues to rise, strategies to meet economic needs become increasingly important for fishermen’s families. Therefore, a research problem was formulated: how are the socio-economic conditions and what survival strategies are employed by gillnet fishermen families in Bontang Kuala to sustain their daily lives?

METHODOLOGY

This research was conducted over a period of 11 months, from preparation to the final results, namely from July 2023 to May 2024. The study took place in Bontang Kuala Urban Village, Bontang Utara District, Bontang City. The data collected for this research includes both primary and secondary data. Primary data collection was carried out through observations and direct interviews using questionnaires to gather information on respondent characteristics, general descriptions, and survival strategies of gillnet fishermen in Bontang Kuala. Secondary data served as supporting data obtained from literature reviews, reports from relevant agencies or departments, undergraduate theses, journals, and other sources that support this research.

The data collection methods included direct observation of the conditions and situations in the research area, direct interviews with respondents, and documentation. Respondents were selected using a simple random sampling method, with the criteria being active gillnet fishermen whose main occupation is fishing, totaling 134 households.

According to Arikunto (2006), if the number of research subjects is less than 100, it is better to take the entire population, so the research is considered a population study. However, if the number of subjects is large, a sample of 10–15% or 20–25% or more can be taken. The sample in this study consisted of 34 households, or 25% of the total gillnet fisherman households in Bontang Kuala. The data analysis technique used was qualitative descriptive analysis. The purpose of descriptive analysis is to identify the socio-economic conditions and survival strategies of gillnet fisherman households in Bontang Kuala Urban Village, Bontang Utara District, Bontang City. According to Sugiyono (2018), the steps for analyzing data in qualitative research include: data reduction, data presentation, and drawing conclusions.

RESULT AND DISCUSSION

Characteristics of gillnet fishermen in Bontang Kuala

1. Age
   Based on the research findings, the majority of gillnet fishermen are aged between 53–65 years, totaling 18 individuals (53%). This indicates that most gillnet fishermen in Bontang Kuala fall into the productive or working age category.
2. Education
   The research shows that the majority of gillnet fishermen have only completed elementary school (SD), totaling 26 individuals (76%). This reflects the need to improve educational access for gillnet fishermen in Bontang Kuala. Most of those with low educational attainment belong to the older generation, for whom education was often not a priority due to financial and accessibility constraints during their youth.
3. Number of Dependents
   Based on the research, the majority of gillnet fishermen have 2–3 family dependents, with 14 households (41%) falling into this category. This suggests that most gillnet fishing households in Bontang Kuala have relatively few dependents. This is largely because many of the fishermen are elderly, and their children have already married and established their own households. Additionally, some fishermen are single and live alone, which further reduces the number of household dependents.
4. Income
   According to the research, most gillnet fishermen earn between IDR 1,693,000 and IDR 2,123,000, with 11 individuals (32%) in this income bracket. The total combined income of all fishermen is IDR 69,920,000, resulting in an average income of IDR 2,031,470 per person. This indicates income inequality within the gillnet fishing community in Bontang Kuala. Those with the lowest incomes are fishermen who use non-motorized boats and elderly fishermen who only fish 2 to 3 times a week. In contrast, the highest-earning fishermen use motorized boats, such as those with dompeng engines or a combination of ketinting motorboats and dompeng boats, and typically fish 5 to 6 times a week.
5. Years of Experience
   Based on the findings, the majority of gillnet fishermen have 35–41 years of work experience, with 14 individuals (41%) in this group. This indicates that most gillnet fishermen in Bontang Kuala have extensive work experience. The most experienced fishermen are generally older, while those with less experience are younger fishermen.

Socio-Economic Conditions of Gillnet Fishermen in Bontang Kuala

1. General Overview of Gillnet Fishermen

Gillnet fishing businesses in Bontang Kuala are divided into two categories based on capital scale: small-scale and large-scale operations. Gillnet fishermen in Bontang Kuala are generally self-employed owner-operators who run their fishing businesses independently. In practice, most fishermen work individually, and only a few employ crew members (ABK), who are typically family members or relatives.

