Journal Social Society Vol 5 No 1, Januari - Juni 2025

Factors Affecting Income Seaweed Farmers in Tompotana Village Tanakeke Islands District Takalar Regency

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Abstract

Seaweed is one of the leading commodities that plays a vital role in improving the coastal community's economy and supporting sustainable development goals (SDGs). However, the income of seaweed farmers in Tompotana Village, Tanakeke Islands District, Takalar Regency remains unstable and is influenced by various factors that have not been thoroughly identified through scientific research. This study aims to analyze the factors that affect the income of seaweed farmers, particularly focusing on capital, production, and selling price. A quantitative research approach was applied using a survey method. The sample was purposively selected from seaweed farmers residing in Tompotana Village. Data collection techniques included structured interviews, questionnaires, and documentation. The study utilized primary data, which was analyzed using the Statistical Package for the Social Sciences (SPSS) version 24, employing multiple linear regression analysis. The results show that: (1) capital does not have a significant effect on seaweed farmers' income, either partially or simultaneously; (2) production has a significant effect on income; and (3) selling price also has a significant effect on income. These findings indicate that income improvement is more strongly influenced by production levels and market price dynamics rather than the amount of capital invested. Therefore, strategies to enhance seaweed farmers' income should focus on increasing productivity and improving market access rather than merely increasing capital input. This study is expected to serve as a foundation for policymakers in designing more effective and sustainable coastal community economic empowerment programs.

Keywords: *Capital, Production, Price, Income*

Introduction

Indonesia is the second-largest archipelagic country in the world after Canada, with a coastline stretching 81,290 kilometers. Its vast marine territory provides a significant asset for the government to generate employment opportunities. Indonesia's abundant marine economic resources include biological resources such as fisheries, seaweed, and pearls (Kaseng, 2023). These diverse marine resources offer substantial opportunities for the current and future development of the Indonesian economy (Suratiyah, 2015). This is particularly evident as approximately 75% of the territory of the Republic of Indonesia is ocean, offering immense potential for economic development (Mariño et al., 2019). To date, marine resources have significantly contributed to the success of national development (Taufik, 2021). Marine economic resources play a crucial role in increasing personal income, creating job opportunities, generating foreign exchange revenue, and promoting regional development (Yewang, 2023).

https://doi.org/10.30605/jss.5.1.2025.632

Given the vast maritime area, the abundance of natural resources, and the presence of skilled human capital, Indonesia's maritime sector demonstrates clear comparative, cooperative, and competitive advantages, positioning it as a vital component of the nation's development trajectory (Siburian et al., 2020). Moreover, with Indonesia's waters extending beyond its Exclusive Economic Zone (EEZ) to 2.7 million km², the country holds a total marine area of 5.8 million km², offering immense potential for optimized natural resource utilization. One of the most commonly found marine resources is seaweed, which plays a central role in the fisheries revitalization program and is one of the most in-demand commodities (Frisky & Purnomo, 2022).

Seaweed presents numerous benefits and advantages, particularly in terms of economic opportunity and sustainability (Habita et al., 2022). One of the key strengths lies in its expansive export potential, supported by stable market prices and the absence of restrictive trade policies or quotas. The cultivation process is relatively simple and accessible, relying on technology that is easy to adopt and offering a short production cycle that enables quick financial returns (Firman, 2019). Moreover, seaweed farming requires low capital investment and benefits from the fact that there are no synthetic alternatives available, which enhances its market value. Additionally, global demand for seaweed continues to rise, fueled by population growth, the expansion of seaweed-based industries, and an increasing consumer preference for natural, eco-friendly products (Salim et al, 2023).

Indonesia is home to approximately 555 superior seaweed species, accounting for 45% of all seaweed species in the world (Syah, 2021). The abundance of cultivable marine areas makes Indonesia one of the world's largest seaweed producers. It is also among the top ten global seaweed exporters alongside Japan, China, Chile, the United States, South Korea, the Philippines, France, Ireland, and Peru. Seaweed plays a vital role in the economic growth of five Indonesian provinces: Bali, West Nusa Tenggara (NTB), East Nusa Tenggara (NTT), Central Sulawesi, and South Sulawesi (Jibreal & Nursafitri, 2023).

