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THE IMPACT OF COVID-19 ON FISHERMEN'S INCOME IN HUMUSU WINI VILLAGE, NORTH INSANA SUB-DISTRICT, NORTH CENTRAL TIMOR REGENCY

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ABSTRACT

The Coronavirus (Covid-19) pandemic that spread in Indonesia has impacted the Indonesian economy, especially the local fisheries industry. This virus not only takes lives but also the economic activities of the community. Moreover, the Large-Scale Social Restrictions (PSBB) policy has also prevented people from doing activities outside their homes, such as work, schooling, and activities that involve many people. This policy prevents and makes it difficult for fishermen to market their catches. This research uses an open-ended survey with 56 regular fishermen as respondents. The results of this research show that, overall, fishermen experience disadvantageous impacts during the Covid-19 pandemic. The income of fishermen before the Covid-19 pandemic was 292,098,464.2857 in contrast to 105,195,517.8571 during the Covid-19 pandemic.

KEYWORDS: Covid-19, Fishermen's Income, Operational Costs

INTRODUCTION

The Coronavirus (Covid-19) pandemic shocked humanity around the world, including Indonesia, in early 2020. The World Health Organization (WHO) declared the Coronavirus a global health emergency as the pandemic continues to spread to several countries. WHO explained that Coronavirus is a virus that infects the respiratory system.

The spread of Covid-19 in Indonesia has increased rapidly since it was first officially announced by the government regarding positive cases of Covid-19 in early March 2020, and has even spread to 30 provinces. Since the emergence of the Covid-19 pandemic, the government has urged the public to reduce activities outside the home. This was further strengthened by the implementation of Government Regulation No. 21 of 2020 on Large-Scale Social Restrictions (PSBB) to accelerate the handling of Corona Virus Disease 2019 (Covid-19) (Merry Nova Sary et al, 2020).

The Large-Scale Social Restrictions (PSBB) regulation prevents people from leaving their homes, whether for work, schooling, or traveling. This policy obstructs and makes it difficult for fishermen and the fisheries industry to market their products. The decline in activity, if it lasts for a long time,

will undoubtedly have an impact on the decline in community income, especially among fishermen. As a result of the current pandemic, health has worsened, and many people have lost their jobs and income.

Furthermore, fishermen have also reduced their fishing activities due to restrictions at the port (quarantine before anchoring) and reduced labor absorption in processing factories. Also, several cold storage warehouses experienced an accumulation of fish raw materials or overstock because they could not be supplied outside the region as usual (Kholis et al., 2020)

In Indonesia, local communities have been utilizing fisheries resources as a source of livelihood for a long time. However, the Covid-19 pandemic has dramatically affected the income of the marine and fisheries sector, including fishermen. The Covid-19 pandemic is spreading rapidly, and it is unknown when it might end.

Fisheries resources have the potential to be utilized to improve the standard of living for the community and the welfare of fishermen. However, in reality, there are still many fishermen who have not been able to increase their catches due to limited fishing gear, so their income levels do not increase due to high fishing costs. They are extremely limited.

Fishing costs are business costs that occur during fishing (Jendris I. R Mohu et al., 2016). The fishing cost consists of fixed costs and variable costs. Depreciation of fishing gear, depreciation of boats, and depreciation of engines are fixed costs. These costs are calculated by dividing the price of fishing gear, boats, and engines, as an investment. On the other hand, variable costs are measured by the cost of supplies before and during Covid-19, the cost of fuel oil before and during the Covid-19 pandemic, the cost of maintenance and repair of the ship which includes the needs of maintaining the ship's condition and the cost of the crew, which are people who work and are in charge of the ship to maintain the ship and its cargo.

Cost is one of the determining factors for the smooth running of a business. It is due to the level of productivity of the catch that depends on how much the costs incurred to run the fishing business will determine the price of the catch. However, the operational costs of fishermen during this pandemic have decreased in price in which the cost of supplies incurred is not high. This is because the results obtained by fishermen are small during the Covid-19 pandemic. The costs incurred to buy fuel oil are limited because the income or results obtained by fishermen have decreased, as well as the cost of boat maintenance and repair and the cost of crew labor which is unlike before the pandemic. The costs spent to pay for crew services are significant because fishermen's income has increased. Due to the condition, the operational costs of fishermen before and during these pandemic experienced differences in income. This happened due to the decreased demand for fish catches during the pandemic, causing fishermen to also limit fishing activities. Hence, reducing the operational costs of fishermen in Humusu Wini Village.

Humusu Wini Village is one of the villages located in the North Insana Sub-District, North Central Timor District, which is located on the coast. Thanks to its coastal location, some people choose to work as fishermen. In 2019, there were 56 permanent fishermen, 151 main part-time fishermen, and 21 additional part-time fishermen.

