

Original Research Article

Perception And Compliance of Houseboat Fisherman Community in Lake Tempe in Utilizing Fishery Resources

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ABSTRACT

The Tempe Lake plays a crucial role in the livelihoods of the community, serving as a source of sustenance. The fisherman community of the floating house around Lake Tempe possesses distinct traditions and local wisdom in the utilization of fishery resources within the lake. This research aims to analyse the perceptions and compliance of the community regarding the utilization of fishery resources in Lake Tempe. The research is situated in the village of Pallimae, a community whose fishermen inhabit floating houses of Lake Tempe. Perceptions are assessed based on the understanding of the presence and utilization of fishery resources in Lake Tempe. Community compliance is evaluated in the management of freshwater fishery resources grounded in local wisdom values. Perceptions and compliance data were gathered through questionnaires and processed using regression analysis. The results of the perception and compliance tests indicate that the floating house fisherman community in Lake Tempe adheres to local wisdom values related to fisheries resource management, encompassing (1) Conceptual levels, including prohibitions against damaging the lake's ecosystem; (2) Value-based behaviours, such as prohibitions against littering in the lake and refraining from using coarse language and arrogance; and (3) Cultural and customary practices, including the traditional Maccera tappareng ceremony.

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1. INTRODUCTION

A lake constitutes an aquatic ecosystem that provides a multitude of ecosystem services. The environmental services of the lake ecosystem encompass the provision of water resources, natural resources, as well as various socio-cultural functions (Mardiatno et al, 2021). Administratively, Lake Tempe is located in the South Sulawesi Province, spanning three districts, namely Wajo, Soppeng, and Sidrap. The lake plays a vital role in human life, serving multiple sectors, including tidal agricultural cultivation, tourism, a source of irrigation water, meeting domestic needs of the communities around the lake, and fisheries. Fishing activities in Lake Tempe occur across its entire water area and persist throughout the year.

The surface area of Lake Tempe has experienced a remarkably drastic decline, with an average reduction of 1.48 km² per year, posing a significant threat to the existence of fishery resources and impacting the livelihoods of traditional fishermen in the vicinity. Ecosystem issues in Lake Tempe include sedimentation resulting from the exploitation of the Walanae and Bila watershed areas through deforestation along the upstream rivers, limited lake water volume, deterioration of water quality, and the consequential loss of several fauna species, particularly certain bird and fish species.

The utilization of fishery resources in the waters of Lake Tempe through current fishing activities has become increasingly unmanageable, as the quantity of captured fish is no longer in equilibrium with their regenerative capacity. The annual decline in the fisheries production of Lake Tempe is attributed to ongoing degradation. This degradation is a consequence of excessive exploitation and utilization practices (Lampert, 2019).

Fishing activities characterized by high levels of exploitation and insufficient consideration for sustainability aspects can exert significant pressure on the sustainability of fisheries resources. If not effectively managed, such substantial pressure can lead to a decline in the population of fisheries resources within the lake. The utilization of fisheries resources in the area has undergone changes due to some fishermen not adhering to fishing regulations, such as using environmentally unfriendly tools and the deteriorating water quality caused by pollution. The decrease in water quality is a result of insufficient knowledge and awareness regarding the poorly managed impact of fisheries resources, leading to a lack of public awareness about appropriate resource management practices (Sing et al, 2021; Astina et al, 2020).

The communities residing around the lake possess the right to manage the lake, a concept known as 'hak ongko.' Hak ongko involves the entitlement to monopolize fish capture in specific sections of the lake, rivers, and swamps, with the stipulation not to catch or exploit fish in agreed-upon areas. The management of capture fisheries encompasses various activities aimed at optimizing and sustaining fisheries resources. Through the management of capture fisheries, the well-being of the community is expected to improve; therefore, it is essential to conduct an inventory of the desires, expectations, and preferences of the community. Key considerations to achieve optimal and sustainable utilization include Habitat Management, Fish Population Management, and Capture Management (Kustanti, 2020).

The fishing practices developed in a water body should be based on knowledge about the fish population, including population structure, dynamics, stock abundance, biomass, and the achievable maximum sustainable yield. The applied fishing techniques should be grounded in appropriate technology, characterized by simplicity, ease of application, high productivity, and environmentally non-destructive characteristics to fisheries resources. The use of fishing gear that depletes fish stocks, such as purse seines, should be prohibited, as they are not only non-selective but also have the potential to damage the habitat of aquatic biota.