Indonesia exported 195,574 tons of seaweed in 2020, valued at USD 279.58 million, making it the world's second-largest seaweed producer after China. Therefore, seaweed stands out as a key commodity with a vast market outlook, both domestically and internationally. Its high value is due to its demand across multiple industries (Moldjo et al., 2021). Seaweed cultivation should be expanded to create new employment opportunities, develop business ventures, increase household income for seaweed farmers, and enhance regional revenues (Munawir et al., 2024).

Seaweed farming serves as a primary source of income for many coastal communities in Indonesia and holds great promise as a sustainable livelihood. Several factors contribute to its sustainability (Syahbuddin & Habibah, 2021). A variety of high-potential seaweed species can be cultivated with ease in the nutrient-rich coastal waters, without requiring extensive land areas. Certain species are highly versatile, with applications in both food and non-food industries, making them strategically valuable in the global market (Widiyanti & Setiawan, 2024). Additionally, seaweed farming opens up a wide range of market opportunities, catering to both domestic consumption and export demands. Beyond generating income, this sector also supports entrepreneurship and creates employment opportunities, especially for small-scale farmers, helping to strengthen local economies and promote inclusive growth (Widiyanti & Setiawan, 2024).

Indonesia is officially recognized as an archipelagic state in the 1945 Constitution, comprising 17,480 islands with a coastline of 95,181 km, including 92 outermost small islands. Based on the latest data, Indonesia reported 111 outermost small islands to the UNGEGN in 2021, as stated in Presidential Decree No. 6 of 2017 (Madji et al., 2019). Indonesia has vast potential in seaweed production and processing, holding the position as the world's largest seaweed producer and the second in global rankings (Larson et al., 2021). In 2022, Indonesia produced 9.6 million tons of cultivated seaweed, accounting for 65% of national fishery production, involving around 65,000 seaweed-farming households (Humsibu & Paulus, 2022). One prominent example is South Sulawesi, which is among the provinces with the highest potential for seaweed production.

The province produced 1.63 million tons of wet seaweed. Fishery exports from South Sulawesi, particularly seaweed, have increased (Irna & Islami, 2022). A shift in consumer preference toward processed fishery products has driven market demand, presenting a lucrative business opportunity. To capitalize on this opportunity, farmers need to learn proper cultivation techniques and follow structured cultivation patterns. Recent data shows that South Sulawesi is the largest seaweed-producing region in Indonesia, with a total production of 3.79 million tons, accounting for 41.55% of national output. All of this seaweed production comes from local aquaculture activities (Fitrianti et al., 2023).

One of the central production areas in the province is Takalar Regency, which still requires enhancement in both production and processing. Since 1987, Takalar has been classified as a Gracilaria seaweed-producing area in South Sulawesi. It ranks fifth in production after East Luwu, North Luwu, and Bone. According to South Sulawesi's Fisheries Department data 2020, Takalar produced approximately 403,117.3 tons of seaweed. Seaweed farming is deeply embedded in the culture of Takalar's residents. The regency, a result of Makassar's administrative division in 1960, recorded 3,441,138.7 tons of seaweed production in 2020. Its coastal geography and skilled workforce make it ideal for seaweed development. Cultivation involves entire households, often carried out by husband and wife teams to meet economic needs.

Seaweed is a leading export commodity that also aligns with the principles of sustainable aquaculture in support of the Sustainable Development Goals (SDGs) set by the United Nations. One of the largest contributors to seaweed production in Takalar is Tanakeke Island District, particularly Tompotana Village, a coastal area where the majority of residents work as seaweed farmers. Tompotana is the first village encountered when traveling to Tanakeke Island and consists of four hamlets: Tompotana (101 households), Ujung Tanah (131 households), Tanah Beru (100 households), and Cambaya (50 households). The village lies about 11 miles from the regency center and can be reached in 30–45 minutes by motorized boat from the old Takalar port. Most residents of Tompotana Village work as seaweed farmers and fishers, utilizing the sea's resources for daily needs and as their primary income source.

The village's abundant aquatic resources are crucial to sustaining local life (Dinda et al., 2016). Ironically, the harvested seaweed is only sold locally, often in raw form, without being processed into higher-value products, which limits the community's income potential. Preliminary observations revealed various seaweed species being cultivated, including Eucheuma cottonii, Eucheuma spinosum, Gracilaria spp., and Sargassum spp. Of these, Eucheuma cottonii is the most commercially valuable due to its higher price. Most farmers sell their harvests to local middlemen for convenience, as they lack the knowledge and resources

to export directly, often resulting in unfavorable pricing agreements. This core issue underpins the research titled: “Factors Influencing the Income of Seaweed Farmers in Tompotana Village, Tanakeke Island District, Takalar Regency.”