The North Insana Regency area also experienced the impact of the Covid-19 pandemic, one of which was the price of fish. The increasing number of Covid-19 patients suffering in an area will affect the income of fishermen by decreasing the price of fish. Every month before the Covid-19 pandemic, fishermen's income experienced a standard as usual, whereas in May 2019-February 2020 experienced excellent fish prices. However, in March-December 2020, fishermen's income began to decline. In March, there was a decline in prices because the impact of the Covid-19 pandemic spread throughout the world, including in Indonesia.

The strategy to increase fishermen's income during the Covid-19 pandemic is to use the Mobilisation Adaptation Strategy. The mobilization adaptation strategy is one way of adapting to the Covid-19 pandemic, namely by involving family members such as wives and children to participate in earning a living. Wives and children seek additional income by selling catches or processing them into salted fish (Asep Hamzah et al., 2021).

The strategy to increase the income of fishermen in Humusu Wini Village during the pandemic is to continue to carry out fishing activities as usual while always following government recommendations to maintain distance and always use masks when meeting face-to-face with consumers so that activities continue and people's income continues to increase so that they can meet their daily needs. Furthermore, they also started to develop their marketing strategy through online sales.

METHOD

This research was conducted in Humusu Wini Village, North Insana Sub-District, North Central Timor District. It was carried out from July to December 2021. In this research, the fishermen became the object of research, so the population was 56 fishermen in Humusu Wini Village. Due to the minimal population, the sampling technique used saturated samples where all members of the population are used as research samples.

DATA COLLECTION TECHNIQUE

The data collected consisted of primary and secondary data. Primary data grouping was based on the research objectives. Primary data was obtained by using interview techniques and distributing questionnaires. Meanwhile, secondary data was obtained from various previous research results from relevant agencies related to the data. These data were collected in the form of reports/data from the Department of Marine Affairs and Fisheries of North Central Timor District, which consisted of production/catch data, number, and type of fishing fleets, fishermen, fishing gear, and several existing products.

The t-test formula tests the comparative hypothesis of two correlated sample research (Sugiyono, 2010).

$$t - test = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2} - 2r \left(\frac{S_1}{n_1}\right)\left(\frac{S_2}{n_2}\right)}}$$

Information:

- \bar{X}_1 = sample mean 1
- \bar{X}_2 = sample mean 2
- S_1 = standard deviation of sample 1
- S_2 = sample standard deviation 2
- S_1^2 = sample variation 1
- S_2^2 = sample variation 2
- n_1 = number of samples 1
- n_2 = number of samples 2
- r = correlation between 2 samples.

This research examined the hypothesis by comparing the *t-count* value with the *t-table* value at the degree of freedom (dk) = n-1 at the alpha level (α) = 5%. If the *t-count* value > the *t-table* value at the degree of freedom (dk) = n-1 at the alpha level (α) = 5%, then there is a difference in the cost and income of fishermen before and during the Covid-19 pandemic in Humusu Wini Village. In contrast, if the *t-count* value < the *t-table* value for the degree of freedom (dk) = n-1 at the alpha level (α) = 5%, then there is no difference in the cost and income of fishermen before and during the Covid-19 pandemic in Humusu Wini Village.

RESULTS AND DISCUSSION

Characteristics of Respondents

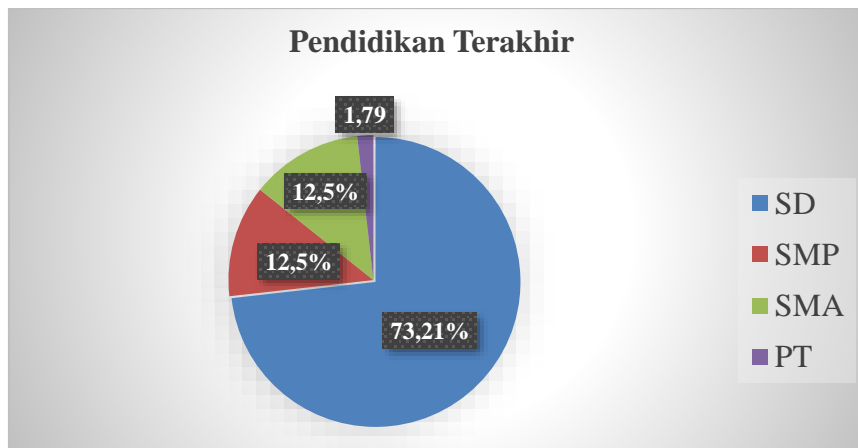


Figure 1. Characteristics of Respondents by Last Education
Source: Primary Data Analysis Results, 2021

Based on the diagram above, it can be explained that the majority of respondents in this research had elementary school education (SD) with a total of 41 people or 73.21 percent, followed by respondents with junior high school education (SMP) of 7 people or 12.5 percent, senior high school (SMA) with a total of 7 people or 12.5 percent, and respondents with higher education as many as a person or 1.79 percent.

