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Analysis Of Fishing Household Income In Leato Selatan Urban Village, Dumbo Raya Subdistrict, Gorontalo City

Sri Yulisnawati Dama[1], Mahludin Baruwadi[2], Echan Adam[3]

[1]Student, Faculty of Agriculture, Universitas Negeri Gorontalo. Gorontalo, Indonesia
[2,3]Lecturer, Faculty of Agriculture, Universitas Negeri Gorontalo Gorontalo, Indonesia

Email: damasriyulisnawati@gmail.com[1], mahludinbaruwadi@ung.ac.id[2], echanadam@ung.ac.id[3]

Abstract

Fishers' income from fishing is seasonal and uncertain, so fishing households often seek other sources of income. This study aims to analyze fishing household income from the fisheries sector and to determine its contribution to total household income in Leato Selatan Urban Village, Dumbo Raya Subdistrict, Gorontalo City. The study employed a survey method with descriptive statistical analysis of 35 fishing households selected from a population of 70 households. Primary data were collected through questionnaire-guided interviews, whereas secondary data were obtained from relevant agencies and the literature. Fishery income, non-fishery income, total household income, and the contribution of each source were calculated in rupiah per month. The results show that average income from fishing was IDR 2,012,571, non-fishery income was IDR 880,000, and total household income was IDR 2,892,571 per month. Fishing contributed 69.57% and non-fishery sources 30.43% of total household income. Accordingly, fishing remains the main source of income for fishing households in Leato Selatan, while non-fishery activities serve as supplementary income

Keywords: Fishing Household Income; Income Contribution; Fisheries Sector; Leato Selatan.

INTRODUCTION

Capture fisheries are an important source of livelihood for coastal households in Indonesia, an archipelagic country with extensive marine waters. Gorontalo Province is bordered by the Sulawesi Sea to the north and the Gulf of Tomini to the south, which creates opportunities for coastal communities to utilize marine resources(Adjung *et al*.,

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2024).Leato Selatan, located in Dumbo Raya Subdistrict, Gorontalo City, is one of the coastal urban villages where most residents work as fishers. Administrative data from the urban village office, cited by Mii *et al* (2020)recorded 442 fishers across four neighborhood units, while other residents work as employees, honorary teachers, or self-employed entrepreneurs.

Income from fishing can be described as unstable. The earnings of fishers in Leato Selatan are difficult to predict because they are seasonal and depend on sea conditions and fish prices, and during seasonal transitions, fishers experience a scarcity of fish and a decline in income(Mii *et al*., 2020). Among hired fishers in the same urban village, fuel prices, limited business capital, and low wages are cited as the causes of their meager income(Adjung et al., 2024).In the broader Gorontalo Bay area, the profit-sharing system and patron-client relations are considered to bind some fishers to capital owners or middlemen(Adysubarkah *et al*., 2026), while extreme weather and bans on destructive fishing gear also contribute to unstable fisher income. These conditions encourage fisher households to seek sources of income beyond fishing(Kono *et al*., 2025).

Several studies in Gorontalo have examined fishing household income in other locations. In Bintalahe Village, Kabila Bone, the average fishing household income was IDR 46.7 million per year, with approximately IDR 39.9 million derived from capture fishing activities and approximately IDR 6.8 million from non-fishery sources, indicating that capture fishing contributed 85%(Latief *et al*., 2021). Among 50 fishing households of the Bajo ethnic group in Boalemo, income from fishing accounted for 82.75% and supplementary enterprises for 17.25% of total income, and only about 30% of respondents had a secondary occupation(Kono *et al*., 2025). In Buluwatu Village, North Gorontalo, the average monthly income of fishing households is IDR 2,405,714, placing them in the moderate-income category. Income from non-fisheries activities is reported to substantially exceed income derived from fishing activities, amounting to IDR 2,010,000 and IDR 534,226 per month, respectively (Erlansyah & Mohamad, 2023).

These three studies indicate that the income structure of fishing households varies across locations, ranging from those that rely heavily on fishing activities to those whose income is primarily supported by alternative sources. To date, research in South Leato has focused on fisher empowerment(Mii *et al*., 2020), Factors Determining the Income of Fishers Employed as Crew Members(Adjung *et al*., 2024), and the relationship between asset utilization and fishers' income across several urban villages along the Gulf of Gorontalo, including South Leato(Adysubarkah *et al*., 2026). To date, no studies have been identified that examine the income of fishing households in South Leato according to its sources. However, when income from fishing activities is seasonal and unpredictable, the extent to which households depend on it determines their level of

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economic vulnerability. This information is essential as an empirical basis for formulating strategies to strengthen fisheries-based enterprises and promote income diversification.

Based on the foregoing discussion, this study aims to (1) analyze fishing households' income derived from the fisheries and non-fisheries sectors and (2) determine the contribution of income from fisheries-related activities to the total household income of fishers in South Leato.