The novelty of this research lies in its focused analysis of specific factors influencing the income of seaweed farmers in Tompotana Village, a topic that has not been extensively explored in previous studies. This study also highlights the limited market access and loss of added value due to farmers' dependence on local middlemen, linking these issues to the potential for strengthening farmers’ economic capacity through empowerment approaches. Furthermore, this research provides empirical contributions to the development of coastal economic strategies based on leading commodities aligned with the Sustainable Development Goals (SDGs).

Method

This study employs a survey method with a quantitative descriptive approach to analyze the income of seaweed farmers in Tompotana Village, located in the Tanakeke Islands District of Takalar Regency. The purpose of this research is to identify and explain the factors influencing the income of seaweed farmers, as well as to determine the amount of income they receive. The research was conducted in Tompotana Village due to its role as a significant seaweed-producing area within the region. The study took place over a period of approximately three months, starting on May 14, 2024, following the issuance of a research permit. The study uses quantitative data, which are numerical and can be processed using mathematical formulas or statistical analysis methods. The data collected are primary data, obtained directly from the first-hand sources individuals or groups without any intermediaries. The population in this research includes all seaweed farmers in Tompotana Village, totaling approximately 200 individuals.

The purposive sampling technique was employed, selecting 32 farmers as respondents. These farmers were drawn from four different hamlets, with eight selected from each. The selection criteria required that the farmers have at least four years of experience in seaweed farming, be actively involved in all stages of the cultivation process, and rely on seaweed farming as their main source of income. Several key terms are defined operationally in this study. Cultivation refers to the management of natural and environmental resources to produce fishery products. Capital is defined as the financial foundation used to start and sustain a business, representing the difference between total assets and liabilities. Production involves efforts to create or enhance the utility of goods or services to fulfill market needs. Selling price is a critical factor that affects income, profitability, market demand, and brand perception.

Income, in this context, refers to the earnings generated from seaweed cultivation, which serves as an indicator of individual or community welfare. Data collection was conducted through three primary techniques. First, questionnaires containing both closed- and open-ended questions were used to collect information on the farmers' characteristics, cultivation practices, and income levels. Second, interviews were carried out with selected key informants to gain deeper insights into aspects not fully captured in the questionnaires. Third, documentation was used to obtain secondary data from government sources concerning the village's socio-economic conditions, marine potential, and other relevant factors. For data analysis, the study applies a quantitative descriptive analysis approach.

This involves tabulating the data to show the frequency distribution of the variables, calculating the average income of the seaweed farmers, and classifying their income into specific categories. The relationship between variables is analyzed using a simple linear regression model, expressed as:

$$Y = b0 + b1\ X\ 1 + b2\ X\ 2 + b3\ X\ 3 + e$$

Where Y represents farmer income, X1 is capital, X2 is production, X3 is selling price, and e is the error term. In this model, X1–X3 are the independent variables, and Y is the dependent variable. The regression coefficients (b) indicate the average change in income associated with a one-unit change in each independent variable. A positive coefficient suggests an increase in income, while a negative coefficient indicates a decrease. Finally, hypothesis testing is carried out through two statistical methods. The T-test is used to examine the partial effect of each independent variable capital, production, and price on income. The coefficient of determination (R^2) is used to assess the extent to which the independent variables collectively explain the variation in the dependent variable. An R^2 value closer to 1 signifies a stronger explanatory power of the model. Let me know if you'd like this converted into a more academic writing style (e.g., for a journal or thesis).

Results and Discussion

Respondent Identity

The respondents in this study are seaweed farmers from Tompotana Village, Tanakeke Islands District, Takalar Regency. The characteristics of the respondents are categorized based on age, gender, and years of farming experience.

Respondents by Age

Based the Indonesian Dictionary (KBBI), age refers to the length of time a person has lived since birth. It also represents a stage or level of life that has been passed. Age is one of the internal characteristics of an individual that significantly affects physical function and psychological condition. It influences how individuals learn, understand, and adapt to new things. In general, as people age, their physical strength and motivation may decline. Based on the research findings, the respondents' ages ranged from 31 to 60 years.