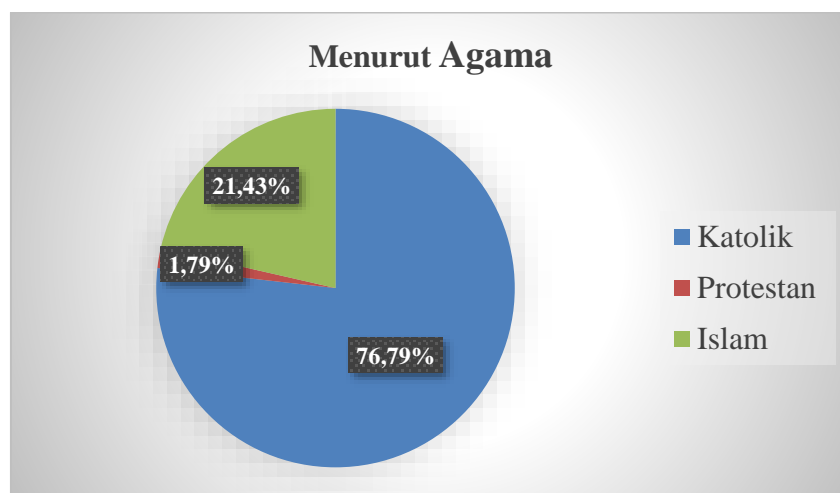


Figure 2. Characteristics of Respondents by Religion
Source: Primary Data Analysis Results, 2021

Based on the diagram above, it can be explained that the majority of respondents in this research were Catholics, with a total of 43 people or 76.79 percent, followed by 12 Muslim respondents, or 21.43 respondents, and Protestants, with a total of 1 people or by 1.79 percent.

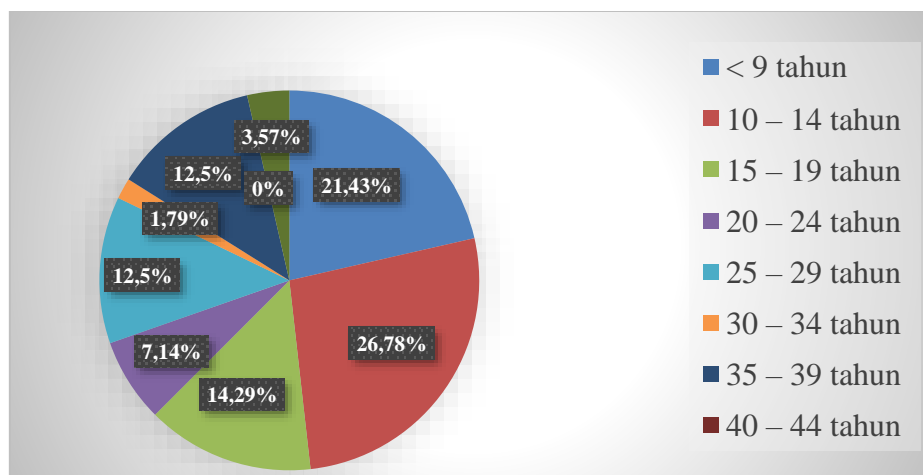


Figure 3. Characteristics of respondents according to the Length of Business
Source: Primary Data, 2021

Based on the diagram above, it can be explained that the majority of respondents in this research had a business length of 10-14 years with a total of 15 people or 26.78 percent, followed by respondents who had a business length of fewer than nine years as many as 12 people or 21.43 percent, respondents who had a business length of 15-19 years with a total of 8 people or 14.29 percent, respondents who had a business length of 25-29 years and a business length of 35-39 years with a total of 7 people or 12.5percent, respondents who have been in business for more than 45 years are two people or 3.57 percent, respondents who have been in business for 30-34 years are one person or 1.79 percent, and no respondents have business 40-44 years.

Instrument Test

Table 1. Validity Test

Variable	Person Correlation Items	Total Correlation	Information
Strength	S.1	0.447	Valid
	S.2	0.538	Valid
	S.3	0.859	Valid
	S.4	0.892	Valid
	S. 5	0.628	Valid
Weakness	W. 1	0.593	Valid
	W.2	0.733	Valid
	W.3	0.624	Valid
	W.4	0.738	Valid
	W. 5	0.764	Valid
Opportunity	O. 1	0.631	Valid
	O.2	0.639	Valid
	O.3	0.682	Valid
	O.4	0.650	Valid
	O.5	0.750	Valid
Threat	Q.1	0.788	Valid
	Q.2	0.721	Valid
	Q.3	0.515	Valid
	Q.4	0.793	Valid
	Q.5	0.556	Valid

Source: Results of Processed Primary Data for 2022

Based on the data validity above, it can be seen that of the 20 statement items tested, all of them proved valid as indicated by the Pearson correlation value in the Corrected Item – Total Correlation column > 0.30 so that it is feasible to carry out further statistical testing.