The assessment of the community's perceptions and compliance regarding the utilization of Lake Tempe fisheries is crucial. Perception is defined as the entire process of selecting, organizing, and interpreting input information, sensations received through sight, feelings, hearing, smelling, and touching to generate meaning (Hasanah, 2022). Perception involves the process of gathering information about the world through the senses we possess. In this study, community perception is measured based on knowledge, utilization, and the fisheries resources of Lake Tempe. The objective of this research is to analyze the correlation or relationship between the community's perceptions and compliance regarding the utilization of Lake Tempe resources.

2. METHODS

The research was conducted in Pallimae Village, Sabbangparu District, Wajo Regency, with the focus of the observation area being the Lake Tempe fishermen's Floating House. The research location is a residential and residential area directly above the waters of Lake Tempe which was chosen based on the socio-cultural activities of the community related to the use of fish resources. The research variable is the use of fish resources in the lake. Data was collected using questionnaires and interviews. Qualitative data is converted into quantitative using scoring. Then, it is processed using the Multiple Regression test with the EvIEWS method. The sample for this research was 37 respondents who were determined based on the nature of the analysis of this research to test the relationship or.

The research stage contains data collection steps through stages such as: The preparation stage begins with collecting data originating from various agencies and library sources (Nely et al, 2020). This was followed by creating a questionnaire to find out the results of community perception and obedience and conducting interviews with community agencies related to the research topic. This preparation stage is carried out to find out the information and data needed during the research; Implementation Stages (Inventory), the implementation stage begins with field observations to determine existing conditions in the field; Analysis and Synthesis Stages, the analysis stages are related to processing data, interview results, questionnaire results, and the results of field observation activities. The results of respondents' answers to the questionnaire were processed using the EvIEWS method (Yusfiandayani et al, 2023).

One of the important characteristics of the lives and livelihoods of the people around Lake Tempe is that they are very dependent on the natural environment, especially the resources of Lake Tempe. This condition leads to people's attitudes and beliefs that reflect respect and appreciation for nature, such as local traditions that are still adhered to today. Interviews with traditional leaders revealed that the communities around Lake Tempe have religious systems and practices, including (customary rituals, taboos and prohibitions on the use of Lake Tempe resources), knowledge and technical systems. knowledge about natural phenomena, knowledge about marine biota, traditional fishing techniques), and organizational and institutional systems related to the use of aquatic resources.

This research is a descriptive research with research data collection (sample) using the survey method. Data collection or data obtained consists of primary data and secondary data. Primary data in this research is based on the results of filling out questionnaires, interviews and observations of fishermen in the waters of Lake Tempe to determine fishermen's perceptions of lake resource management.

Secondary data in this research was obtained through documentation findings related to research in the waters of Lake Tempe. Sampling for key informants was determined deliberately (purposive sampling), namely a method for selecting informants using "certain reasons" that have been taken into account. It is hoped that this research method will obtain informants who can provide relevant

information in the field. This type of sampling is very suitable for qualitative research, or research that does not carry out generalizations. The types of key informants who are considered suitable to provide information regarding the local wisdom of the Bugis indigenous community in managing freshwater fish resources are traditional leaders, district government (BLHD and Maritime Affairs and Fisheries Service). Determining informants is based on the assumption that all stakeholders (community and local government) have a direct relationship related to local community wisdom in managing freshwater fish resources in Lake Tempe.

3. RESULTS AND DISCUSSIONS

Perception can be used as a basis for establishing a policy or action that is seen through observation, experience and knowledge. This was studied to approach fishermen and obtain information regarding resource management problems in Lake Tempe. Communities who live around Lake Tempe and have direct contact with lake resources have an important role in the sustainability of lake resource management. To understand the concept of sustainable lake resource management, we need to understand how local communities view the existence and benefits of Lake Tempe, and how they comply with the rules and regulations in managing lake resources such as local norms and wisdom. Based on the analysis of questionnaire data and the results of the author's observations in the field, regarding community perceptions and discipline in utilizing fish resources in Lake Tempe based on local knowledge of the community, it can be seen in the recapitulation of respondents' answers which can be seen below.