Table 1. *Age Distribution of Seaweed Farmers in Tompotana Village*

No	Age Classification (Years)	Number (People)	Percentage (%)
1	< 30 Years	0	0%
2	31 – 40 Years	10	31.25%
3	41 – 50 Years	16	50%
4	> 50 Years	6	18.75%
	Total	32	100%

The data above indicate that the largest proportion of respondents (50%) were aged 41–50 years, followed by 31–40 years (31.25%) and over 50 years (18.75%). No respondents were under 30. This suggests that older individuals are more active and capable in seaweed farming activities.

Respondents by Gender

Gender refers to the biological classification of individuals as male or female. This classification is important to analyze roles and participation in seaweed farming.

Table 2. *Seaweed Farmers by Gender in Tompotana Village*

No	Gender	Number (People)	Percentage (%)
1	Male	28	87.5%
2	Female	4	12.5%
	Total	32	100%

This table shows that the majority of respondents (87.5%) are male, while only 12.5% are female. This suggests that seaweed farming is predominantly undertaken by men in this area.

Respondents by Farming Experience

Farming experience refers to how long a person has been involved in seaweed cultivation. The more experience one has, the more knowledge and skill they generally possess.

Table 3. *Seaweed Farming Experience in Tompotana Village*

No	Years of Experience	Number (People)	Percentage (%)
1	< 5 Years	6	18.75%
2	5 – 10 Years	7	21.88%
3	10 – 15 Years	10	31.25%
4	> 15 Years	9	28.12%
	Total	32	100%

Most respondents have been engaged in seaweed farming for 10–15 years (31.25%), followed by those with over 15 years (28.12%), 5–10 years (21.88%), and less than 5 years (18.75%). This indicates that seaweed farming in Tompotana Village is supported by farmers with substantial experience.

Hypothesis Testing: t-Test (Partial Test)

Based on the results of this study, the factors presumed to influence the income of seaweed farmers in Tompotana Village, Tanakeke Islands District, Takalar Regency include capital, production, and price. The results of the regression analysis on the research data show the contribution of each variable to the factors affecting seaweed farmers' income. The t-test results are presented in the table below:

Table 4*. Hypothesis Testing (H1, H2, H3) using t-Test*

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.438	0.275	—	1.595	0.122
Capital (X1)	-0.134	0.110	-0.186	-1.217	0.234
Production (X2)	0.691	0.100	0.994	6.881	0.000
PRICE (X3)	0.542	0.115	0.501	4.714	0.000

H1: It is hypothesized that capital affects seaweed farmers' income. Based on the t-test results, the calculated t-value is -1.217, while the critical t-table value is 2.0369 with a significance level of 0.234. Since the calculated t-value is lower than the t-table (-1.217 < 2.0369), and the significance level is higher than 0.05 (0.234 > 0.05), it can be concluded that the independent variable capital (X1) has no significant partial effect on the dependent variable income (Y). Therefore, the hypothesis is rejected.

H2: It is hypothesized that production affects seaweed farmers' income. The t-test results show a calculated t-value of 6.881, while the t-table value is 2.0369 with a significance level of 0.000. Since the calculated t-value is greater than the t-table (6.881 > 2.0369), and the significance level is less than 0.05 (0.000 < 0.05), it can be concluded that the independent variable production (X2) has a significant partial effect on the dependent variable income (Y). Thus, the hypothesis is accepted.

H3: It is hypothesized that price affects seaweed farmers' income. The t-test results show a calculated t-value of 4.714 and a t-table value of 2.0369 with a significance of 0.000. Since the t-value is greater than the t-table (4.714 > 2.0369) and the significance level is below 0.05 (0.000 < 0.05), it can be concluded that the independent variable price (X3) has a significant partial effect on the dependent variable income (Y). Therefore, the hypothesis is accepted.

Coefficient of Determination (R^2)

The coefficient of determination (R^2) measures how well the independent variables (X) explain the variation in the dependent variable (Y). This indicator shows the proportion of changes in the dependent variable that can be explained by changes in the independent variables in the regression model. The value of R^2 ranges between 0 and 1. If R^2 equals 0, the regression model has no predictive power for the dependent variable because the independent variables provide no contribution.

Table 5. *Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**0.904**	**0.817**	**0.797**	**0.297**

Predictors: (Constant), Price (X3), Production (X2), Capital (X1). Based on the SPSS output in the table above, the adjusted R square value is 0.797. This means that 79.7% of the variation in the dependent variable (income) can be explained by the independent variables: capital, production, and price. The remaining 20.3% is explained by other external or environmental factors not included in the model.