Table 2. Reliability Test

Variable	Cronbach's Alpha	Information
Strength	0.707 > 0.60	Reliable (accepted)
Weakness	0.730 > 0.60	Reliable (accepted)
Opportunity	0.693 > 0.60	Reliable (accepted)
Threat	0.708 > 0.60	Reliable (accepted)

Source: Results of Processed Primary Data for 2022

Based on the table above, it can be seen that the magnitude of Cronbach's alpha coefficient for the power variable is 0.707, meaning that the consistency of respondents in answering questions is 70.7%, which can be trusted with a reliable status. Besides, the weakness variable. It has a Cronbach's alpha coefficient, which is generated at 0.730, meaning that the consistency of respondents in answering questions is 73%; it can be trusted with a reliable status. Trusted with a reliable status is accepted, and the threat variable has a Cronbach's alpha coefficient which is produced at 0.708 meaning that the consistency of respondents in answering questions is 70, 8% can be trusted with acceptable status. The reliability test results table shows that most of the variables in this research, namely the variables of strengths, weaknesses, opportunities, and threats, are all at acceptable status. Thus, this research can be used as a reference for similar research.

Difference Test

Test paired sample t-test (paired sample test) aims to determine whether there is a difference in the mean of two paired samples. For more detail, it can be seen in the following SPSS output results below:

1. Income

Table. 3. Paired Samples Statistics

Paired Samples Statistics					
		Means	N	std. Deviation	std. Error Means
Pair 1	Income before pandemic	292098464.2857	56	244698045.83192	32699151.81129
	Income during the pandemic	105195517.8571	56	87862534.79467	11741125.08340

Source: Results of Processed Primary Data for 2022

Based on the statistical table above, it can be explained that the mean (average) income of fishermen before the Covid-19 pandemic was Rp292,098,464.2857 and the average income of fishermen during the pandemic was Rp 105,195,517.8571. Thus, income is different before the epidemic occurs and during the Covid-19 pandemic. The number of samples (n) in this research was 56 people.

Table 4. Paired Samples Correlation

Paired Samples Correlations					
		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	Income before the pandemic & income during the pandemic	56	0.785	0.065	0.065

Source: Results of Processed Primary Data for 2022

Based on the SPSS output table, it can be seen that the correlation value obtained was 0.785, which means that the correlation relationship between fishermen's income in Humusu Wini Village, North Insana Sub-District, before and during the Covid-19 pandemic had a strong relationship.

Table 5. Paired t-Test

Paired Samples Test										
		Paired Differences					Q	df	Significance	
		Means	std. Deviation	std. Error Means	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Income before the pandemic – Income during the pandemic	186902946.42857	183933026.13797	24579084.49717	137645360.36400	236160532.49314	7,604	55	0.000	0.000

Source: Results of Processed Primary Data for 2022

Based on the results of the paired t-test above, it can be seen that the calculated t-value obtained is 7.604 with a significance level of 0.000 on both one-tailed and two-sided tests, while the t-table value obtained is at degrees of freedom n-1 (56-1= 55) is 1.673. Thus, the calculated t-value of 7.604 is greater than the t-table of 1.673 with a significance level of 0.000 less than alpha 0.05. It can be stated

that there is a difference in fishermen's income before the Covid-19 pandemic and fishermen's income during the Covid-19 pandemic in Humusu Wini Village, North Insana Sub-District, TTU Regency.

2. Cost

Table 6. Paired Samples Statistics

Paired Samples Statistics					
		Means	n	std. Deviation	std. Error Means
Pair 1	Pre-pandemic costs	226420303.5714	56	165123384.49424	22065540.40436
	Fees during the pandemic	209968946.4286	56	161827346.03211	21625088.73797

Source: Results of Processed Primary Data for 2022

Based on the statistical table, it can be explained that the mean (average) operational costs of fishermen before the Covid-19 pandemic was Rp226,420,303.5714, and the average operational costs for fishermen during the pandemic amounted to Rp209,968,946.4286. Thus, there is a difference in the operational costs of fishermen before the pandemic occurred and during the Covid-19 pandemic. The number of samples (n) in this research was 56 people.