METHOD

The study was conducted in South Leato Urban Village, Dumbo Raya District, Gorontalo City, over a three-month period, from February to April 2026. The study site was selected because a substantial proportion of its residents work as fishers and experience fluctuating incomes. A survey method was employed to collect data from the study area through questionnaires, interviews, and direct observation (Sugiyono, 2018). The study aimed to describe the income conditions of fishing households based on field data. The research procedures consisted of five stages: (1) preliminary observations and identification of fishing households; (2) determination of the population and sample; (3) data collection through interviews, questionnaires, observations, and documentation; (4) data tabulation; and (5) data analysis.

The population comprised all fishing households actively engaged in fishing activities in South Leato, totaling 70 households, based on data from the urban village office and the researcher's preliminary survey. The sample size was determined using Slovin's formula, as follows:

$$n = \frac{N}{(1+N.e2)} \quad \text{.....(1)}$$

where ***n*** represents the sample size, ***N*** represents the population size (70), and ***e*** represents the margin of error (12% or 0.12). The calculation is as follows:

$$n = \frac{70}{1 + 70(0{,}12)^2} = \frac{70}{1 + 70\ (0{,}0144)} = \frac{70}{2{,}008} \approx 34{,}86 = 35$$

The data and instruments used in this study included primary data obtained through interviews with fishers and direct observations at the study site. Secondary data were obtained from the urban village office, relevant literature, and previous research findings. The research instruments consisted of interview guides, questionnaires, and documentation tools. The data were analyzed using descriptive statistics by classifying, summarizing, and presenting the data in frequency distribution tables, accompanied by narrative descriptions of income sources and amounts. All monetary values were expressed in IDR per month. The procedures and references are as follows:

1. **Fisheries Business Income**: π = TR − TC, where TR = P × Q (price × quantity of catch) and TC = FC + VC. Fixed costs (FC) include equipment depreciation, taxes or

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licensing fees, and routine maintenance, while variable costs (VC) include fuel, ice, food, and other operational expenses (Puspita *et al*., 2022).

2. **Non-Fisheries Income:** $P_{non} = \Sigma P_i$, where $P_i$represents the income earned by household members from each occupation outside fishing activities (Zhurayda *et al*., 2016).
3. **Household Income**: $P_t = \pi + P_{non}$ (Kono *et al*., 2025).
4. **Contribution of Fisheries Income**: $K = \frac{Pn}{Pt} \times 100\%$, where *Pn* represents income from fisheries activities, and *Pt* represents total household income (Zhurayda *et al*., 2016).

RESULTS AND DISCUSSION

The study was conducted on 35 fishing households in Leato Selatan Urban Village, Dumbo Raya Subdistrict, Gorontalo City. The characteristics of the respondents are presented in Table 1. The respondents' ages ranged from 31 to 70 years, with a mean of 41.60 years; the largest group comprised those aged 41-50 years (51.43%), followed by the 31-40 age group (45.71%). The most common number of family dependents was four persons (31.43%), while the respondents' educational attainment was dominated by senior high school graduates (68.57%). All respondents (100%) used hook-and-line and net fishing gear.

Table 1. Respondent Characteristics

Characteristic	Category	Number (persons)	Percentage (%)
Age (years)	31–40	16	45,71
	41–50	18	51,43
	51–60	0	0,00
	61–70	1	2,86
Number of dependents (persons)	2	8	22,9
	3	8	22,9
	4	11	31,43
	5	7	20,00
	6	1	2,9

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Characteristic	Category	Number (persons)	Percentage (%)
Highest level of education	SD	4	11,4
	SMP	7	20,0
	SMA	24	68,6
Fishing gear	Hook-and-line/net	35	100,00
Total respondents		**35**	**100,00**

Source: Primary data (2026)

The fishers' main income was calculated as the difference between revenue from fish sales and operating costs. As shown in Table 2, the average revenue was IDR 2,548,714 and the average operating cost was IDR 536,142, resulting in an average fisher income of IDR 2,012,571 per month.

Table 2. Average revenue, operating costs, and main income of fishers

Description	Average (IDR/month)
Revenue	2.548.714
Operating costs (fuel, ice, fishing gear maintenance)	536.142
Fisher income	2.012.571

Note: Income = revenue − operating costs. The IDR 1 rounding difference results from rounding of the averages. Source: Primary data (2026).

The non-fishery income of fishing households derived from side businesses run by the fishers' wives. The descriptive statistics are presented in Table 3: income ranged from IDR 0 to IDR 1,300,000 per month, with a mean of IDR 880,000 and a standard deviation of IDR 323,401.

Table 3. Descriptive statistics of non-fishery income of fishing households

Description	Value
Number of respondents	35
Minimum income	IDR 0
Maximum income	IDR 1.300.000

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Description	Value
Total income	IDR 30.800.000
Mean income	IDR 880.000
Standard deviation	IDR 323.401

Source: Primary data (2026).

The average income of fishing households was IDR 2,892,571 per month (Table 4). Fishery income contributed 69.57% and non-fishery income 30.43% of total household income. This composition is visualized in Figure 1.