The results of this study indicate that capital does not have a significant effect on the income of seaweed farmers in Tompotana Village, Tanakeke Islands District, Takalar Regency. A larger amount of capital used does not necessarily lead to higher income. This suggests that increasing capital without being accompanied by sound business management and risk mitigation strategies does not yield a positive impact on income levels. One contributing factor is the unpredictability of coastal environmental conditions, such as extreme weather changes, strong winds, irregular tides, marine pests, and frequent technical damage to farming equipment. These conditions have the potential to reduce seaweed productivity, even when farmers have invested heavily in production inputs such as ropes, seedlings, or other tools. Therefore, efficiency in capital utilization and adaptability to environmental dynamics become more critical than merely increasing capital investment.

These findings are consistent with previous research that states capital is not the sole determinant of success in seaweed farming, especially in areas with high environmental vulnerability (Fatmala et al., 2023). Furthermore, other studies have shown that the success of aquaculture activities is more influenced by farmers' technical skills, experience, and strategies for managing environmental risks, rather than the amount of capital invested (Limi et al., 2018). Hence, in the context of Tompotana, production-related factors such as harvest volume and selling price play a more decisive role in influencing income. Farmers who are able to maximize harvests under challenging natural conditions and sell at competitive prices tend to earn higher incomes compared to those who rely solely on large capital inputs.

This study shows that fluctuations in production volume, whether increases or decreases during the research period, have a significant effect on the income of seaweed farmers in Tompotana Village, Tanakeke Islands District, Takalar Regency. The higher the harvest volume, the greater the income earned by farmers. This indicates that productivity is a key factor in

determining farmers' welfare. Seaweed production depends on several aspects, such as seed quality, cultivation techniques, and environmental conditions that support optimal growth. If farmers are able to maintain stable production through adaptive and sustainable cultivation methods, their income can increase consistently. Conversely, production decline caused by extreme weather, pest outbreaks, or poor cultivation practices can directly reduce farmers' earnings.

These findings are supported by previous research, which states that production volume is one of the main determinants of seaweed farmers' income, and that increased productivity directly correlates with improved economic well-being (Aramudin, 2022). In addition, other studies have found that the efficiency of the cultivation process and harvest intensity within a single cycle are important indicators in increasing profits for coastal farmers (Bakarbessy, 2023). This study also reveals that fluctuations in the selling price of seaweed have a positive and significant impact on farmers' income. When prices increase, farmers' income rises substantially. Conversely, when selling prices fall, farmers' income significantly decreases, even if production volume remains constant. Farmers' dependence on unstable market prices, along with the influence of middlemen who often set prices unilaterally, further exacerbates their economic vulnerability. In this context, farmers' access to transparent market information and fair trading mechanisms becomes crucial for strengthening their bargaining position.

These findings are in line with previous studies suggesting that selling price is a dominant external factor influencing the income of seaweed farmers, and that both global and local price fluctuations can have a direct impact on the economic well-being of farming households (Arsyad et al., 2015). Other research also emphasizes the importance of strengthening farmers' economic institutions, such as cooperatives or joint business groups, as a solution to reduce dependency on middlemen and create a more profitable marketing system (Madji et al., 2019).

Conclusion

Based on the results of data analysis and discussion, it can be concluded that in Tompotana Village, Tanakeke Islands District, Takalar Regency, capital does not have a significant partial effect on the income of seaweed farmers. In contrast, the variables of production level and selling price have significant partial effects, indicating that increases in harvest output and market price directly contribute to higher farmer income. These findings highlight the importance of improving productivity and strengthening market access as key strategies for enhancing farmer welfare. However, this study is limited in terms of the variables analyzed, as it does not account for other factors such as education level, access to technology, or the presence of local economic institutions. Therefore, future research is recommended to broaden the scope of analysis by including additional socio-economic variables and adopting a longitudinal approach to capture income dynamics over a longer period.

The implications of this study suggest that increasing the income of seaweed farmers requires more than just additional capital. It must be accompanied by technical training, sustainable farming assistance, and the development of farmer institutions to strengthen bargaining power within the supply chain. Continuous support from the government and stakeholders is crucial through well-targeted empowerment programs. Furthermore, the

findings of this study can serve as a valuable reference for students and researchers interested in exploring the economic potential of coastal-based commodities, particularly seaweed, as part of sustainable economic development efforts in Indonesia's coastal regions.