Table 7. Paired Samples Correlation

Paired Samples Correlations					
		n	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	Costs before the pandemic & Costs during the pandemic	56	0.996	0.059	0.059

Source: Results of Processed Primary Data for 2022

Based on the SPSS output table above, it can be seen that the correlation value obtained was 0.996, which means that there is a strong relationship between the operational costs of fishermen in Humusu Wini Village, North Insana Sub-District, before and during the Covid-19 pandemic.

Table 8. Paired T-Test

		Paired Differences					Q	Df	Significance	
		Means	std. Deviation	std. Error Means	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Pre-pandemic costs-Costs during the pandemic	16451357.14286	14546272.50526	1943827.42748	12555839.92721	20346874.35851	8,463	55	0.000	0.000

Source: Results of Processed Primary Data for 2022

Based on the results of the paired t-test above, it can be seen that the calculated t-value obtained is 8.463 with a significance level of 0.000 on both one-tailed and two-sided tests, while the t-table value obtained is at degrees of freedom n-1 (56-1= 55) is 1.673. Thus, the calculated t-value of 8.463 is greater than the t-table of 1.673 with a significance level of 0.000 less than alpha 0.05. It can be stated that there is a difference between the operational costs of fishermen before the Covid-19 pandemic and the operational costs of fishermen during the Covid pandemic -19 in Humusu Wini Village, North Insana Sub-District, TTU Regency.

Strategies to Increase Fishermen's Income in Humusu Wini Village

After the identification of internal and external factors increasing fishermen's income analyzed, then it was given a weight and rating. The following table arrangement is the result of an analysis that has been carried out on fishermen that can be used in implementing strategies to increase fishermen's income in Humusu Wini Village, North Insana Sub-District, TTU Regency.

Table 9. Internal Strategy Factors (IFAS)

No	Indicator	Item Weight	Ratings	score (Item Weight X Rating)
I	Strength Factor			
1.	The fish caught by fishermen are their catches	0.129	4	0.516
2.	Capital/costs incurred are not large	0.108	3	0.324
3.	The price of fish produced by fishermen is affordable for consumers	0.110	3	0.33

4	Full service to fish traders (palpable).	0.110	3	0.33
5	Fishermen have high morale	0.113	3	0.339
	Total			1,839
II	Weakness Factor			
1.	Unstable fish prices	0.100	3	0.3
2.	The method of preserving fish is less than optimal, so it is easily damaged	0.076	2	0.152
3.	Not yet using online media but still manual	0.090	3	0.27
4	The resulting catch is so large that it damages the price of fish	0.084	2	0.168
5	Unfair competition	0.080	2	0.164
	Total			1,054
	Total Strengths + Weaknesses (1,839+1,054)			2,893

Source: Results of Processed Primary Data for 2022

Based on the table, it can be indicated that the item weight value for each indicator is obtained from the weight of each indicator divided by the value of the total IFAS weight of 28.66. The weight value is obtained from the total score of each indicator of strengths and weaknesses divided by the number of respondents. The total item weight x rating in the table above, which is worth 2.893, is obtained from the sum of the item weight x rating of strengths and weaknesses factors. These are used as a reference point for the internal conditions of fishermen in Humusu Wini Village, North Insana Sub-District, TTU Regency. The results obtained are an overview given and, at the same time, can be used to see the current position of increasing fishermen's income.

Table 10. External Strategy Factors (EFAS)

No	Indicator	Item Weight	Ratings	score (Item Weight X Rating)
I	Opportunity Factor			
1.	It has a strategic location because it is located in a coastal area and has many tourist attractions	0.120	3	0.36
2.	The lifestyle of people who use the catch to fulfill their daily needs.	0.115	3	0.345
3.	The facilities provided by the regional government are pretty adequate, and there are cost reductions in fishing	0.113	3	0.339
4	Advances in technology (sharing information on social media)	0.109	3	0.327

5	Community creativity in utilizing fishing tools as a result of Income	0.101	3	0.303
	Total			1,674
II	Threat Factor			
1.	There was a lockdown policy, so that the government issued PSBB regulations	0.104	3	0.312
2.	The number of sales competitors with the same type of fish	0.087	2	0.174
3.	There are changes in consumer lifestyles that are influenced by technology	0.093	3	0.279
4	Tough price competition	0.076	2	0.152
5	There were throwers from outside who brought fish in, thereby destroying local fish prices	0.081	2	0.162
	Total			1,079
	Total Opportunity + Threat (1,674+ 1,079)			2,753

Source: Results of Processed Primary Data for 2022

Based on the table, it can be explained that the item weight value for each indicator is obtained from the weight value for each indicator divided by the value of the total EFAS weight of 27.39. The weight value is obtained from the total score of each opportunity and threat factor indicator divided by the number of respondents. The total item weight x rating in the table above, which is worth 2.753, is obtained from the sum of the Item Weight x Rating of Opportunity and Threat factors. This total item is used as a reference point for external conditions for fishermen in Humusu Wini Village, North Insana Sub-District, TTU Regency. For the total strength score, a value of 1.839 was obtained, while a total score of 1.054 was obtained for weaknesses. This is the value obtained in the IFAS table. Whereas for the EFAS Table with the Opportunity indicator, a value of 1 is obtained.