Table 4. Average income and contribution of income sources of fishing households

No	Income source	Average (IDR/month)	Contribution (%)
1	Main income (fishery)	2.012.571	69,57
2	Supplementary income (non-fishery)	880.000	30,43
	Total household income	**2.892.571**	**100,00**

Source: Primary data (2026).

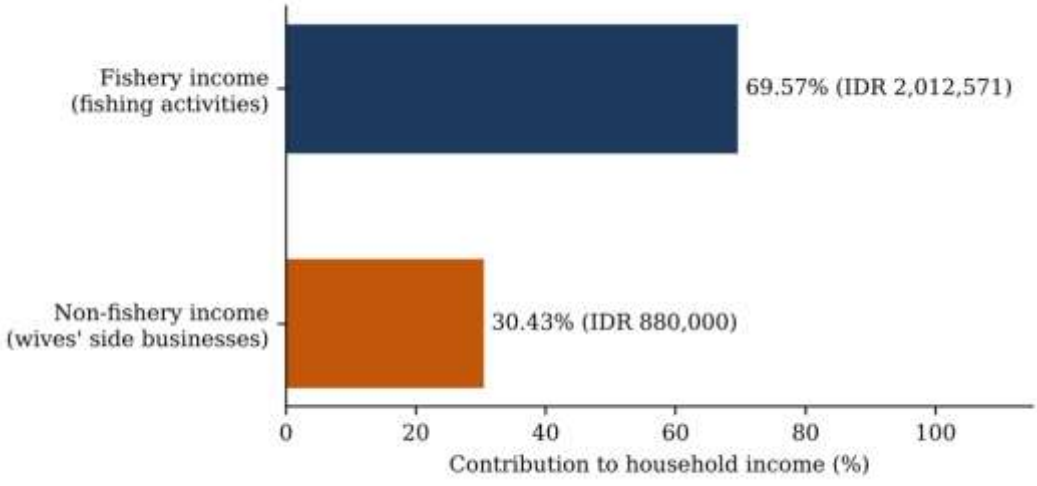


Figure 1. Composition of fishing household income in Leato Selatan Urban Village

Income structure of fishing households. The results indicate that fishing households in Leato Selatan Urban Village do not depend on a single source of income.

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The fishery sector serves as the main pillar, contributing 69.57% of household income, while the non-fishery sector accounts for 30.43% (Table 4; Figure 1). This pattern is consistent with the concept of livelihood diversification, namely the process by which households construct diverse activities in order to survive and improve their standard of living. In small-scale fisheries, fishing is generally only one of several livelihood sources, and this diversity is associated with efforts to reduce household vulnerability (Roscher et al., 2022). Accordingly, supplementary income in the study area can be understood as an economic buffer when catches are uncertain owing to weather, season, and fluctuations in fish prices.

Main income from fishing. The average fisher income of IDR 2,012,571 per month was obtained from revenue of IDR 2,548,714 after deducting operating costs of IDR 536,142. This result accords with the definition of income as the difference between revenue and the costs incurred within a given period (Kurman et al., 2023). Operating costs accounted for only about 21% of revenue (Table 2). This may be attributed to the use of hook-and-line and net fishing gear by all respondents, which is relatively simple and does not require large operating costs. On the other hand, the use of simple fishing gear may also limit catch volume, so that fishery income is difficult to increase without improvements in equipment or business productivity.

The role of fishers' wives' side businesses. Non-fishery income, averaging IDR 880,000 per month, derived from the side businesses of fishers' wives. The magnitude of this contribution indicates that wives play an important role in maintaining household economic stability. This finding is consistent with Rahim & Hastuti (2019), who stated that non-fishery income plays an important role in the welfare of fishing households, although the largest contribution still comes from fishing. The standard deviation of IDR 323,401 and the income range of IDR 0–1,300,000 (Table 3) indicate that households' capacity to generate additional income remains varied.

Respondent characteristics and their implications for welfare. Most respondents were of productive age (mean 41.60 years) and had completed senior high school (68.57%), which constitutes good capital for receiving information and developing businesses. However, the average number of dependents of approximately 3.6 persons per household (calculated from Table 1) implies considerable consumption, education, and health needs that must be met. Income is remuneration for economic activity within a given period and determines a household's ability to meet these needs (Maqqi et al., 2026); the greater the income, the greater the household's capacity to fulfil its living needs (Kurman et al., 2023). Because nearly 70% of income still depends on fishing, strengthening the productivity of fishing enterprises should proceed alongside the development of side businesses, particularly those managed by fishers' wives, so that

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household income becomes more stable. These findings are limited to 35 respondents in a single urban village (*kelurahan*); therefore, generalization should be made with caution.

CONCLUSION

The average monthly household income of fishers in South Leato Urban Village, Dumbo Raya District, amounted to IDR 2,892,571, derived from fishing activities (IDR 2,012,571 per month) and non-fisheries activities (IDR 880,000 per month). Fishing activities contributed 69.57% of total household income, while non-fisheries activities accounted for 30.43%. These findings indicate that fishing activities remain the primary source of income for fishing households in South Leato Urban Village, whereas non-fisheries activities serve as a supplementary source of income

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