Acknowledgment

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References

Aramudin, A. (2022). Peranan Petani Rumput Laut Perempuan dalam Meningkatkan Kualitas Pendidikan Anak di Sekolah Dasar. *Metodik Didaktik*, *17*(2). https://doi.org/10.17509/md.v17i2.42479

Arsyad, M., Nuddin, A., Zamhuri, M. Y., & Yusuf, S. (2015). The poverty reality of coastal and agriculture: how severe the seaweed farmers and cocoa smallholders are?. *International Journal of Agriculture System*, *2*(2), 119-131. http://dx.doi.org/10.20956/ijas.v2i2.28

Bakarbessy, D. (2023). Socio-Economic Conditions in Relation to Seaweed Farmers' Income and Independence. *Interdisciplinary Social Studies*, *2*(11), 2586-2596. https://doi.org/10.55324/iss.v2i11.524

Dinda, H. S. A., Danakusumah, E., & Rahmani, U. (2016). Analisis Usaha Budidaya Rumput Laut (Eucheuma cottonii) di Pulau Pari, Kepulauan Seribu. *Jurnal Ilmiah Satya Minabahari*, *1*(2), 22-31. https://doi.org/10.53676/jism.v1i2.11

Fatmala, W., Sari, M., Yunarsi, Y., & Rahman, N. (2023). Pengembangan Ekonomi Lokal melalui Budidaya Rumput Laut sebagai Sumber Pendapatan Masyarakat. *Jurnal Maksipreneur: Manajemen, Koperasi, Dan Entrepreneurship*, *12*(2), 471-485. https://doi.org/10.30588/jmp.v12i2.1099

Firman, H. (2019). Faktor â€"Faktor Yang Berpengaruh Terhadap Pendapatan Petani Rumput Laut Di Desa Tirowali Kecamatan Ponrang. *Jurnal Ekonomi Pembangunan STIE Muhammadiyah Palopo*, *5*(1), 14-22. http://dx.doi.org/10.35906/jep01.v5i1.335

Fitrianti, A. N., Aisyah, S., Warda, W., Asriadi, A. A., & Adiningrat, A. A. (2023). Peningkatan Ekonomi Petani Rumput Laut Kabupaten Takalar Melalui Program Diversifikasi Olahan Rumput Laut. *JMM (Jurnal Masyarakat Mandiri)*, *7*(4), 3701-3710. https://doi.org/10.31764/jmm.v7i4.15133

Frisky, B. A., & Purnomo, D. (2022). Analisis Pola Pendapatan dan Pengelolaan Rumput Laut di Sumbawa Barat, Indonesia. *Jurnal Bisnis dan Manajemen*, *2*(2), 44-55.

Habita, M., Retang, E. U. K., & Saragih, E. C. (2022). Analisis Pendapatan Budidaya Rumput Laut Di Desa Kaliuda Kecamatan Pahunga Lodu Kabupaten Sumba Timur. *Jurnal Education and development*, *10*(1), 201-206. https://doi.org/10.37081/ed.v10i1.3329

Humsibu, Y. M., & Paulus, C. A. (2022). Profil Pendapatan Usaha Budidaya Rumput Laut Di Desa Tablolong, Kecamatan Kupang Barat. *Jurnal Bahari Papadak*, *3*(2), 67-75.

Irna, R. A., & Islami, R. N. (2022). Analisis Pengaruh Pendapatan Petani Rumput Laut di Kelurahan Pantai Amal. *Jurnal Ekonomi Pembangunan*, *1*(1), 10-15.

Jibreal, A. A., & Nursafitri, N. (2023). Seaweed Cultivation for Community Income in Indonesia. *Patikala Journal of Sustainable Business & Entrepreneurship*, *1*(01).

Kaseng, E. S. (2023). Strategi Pemberdayaan Untuk Meningkatkan Pendapatan Petani Rumput Laut. *Jurnal Ekonomi dan Riset Pembangunan*, *1*(2), 25-40.