Based on the calculation results, it can be concluded that to see how can fishermen know where their position is and be able to find the right strategy to increase income, it can be interpreted in the calculation results as below:

Strength – Weakness: $1,839 - 1.054 = 0.785$

Opportunity – Threats: $1.674 - 1.079 = 0.595$

From the results of quantitative calculations, the next step is to interpret them into Cartesian Diagrams (SWOT) to find out the position of fishermen in the North Insana Sub-District so that it can be used as a reflection in determining the appropriate strategy in the future.

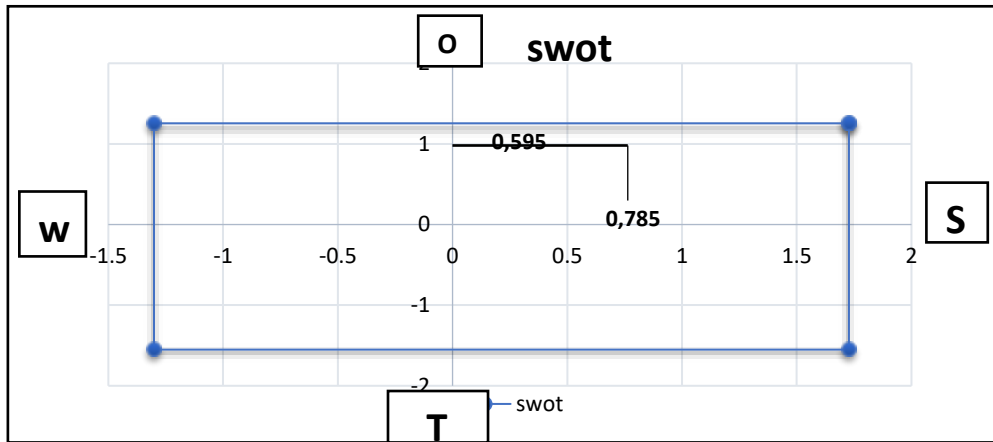


Figure 4. SWOT Analysis Results

Source: Results of Processed Primary Data for 2021

From the results of the quantitative SWOT analysis, it can be stated that the position is in Quadrant 1 (Positive-positive). This position indicates that fishermen in Humusu Wini Village, Insana Utara Sub-District, TTU Regency are in a strong and opportunity position. The recommended strategy is to support an aggressive growth policy, meaning that this strategy indicates a strong condition and can continue to develop by taking existing opportunities to achieve maximum turnover or maximum increase in income.

(4) Strong (3) Moderate (2) Weak (1)

Tall 3	(1) Growth	(2) Growth	(3) Retrenchment
Currently 2	(4) Stability	(5) Growth Position of Fishermen in North Insana District, Kab. TTU	(6) Retrenchment
Low 1	(7) Growth	(8) Growth	(9) Retrenchments

Figure 5. SWOT Analysis Matrix

Source: Results of Processed Primary Data for 2021

Based on the results of calculations and determination of fishermen's t-positions in Humusu Wini Village, Insana Utara Sub-District, the next step is to identify internal and external factors to create four main strategies, namely: SO, strategy (strengths and opportunities), WO strategy (weaknesses and opportunities), ST strategy (strength and threats) and WT strategy (weakness and threats). For more details, it can be seen in the following table:

Table 11. SWOT Matrix of Strategies to Increase Fishermen's Income

<p>IFAS</p> <p>as</p>	STRENGTH (S)	WEAKNESS (W)
	<ul style="list-style-type: none"> The fish caught by fishermen are their own catches 	<ul style="list-style-type: none"> Unstable fish prices
	<ul style="list-style-type: none"> Capital/costs incurred are not enormous. 	<ul style="list-style-type: none"> The method of preserving fish is less than optimal, so it is easily damaged.
	<ul style="list-style-type: none"> The price of fish produced by fishermen is affordable for consumers 	<ul style="list-style-type: none"> Not yet using online media but still manual
	<ul style="list-style-type: none"> Maximum service to fish traders 	<ul style="list-style-type: none"> The resulting catch is so large that it damages the price of fish.
	<ul style="list-style-type: none"> Fishermen have high morale. 	<ul style="list-style-type: none"> Unfair competition
OPPORTUNITIES (O)	SO STRATEGY	WO STRATEGY
<ul style="list-style-type: none"> It has a strategic location because it is located in a coastal area and has many tourist attractions. 	By utilizing the area, which is located on the coast and is a tourist destination area, fishermen work together with the government to be able to build a fish storage area (TPI) so that the fish obtained by fishermen can be stored so that people who visit these tourists' attractions can buy fresh fish directly.	By utilizing a strategic location and being a tourist destination, fishermen can increase their income by determining the selling price of fish that consumers or buyers can afford.
<ul style="list-style-type: none"> The lifestyle of the people who use the results of the arrest to meet their daily needs 	Fishing activities with small operational costs (capital) and large catches will increase fishermen's income, and fishermen utilize their catch to meet their daily needs.	Fishermen need to utilize suitable preservation media to maintain the quality of fish so that consumers can feel satisfied in consuming it to meet their daily needs.
<ul style="list-style-type: none"> The facilities the regional government provides are pretty adequate, and there are cost reductions in fishing. 	By utilizing the facilities provided by the government to increase fishing yields and determine the selling price of fish that all consumers can reach	By utilizing the provision of supporting facilities at sea to increase catches, fishermen can utilize social media to expand the marketing network, which in the end is able to increase income for the fishermen themselves.
<ul style="list-style-type: none"> Advances in technology (sharing information on social media) 	By utilizing social media to expand the market and continue to maintain a network of cooperation between fishermen and traders (palpable) so that sustainable cooperation is created	With technological advances such as social media, fishermen need to use it to expand marketing so that the catch can be sold out
<ul style="list-style-type: none"> Community creativity in utilizing fishing tools as a result of income 	By having high work enthusiasm and creativity in going to sea in order to increase fishermen's income optimally during the pandemic	With the creativity of the community and fishermen in fishing and having the right strategy in determining the

THREATS (T)	STRATEGY ST	WT STRATEGY
<ul style="list-style-type: none"> There was a lockdown policy, so that the government issued PSBB regulations. 	Even though there is a PSBB policy in limiting community activities, fishermen need to continue to catch fish to fulfill their daily needs and be able to fish in the Kab. TTU and other areas	Even though the government issues a PSBB policy, fishermen continue to catch fish to increase income by setting the right selling price that can be reached by all consumers.
<ul style="list-style-type: none"> The number of sales competitors with the same type of fish 	By using small capital to carry out fishing activities and carrying out the intense competition with attention to fish quality, it will increase fishermen's income	With many competitors selling the same fish, it is one of the motivations for fishermen to be the best by continuing to do good preservation of the fish they catch so that the quality of the fish is maintained.
<ul style="list-style-type: none"> There are changes in consumer lifestyles that are influenced by technology 	The existence of a selling price of fish that all consumers can reach will improve people's lifestyles to consume fish caught	Fishermen need to utilize social media in marketing so they can expand the market
<ul style="list-style-type: none"> Intense price competition 	Fishermen continue to provide full service to traders (apple) to maintain a good and sustainable cooperative relationship.	With many fish catches, there will be intense competition between fishermen to market their catch.
<ul style="list-style-type: none"> There were throwers from outside who brought fish in, thereby destroying local fish prices. 	The existence of high work enthusiasm from fishermen will increase the catch and income of fishermen even though there are fish from other areas that enter Wini.	There needs to be an appropriate pricing policy to avoid price wars between fishermen.

Source: Processed Primary Data for 2021

CONCLUSION

As a result of the research and discussion discussed above, the conclusions can be drawn as follows:

1. The results of the t-test show that there is a difference in the income of fishermen before and during the Covid-19 pandemic in Humusu Wini Village, North Insana Sub-District, TTU Regency. This happens because of the government policy to limit community activities (PSBB), leading to decreased consumer interest in fish catches.
2. Based on the results of the t-test, shows that there are differences in the operational costs of fishermen before and during the Covid-19 pandemic in Humusu Wini Village, North Insana District, TTU Regency. This occurs because demand for fish catches decreases during the pandemic, causing fishermen to also limit fishing activities, and reduce the operational costs of fishermen in Humusu Wini Village, North Insana Sub-District, TTU Regency.
3. From the results of data analysis of internal factors, a value of 2.893 was obtained from the total assessment of the strengths and weaknesses of fishermen in Humusu Wini Village, North Insana Sub-District, TTU Regency. The value of 2.893 means that the value is classified as high with a Likert scale assessment. The highest strength indicator value is found in the point "The fish obtained by

fishermen are self-caught", with a weight of 3.70 and the item weight of 0.129. This shows that the fish caught in Humusu Wini Village, North Insana Sub-District, is the result of their catch. Meanwhile, the highest weakness indicator value is in the point "unstable fish prices", with a weight of 2.86 and the item weight of 0.100.