3.1. Normality test

Bera value is 0.619692 with a probability of 0.733560 > 0.05, which means the residuals are normally distributed, or the normality assumption is met Multicollinearity test.

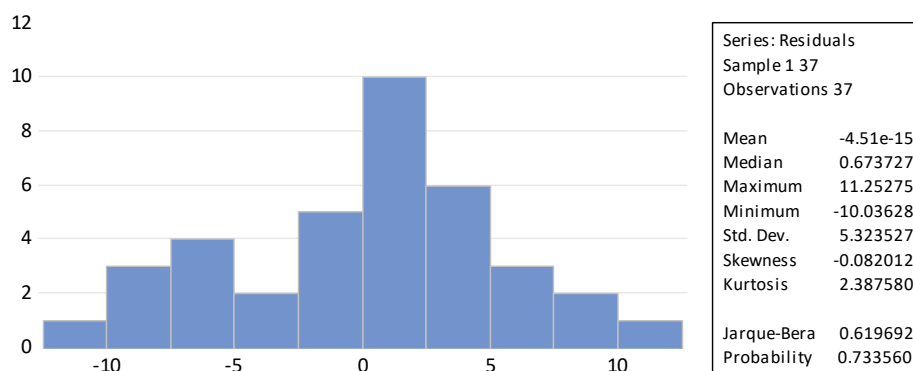


Figure 1. Normality Test Value DiagramThe Jarque-

3.2. Multicollinearity Test

Table 1. Multicollinearity Test Results for Perceptions and Compliance with the Utilization of Fishery Resources.

No.	Variabel	Nilai VIF
1.	Perseption (X1)	1.232823
2.	Compliance (X2)	1.232823

Based on Table 1, it shows that the Perception variable (X1) and the Obedience variable (X2) do not have data multicollinearity, because the resulting VIF value is less than 10.

3.3. Heteroscedasticity test

Table 2. Heteroscedasticity Test Results of Perception and Compliance with Fish Resource Utilization.

<i>Heteroskedasticity Test: Breusch-Pagan-Godfrey</i>			
F-statistic	0,270676	Prob. F	0,7646
Obs*R-Squared	0,615525	Prob. Chi-Square	0,7351

Table 2 indicates that the Prob. Chi-Squared value at Obs*RSquared is 0.7351, which is greater than the alpha level of 0.05. This implies that the regression model is homoscedastic, and it can be concluded that the data for each independent variable in the model exhibit homogeneous variance.

3.4. Statistic test

Hypothesis testing for perceptions and compliance regarding the utilization of fishery resources employs multiple linear regression analysis with T-test and F-test. The confidence level utilized in this research is 95% ($\alpha = 5\%$).

Table 3. Statistic Test Results

Variabel	Koefisien	Prob.
C	48.66111	0,0000
Perception (X ₁)	0.003332	0,9826
Compliance (X ₂)	-0.103810	0,5360
R-squared	0,013568	
Adjusted R-squared	-0,044458	
F-Statistik	0,233821	
Prob (F-Statistik)	0,792766	

Note:** = Confidence Level 95%

3.4.1. F-Test

To determine the simultaneous influence on the dependent variable, a simultaneous test, either F-test or coefficient test, is conducted. Table 3 indicates that the calculated F-value is 0.233821 with a probability value $> \alpha = 5\%$, which is 0.792766. Therefore, it can be concluded that Perception and Compliance, together, do not have a significant impact on the utilization of fishery resources.

3.4.2. T-Test

The t-test is employed to determine the influence of each independent variable on the dependent variable. Table 3 indicates that the regression model can be expressed in the following equation.

$$Y = 48,66111 + 0,003332 X_1 - 0,103810 X_2$$

From the two variables utilized, it can be observed that the probability values are greater than $\alpha = 5\%$. Thus, on a partial basis, there is no significant influence between the variables.

From the test results above, the perception and obedience of the floating house fishing community is not significant regarding the management of Lake Tempe's fish resources. The level of knowledge,

understanding and awareness of the community regarding the function and importance of maintaining the existence of the lake is due to the high level of community dependence on the lake related to their livelihood as fishermen, the economic function and the function of Lake Tempe as a reservoir for water from several rivers as well as a habitat for various kinds of flora and fauna as well. physical and ecological functions (Hamka et al, 2019).