The most commonly used fishing vessels are boats with ketinting engines, followed by a few using boats with dompeng engines or non-motorized boats. Gillnets (locally known as *rengge*) used by ketinting and non-motorized boat fishermen typically have mesh sizes ranging from 1.5 inches to 4 inches, while dompeng boat fishermen use gillnets of 8 inches or larger. Fishing activities are conducted from morning (around 6 or 7 AM) to afternoon (around 4 or 5 PM), or from evening (around 5 or 6 PM) to morning (around 7 AM). Some only fish at night. On average, fishermen go to sea 5 to 6 times a week, with the lowest frequency being 2 to 3 times a week. In a month, they typically take 4 to 8 days off, which are used for religious activities, rest, side jobs, boat repairs, or cleaning gear.

Fishing areas include waters around Bontang (e.g., Melahing, Gusung, Segajah, Beras Basah, Selangan) and areas outside Bontang such as Sangatta and Muara Badak. The catch is sold directly to local consumers or collectors. According to the fishermen, the volume of catch depends on the season: Peak season: 10–100 kg per trip; Normal season: 5–50 kg per trip; Lean season: 2–20 kg per trip.

Investment capital required to start a fishing business ranges from IDR 3,000,000 to IDR 87,000,000, while operational costs per trip range between IDR 160,000 and IDR 1,780,000. Fishermen using dompeng engine boats have higher capital and operating costs compared to those using ketinting or non-motorized boats. Family members, including wives and children, play a crucial role in the household economy. They are involved in processing fish into salted fish, fish balls (*pentol*), and *pempek*, selling ice, running small grocery shops, and engaging in other livelihoods.

Gillnet fishermen in Bontang Kuala face various challenges, such as unpredictable weather, seasonal fluctuations, volatile fish prices, inadequate equipment, and limited access to capital. They also deal with obstructive fish trap nets and unregulated seaweed farming in their fishing grounds, which hinder efficiency and affect catches as well as local marine ecosystem sustainability. Moreover, the rise in dynamite fishing practices has become a serious issue, harming traditional and small-scale fishermen and contributing to long-term marine ecosystem instability, threatening both fishermen's livelihoods and the sustainability of local fisheries in Bontang Kuala.

2. Fishermen's Household Facilities and Infrastructure

a. Land and House Ownership Status

The land status for fishermen's housing in Bontang Kuala shows that 100% of the land is borrowed or under building-use rights (HGB), indicating a dependence on borrowed land schemes. However, 31 fisherman households (91%) own their houses, either built by themselves or purchased from others, reflecting a high rate of homeownership in the gillnet fishing community.

b. Condition of Fishermen's Houses

The structure of fishermen's houses varies by geographic location, local culture, and economic condition. In Bontang Kuala, most homes are stilt houses built over the sea and are semi-permanent (100%). This suits the local geography, which is predominantly above water and vulnerable to weather and sea changes. The physical structure of these houses generally includes ulin wood flooring, zinc roofing, and wooden plank walls (100%), showing strong adaptation to the coastal environment and good structural resilience.

c. Types of Household Assets

Household assets include land, vehicles, and consumer goods like electronics and furniture. Gillnet fishermen in Bontang Kuala own a diverse range of assets, with the most common being: Stove – 34 households (100%), Wardrobe – 34 households (100%), Television – 32 households (94%), Motorcycle – 30 households (80%). This reflects varied levels of livelihood sustainability and access to essential household facilities.

d. Household Expenses

Based on the study, most household expenses fall between IDR 1,243,500 and IDR 2,016,000, with 16 households (47%) in this range. The total household expenditure was IDR 71,953,000, resulting in an average of IDR 2,116,264 per household. The lowest household expenses were recorded by an elderly couple who received free PDAM water access and a single fisherman living alone. Their expenses were limited to consumption, manual electricity, PDAM water, healthcare, and funeral dues. The highest expenses were incurred by a fisherman who also ran a welding workshop, covering food, PDAM water, electricity vouchers, cable TV, healthcare, education for four school-age children, phone credit, and community funeral dues.