4. Based on the results of data analysis, the value of external factors of 2.753 was obtained from the total assessment of opportunities and threats for fishermen in Humusu Wini Village, North Insana Sub-District, TTU Regency. This value means that the value is classified as high with a Likert scale assessment. The highest opportunity indicator value can be found in the point "has a strategic place because it is on the coast and has many tourist attractions," with a weight of 3.29 and the item weight of 0.120. This shows that Wini is a strategic coastal location and has a lot of tourism potential. Furthermore, the highest threat indicator value is at the point "there is a lockdown policy so that the government issues PSBB regulations," with a weight of 2.86 and the item weight of 0.104.

5. The results of data analysis regarding the position of fishermen in North Insana Sub-District using Diagram analysis and SWOT Matrix show that fishermen in Humusu Wini Village, North Insana Sub-District are in a stable growth phase, with an internal factor value of 2.893 and an external factor value of 2.753. The appropriate development strategy for fishermen in North Insana Sub-District to increase income is the SO (Strength and Opportunities) Strategy. This position shows that fishermen in Humusu Wini Village, North Insana Sub-District are in a strong condition and have opportunities, so it is possible to develop continuously, increase growth and achieve maximum progress.

REFERENCE

- Andreas D. Patria, et al. 2014. Transaction Fees for Small-Scale Fisheries Businesses in Cilacap Regency.
- A. Rahim, et al. 2018. The Influence of Old Outboard Marines and Characteristics of Respondents on Traditional Fishing Fishermen's Income in Takalar Regency.
- Asep Hamzah, et al. 2021. Fishermen's Adaptation Strategies During the Covid-19 Pandemic at Fishing Ports in the Karangantu Archipelago.
- Bambang Argo, et al. 2018. Income Level of Gill Net Fishermen at the Morodemak Beach Fishing Port.
- Diah Handayani, et al. 2020. Respiriology, Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, University of Indonesia, Jakarta Hospital.
- Department of Fisheries and Maritime Affairs. 2021. Number of Marine Fisheries Fishermen by Employment Status and Catch in North Insana District, North Central Timor Regency.
- Department of Fisheries and Maritime Affairs. 2021. Capture Fisheries Production in North Central Timor District 2016-2020.
- Jendris I. R Mohu, et al. 2016. Financial Analysis of Hand Line Fishing Business on Dudepo Island, Anggrek District, North Gorontalo Regency.
- Maria Yanti Akoit, et al, 2018. Sustainable Fisheries Resource Management in North Central Timor District Based on a Bioeconomic Approach.

- Mariam Ulfa. 2017. Perceptions of Fishermen Communities in Facing Climate Change (Viewed in Socio-Economic Aspects). Faculty of Social and Political Sciences, Airlangga University.
- Mery Nova Sari, et al. 2020. The Impact of the Corona Virus (Covid-19) on the Marine and Fisheries Sector.
- Muhammad Natsir Kholis, et al. 2020. Prediction of the Impact of Covid-19 on the Income of Gill Net Fishermen in Bengkulu City.
- Ningrum. 2017. The Effect of Using Problem Solving-Based Methods on Economic Learning Outcomes of Class X Students in Even Semester Man Metro.
- Onesimus Dhyas Dwi Atmajaya, et al. 2021. Strategy for Developing Fishery Business at the Coastal Fishing Port in Pondok Dadap Sandang Biru Malang After the Covid-19 Pandemic.
- Put Andiny. 2017. Analysis of Income Profitability and Marketing Strategy of Captured Grouper (*Ephinephelus Tauvina*) in Serdang Bedagai Regency.
- Rofinus A. Suri, et al. 2017. Income Analysis of Outboard Motor Boat and Lempara Motor Boat, Fishermen in Humusu C Village, North Insane District.
- Samedi. 2015. The Strategic Effects of Student Team Heroic Leadership Learning on the Creativity of Learning Mathematics in SMP Negeri 29 Medan students.
- Siska Salatan, et al. 2018. Empowerment Strategy for the Soma Pajeko Fishermen Community in the Lilinabu District, Talaud Archipelago Regency, North Sulawesi.
- Sofyan R. Indara, et al. 2017. Factors Influencing Fisherman's Income in Bongo Village, Batudas Pantai District, Gorontalo Regency.
- Sheila Almaida, et al. 2015. Comparative Analysis of Fishermen's Income in Betahwalang Village with Different Time Patterns of Catching.
- Shinta Septinana. 2018. Beach Socio-Cultural System for Livelihoods of Fishermen and Fish Processors in Panggung Village, East Tegal District, Tegal City.
- Teguh Lestariono et al. 2013. Differences in Income Levels of Fishermen and Levels of Financial Feasibility of Captured Payang and Cantrang Fisheries Businesses at the Pantai Tawang Fishing Port, Kendal Regency.
- Law of the Republic of Indonesia Number 31. 2014. Concerning Fisheries.