Most of the fishermen in Lake Tempe still use fishing gear that is not environmentally friendly and do not know the fish spawning season (mating) and continue to fish even though the fish are in mature gonads (ready to mate) or spawning season. People do not know that fishing during the spawning season has an impact on fish losing the opportunity to reproduce, so that if fishing is carried out continuously without any regulations and limits on the time and amount of fishing, it will have an impact on reducing the number of fish populations and can even cause extinction.

Lake conditions due to sedimentation affect fish production in the lake. Apart from that, the main activity carried out by the community at Lake Tempe is fishing which is less environmentally friendly and can threaten the availability of fish stocks and resources. The types of fishing gear used in Lake Tempe are Lanra (ordinary type), Lanra gattung, Timpo, Bubu pattopo, Bubu konde, Julu (on tributaries), Julu (large river), Pa'dari, Bungka toddo, Penambe, Jala, Capiang.

There is no organizational or institutional system specifically involved in handling the management and utilization of freshwater fish resources in Lake Tempe. Organizations and institutions at the village level are only village instruments that tend to be complementary. Community obedience in the use and management of Lake Tempe's fish resources. The traditional methods used by fishing communities are faced with modern methods, such as the use of fishing gear that is not environmentally friendly, and the use of dangerous substances such as poisons are starting to affect the living systems of the people around Lake Tempe. The rapid development of technology and science causes culture to change rapidly. Modern technology, whether people realize it or not, actually creates new desires and hopes and provides ways that make it possible to increase human welfare (Chusna et al, 2019).

Fishing business patterns developed in waters must be based on knowledge about fish populations such as population formation, population dynamics, stock abundance and biomass, and maximum sustainable production that can be achieved. The fishing techniques applied must be based on appropriate technology, namely technology that is simple, easy to apply, has high productivity but does not damage fisheries resources. The use of fishing gear that depletes fish stocks such as trawls must be prohibited because apart from unselective fishing, it can also damage the habitat of bottom water biota (Ningsih et al, 2017).

One of the important characteristics of the lives and livelihoods of the people around Lake Tempe is that they are very dependent on the natural environment, especially the resources of Lake Tempe. This condition leads to people's attitudes and beliefs that reflect respect and appreciation for nature, such as local wisdom which is still adhered to today. Interviews with traditional leaders revealed that the communities around Lake Tempe have religious systems and practices, including (customary rituals, taboos and prohibitions on the use of Lake Tempe resources), knowledge and technical systems. knowledge about natural phenomena, knowledge about aquatic biota, traditional fishing techniques), and organizational and institutional systems related to the use of aquatic resources (Ningsih et al, 2017).

The low level of community perception and compliance with the rules, norms or local wisdom values set by traditional leaders influences community behavior in the use and management of Lake Tempe resources. The traditional methods of fishing villages are being compared with modern methods such as the use of fishing gear that is not environmentally friendly, and the use of dangerous substances such as poisons is starting to affect the livelihood systems of the people around Lake Tempe. The rapid development of technology and science causes rapid cultural changes. In an advanced or culturally complex society, change usually arises through a process of discovery, reinvention and diffusion (the

spread of cultural elements). Modern technology provides a way to truly create new desires and hopes and enable improvements in human well-being, whether consciously influenced by society or not.

4. CONCLUSION

The conclusion of this research is that the perception and discipline of the floating house fishing community has no real influence on the utilization of Lake Tempe's fish resources. Community perception about the existence of local knowledge in managing fish resources has no influence and the obedience of floating house fishermen to following customary rules and local wisdom values. Indigenous communities around Lake Tempe have local wisdom which is still maintained and can support the management and utilization of fish resources in Lake Tempe. These local wisdom values are in the form of levels of ideas, including the prohibition on using fishing gear that can damage the lake ecosystem as well as customary culture including the traditional ceremonies of Maccera tappareng, Magendrang, Mappadendang and Maccera kampong. Community knowledge and perception regarding the existence of local wisdom values in managing fish resources in Lake Tempe is quite low, as well as low compliance in following customary rules and local wisdom values in managing lake resources.

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