e. Government or Private Assistance

According to the findings, 22 fishermen (65%) had received assistance from various agencies, including the fisheries department, social services, public works and spatial planning (PUPR), and local MSME programs. The types of aid received included:

1) Social assistance (basic goods) – 8 people (24%)
2) Gillnets – 7 people (21%)
3) Ketinting engines, direct cash assistance (BLT), house renovation – 3 people each (9%)
4) Business capital – 2 people (6%)
5) Free tap PDAM water – 1 person (3%)

This indicates a high level of government and private sector involvement in supporting gillnet fishermen in Bontang Kuala. However, equitable distribution of aid remains important to ensure fair access across the fishing community.

Survival strategies of gillnet fishermen in Bontang Kuala

According to the experiences of gillnet fishermen in Bontang Kuala, weather or seasonal conditions have a significant impact on the fishing process. Although catches are abundant during good seasons, bad weather can affect yields and may not be sufficient to cover operational costs. Poor seasons result in decreased production and income for the fishermen. This issue requires serious attention because if fishermen solely rely on seasonal conditions to go fishing, there is a potential decline in their well-being. Therefore, it is important for each fisherman to have survival strategies to meet their daily needs, regardless of unfavorable seasonal conditions.

Suharto (2009) states that survival strategies to cope with economic shocks and pressures can be carried out in various ways, categorized into three types: active strategies by optimizing all family potential, passive strategies by reducing household expenditures, and network strategies by building relationships, both formal and informal, with their social and institutional environment.

1. Active Strategy

Active strategy refers to efforts made by poor families by optimizing all family resources. For example, doing activities themselves, extending working hours, and doing whatever it takes to increase their income. Common active strategies used by small-scale farmers include income diversification or seeking additional income through side jobs (Suharto, 2009). Around 50% of gillnet fishermen actively take on additional jobs to increase their income, while the other 50% do not, due to limited job opportunities, lack of experience in other fields, older age, or feeling that income from fishing is sufficient despite its inconsistency.

a. Side Jobs

Based on the research, most fishermen take on side jobs such as working as construction laborers, with 13 individuals (38%) involved. The total income from this work is IDR 9,550,000 per month, with an average income of IDR 734,615 per person. One person (3%) is engaged in gardening, earning a total of IDR 1,166,000 per month. Other types of work (e.g., welding shops, seaweed farming, diving/fishing, traditional medicine practices) involve 4 individuals (11%), generating a total income of IDR 27,200,000 per month, or IDR 6,800,000 per person.

b. Role of Family Members

The research found that 13 fishermen’s wives (38%) participate in income-generating activities to help their husbands. These activities include processing fish into salted fish, fishballs, or "pempek", selling ice and groceries, and working as employees in food stalls and cafes. Their total income is IDR 20,900,000 per month, or IDR 1,607,692 per person.

Additionally, 5 fishermen’s children (15%) help support the family by working in food stalls, cafes, shops, phone counters, as warehouse staff, firefighters, and school motorcycle taxi drivers. Their combined income is IDR 12,800,000 per month, or IDR 2,560,000 per person.

c. Increasing Working Hours

Four fishermen (12%) extend their working hours at sea. In addition to routine fishing in the morning and afternoon, they also fish at night. Activities include diving, fishing for large fish, catching shrimp and squid, and setting traps for crabs and lobsters.