Larson, S., Stoeckl, N., Fachry, M. E., Mustafa, M. D., Lapong, I., Purnomo, A. H., ... & Paul, N. A. (2021). Women's well-being and household benefits from seaweed farming in Indonesia. *Aquaculture*, *530*, 735711. https://doi.org/10.1016/j.aquaculture.2020.735711

Limi, M. A., Sara, L., La Ola, T., Yunus, L., Taridala, S. A. A., Batoa, H., ... & Prapitasari, M. (2018). The production and income from seaweed farming after the sedimentation in Kendari Bay. *Aquaculture, Aquarium, Conservation & Legislation*, *11*(6), 1927-1936.

Madji, S., Engka, D. S., & Sumual, J. I. (2019). Analisis Faktor Â€“Faktor Yang Mempengaruhi Pendapatan Petani Rumput Laut Di Desa Nain Kecamatan Wori Kabupaten Minahasa Utara. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, *7*(3). https://doi.org/10.35794/emba.v7i3.24939

Mariño, M., Breckwoldt, A., Teichberg, M., Kase, A., & Reuter, H. (2019). Livelihood aspects of seaweed farming in Rote Island, Indonesia. *Marine Policy*, *107*, 103600. https://doi.org/10.1016/j.marpol.2019.103600

Moldjo, I., Sondakh, S. J., & Durand, S. S. (2021). Keadaan Sosial Ekonomi Petani Rumput Laut Di Desa Nain Kecamatan Wori Kabupaten Minahasa Utara. *AKULTURASI*, *9*(2), 231-239. https://doi.org/10.35800/akulturasi.v9i2.36917

Munawir, M., Adillah, Z., & Bakhtiar, B. (2024). Faktor-Faktor yang Berkontribusi terhadap Tingkat Pendapatan Petani Rumput Laut di Desa Tirowali Kecamatan Ponrang. *Jurnal Manajemen & Organisasi Review (MANOR)*, *6*(2), 386-391. https://doi.org/10.47354/mjo.v6i2.996

Salim, H., Ilsan, M., & Boceng, A. (2023). Analisis Tingkat Pendapatan Petani Rumput Laut (Studi Kasus di Kecamatan Wara Timur, Kota Palopo, Provinsi Sulawesi Selatan). *Innovative: Journal Of Social Science Research*, *3*(3), 10162-10174.

Siburian, H. Y., Rifardi, R., & Tanjung, A. (2020). The Effect of Changes in The Shoreline of The Sea Law Implementation in West Rangsang Subdistrict, Kepulauan Meranti District. *Jurnal Perikanan dan Kelautan*, *25*(1), 53-63.

Suratiyah, K. (2015). *Ilmu usahatani*. Penebar Swadaya Grup.

Syah, A. F. (2021). Management of Marine and Fisheries Resources: Cipta Kerja act and Islamic Perspective. *Islamic Research*, *4*(2), 63-70. https://doi.org/10.47076/jkpis.v4i2.74

Syahbuddin, S., & Habibah, H. (2021). Budidaya Rumput Laut dalam Meningkatkan Pendapatan Ekonomi Masyarakat (Studi Kasus di Desa Laju Kecamatan Langgudu Kabupaten Bima). *Jurnal Pendidikan Ips*, *11*(2), 101-106. https://doi.org/10.37630/jpi.v11i2.513

Taufik, M. (2021). Analisis Pendapatan Petani Budidaya Rumput Laut Di kabupaten Sumenep. *Jurnal Sosial Ekonomi dan Politik (JSEP)*, *2*(2).

Widiyanti, N. M. N. Z., & Setiawan, R. N. S. (2024). Analisis Faktor-Faktor Yang Mempengaruhi Pendapatan Usahatani Rumput Laut Di Desa Seriwe Kabupaten Lombok Timur. *JURNAL AGRIMANSION*, *25*(1), 265-271. https://doi.org/10.29303/agrimansion.v25i1.1639

Widiyanti, N. M. N. Z., & Setiawan, R. N. S. (2024). Motivasi Petani Dalam Budidaya Rumput Laut Di Desa Seriwe Kabupaten Lombok Timur. *Agroteksos*, *34*(1), 133-142. https://doi.org/10.29303/agroteksos.v34i1.1039

Yewang, M. U. K. (2023). Pengaruh modal dan harga jual terhadap pendapatan petani rumput laut di Desa Oenggaut Kecamatan Rote Barat Kabupaten Rote Ndao. *Journal Economic Education, Business and Accounting*, *2*(2), 139-149. https://doi.org/10.35508/jeeba.v2i2.11460