2. Passive Strategy

Passive strategy refers to surviving by reducing household expenses, such as for clothing, food, education, and others. This typically involves living frugally (Suharto, 2009). About 20 fishing households (59%) apply passive strategies by cutting expenses on food, clothing, education, and saving part of the income from fish sales.

a. Food Costs

Three fishing households (9%) reduce food expenses by changing eating patterns—e.g., replacing breakfast with sweet potatoes or cassava instead of rice, and eating rice only at lunch or dinner. They also buy food supplies in bulk once a month to avoid frequent spending.

b. Clothing Costs

Twenty fishing households (59%) reduce spending on clothing. Fishermen typically only buy new clothes during major holidays or big sales. On holidays, they often still wear old clothes in good condition. On regular days, they avoid buying new clothes unless absolutely necessary and often opt for second-hand items.

c. Education

To cut education expenses, some parents reduce children's pocket money or prepare meals at home. Three households (9%) adopt this strategy. Sometimes children receive no pocket money and bring food from home instead, which not only saves money but ensures food safety.

d. Savings

Fifteen fishermen (44%) set aside money or save it in a piggy bank. When fish catches are good, they consistently save a portion of their earnings to prevent spending it all at once. Daily savings range from IDR 10,000–100,000; weekly savings range from IDR 250,000–500,000; and monthly savings range from IDR 200,000–300,000.

3. Network Strategy

Network strategy involves establishing relationships, both formal and informal, with the social and institutional environment. This includes borrowing money from neighbors, taking goods on credit at local shops, utilizing poverty alleviation programs, borrowing from moneylenders or banks, and so on (Suharto, 2009).

Based on the socioeconomic status of fishing households within a network, there are two types of social relationships: horizontal relationships (among people with relatively equal status) and vertical relationships (between individuals of unequal status), such as patron-client relations between a boat owner and a fisherman (Kusnadi, 2000). According to the research, 17 fishermen (50%) apply network strategies to meet their families' financial needs.

a. Capital Loans

Fishermen obtain loans through horizontal networks (family), vertical networks (middlemen), and financial institutions (banks, cooperatives, and government small business loans - KUR). Loans from family: 6 fishermen (16%), ranging from IDR 50,000–4,000,000. Loans from middlemen: 8 fishermen (21%), ranging from IDR 100,000–1,000,000, repaid through installments or deducted from fish sales. Bank loans: 5 fishermen (13%), ranging from IDR 5,000,000–50,000,000, repaid via monthly installments of IDR 400,000 for 1 year or IDR 950,000 every three months for 4.5 years. KUR loans: 1 fisherman (3%) received IDR 10,000,000, repaid in IDR 900,000 monthly installments for 1 year. Cooperative loans: 1 fisherman (3%) received IDR 3,700,000, repaid in weekly installments of IDR 75,000 for 50 weeks (13 months).

b. Utilizing Poverty Alleviation Programs

The study found that 22 fishermen (65%) benefit from various poverty alleviation programs, including assistance with fishing gear and engines, business capital, housing repairs, free clean water service (PDAM), direct cash assistance (BLT), and food social assistance (Bansos). These programs come from various institutions such as the Department of Fisheries, Department of Social Affairs, Public Works and Spatial Planning (PUPR), and Micro, Small, and Medium Enterprises (MSMEs).

CONCLUSION

1. Gillnet fishermen in Bontang Kuala are mostly within the productive age range of 53–59 years, with the majority (26 individuals) having completed only elementary school (SD) as their highest level of education. Their monthly income ranges from IDR 420,000 to IDR 3,000,000, with an average income of IDR 2,031,470 per fisherman. Most of them are owner-fishermen operating fishing fleets that include non-motorized boats, boats with *ketinting* engines, and boats or vessels with *dompeng* engines. The fishermen generally live in semi-permanent houses in good physical condition, and the land ownership status of their homes is Right to Use Building (Hak Guna Bangunan – HGB).
2. The survival strategies of gillnet fishermen households in Bontang Kuala Village are carried out in three ways: Active strategies: by taking on side jobs, optimizing the role of family members (wives and children), and increasing working hours at sea; Passive strategies: by reducing spending on food, clothing, and education, and by saving or setting aside money from fish sales; Network strategies: by borrowing through horizontal social networks (family), vertical social networks (middlemen), and economic or financial institutions such as cooperatives, banks, and People's Business Credit (KUR) through fisheries organizations, as well as by utilizing poverty alleviation programs.

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