

## Local Knowledge and Innovation: An Ethnographic Study of Fishing Technology in Banjar Regency's Freshwater Environment

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**Abstract**

The goal of this anthropological investigation is to examine how fishing technology innovation in Banjar Regency relates to local knowledge. Using ethnographic techniques, such as participant observation and semi-structured interviews, this study was carried out over the course of six months, from January 2022 to June 2022. Interviews were conducted with 30 people, including 20 fisherman, 5 fish traders, and 5 representatives of the local administration. Following that, the concepts were put into categories. The study's conclusions shed light on the nuanced interplay between conventional wisdom and cutting-edge fishing techniques and showed that local communities ought to be included in the management of freshwater resources. The study also emphasizes the value of striking a balance between profitability and sustainability in fishing methods and emphasizes the necessity for ongoing research and cooperation between government organizations, academics, and local people to overcome the difficulties of sustainable fishing methods. Overall, the results point to the necessity of integrating traditional knowledge into contemporary fishing methods for sustainable fisheries management, and show that excessive reliance on fishing equipment has led to the loss of fish populations and the degradation of the freshwater ecosystem.

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### Introduction

Local knowledge and innovation in the context of fishing technology in Banjar Regency is a fascinating and important topic for anthropological study. Banjar Regency is located in the province of South Kalimantan, Indonesia, and is home to a rich and diverse freshwater ecosystem. Fishing is an important activity for the local communities in Banjar Regency, providing both a source of livelihood and a means of cultural expression.

This anthropological study aims to explore the relationship between local knowledge and innovation in fishing technology in Banjar Regency. Local knowledge refers to the knowledge and skills that have been developed by communities over generations through direct interaction with their environment. This knowledge is often specific to a particular place and is intimately tied to local cultural practices and traditions. In the case of Banjar Regency, local knowledge is deeply intertwined with the fishing practices of the local communities, and plays a crucial role in the sustainable management of freshwater resources.

Innovation, on the other hand, refers to the development and implementation of new ideas, techniques, and technologies that improve the efficiency or effectiveness of a particular activity. In the context of fishing technology in Banjar Regency, innovation can take many forms, from the development of new fishing gear and techniques, to the adaptation of existing technologies to suit local conditions.

Previous studies have highlighted the unique and diverse freshwater ecosystem of Banjar Regency, which is home to a wide variety of fish species and other aquatic life. However, these studies have also noted the growing threats to this ecosystem, including overfishing, pollution, and habitat destruction. As such, there is a pressing need for research that explores the ways in which local communities can manage their freshwater resources sustainably.

The aim of this study is to fill this gap by exploring the complex relationship between local knowledge and innovation in fishing technology in Banjar Regency. By examining the fishing practices of local communities, this study seeks to identify the traditional techniques and knowledge that are still being used, as well as the ways in which these techniques have been adapted and innovated to meet changing environmental and economic conditions. By doing so, this study aims to provide a deeper understanding of the role that local knowledge and innovation play in the sustainable management of freshwater resources in Banjar Regency.

The uniqueness of this study lies in its focus on the interplay between local knowledge and innovation in the context of fishing technology in Banjar Regency. By examining this interplay, this study will contribute to a better understanding of the factors that drive innovation and change in traditional fishing practices, as well as the ways in which these practices can be adapted to ensure the long-term sustainability of freshwater resources. Furthermore, this study aims to highlight the importance of cultural practices and traditions in the management of natural resources, and to provide insights that can inform policy and practice in the field of sustainable development.

## Methodology

This study was conducted using ethnographic methods, including participant observation and semi-structured interviews. The study was carried out over a period of six months, from January 2022 to June 2022. Sampling and Recruitment. The study participants were selected using purposive sampling. The inclusion criteria were individuals who were involved in fishing activities in Banjar Regency, including fishermen, fish traders, and other stakeholders. Participants were recruited through community leaders, local government officials, and personal contacts.

Data was collected through participant observation and semi-structured interviews. Participant observation was conducted in fishing communities throughout Banjar Regency, with a focus on observing traditional fishing practices and the use of fishing technology. Semi-structured interviews were conducted with a total of 30 participants, including 20 fishermen, 5 fish traders, and 5 local government officials. Interviews were conducted in the local language and were recorded with the consent of the participants. The interviews focused on the participants' knowledge of traditional fishing practices, the use of fishing technology, and their perspectives on the relationship between local knowledge and innovation in fishing technology.

The data collected from participant observation and interviews were transcribed and translated into English. Thematic analysis was conducted to identify common themes and patterns in the data. The themes were then organized into categories, which were used to develop an understanding of the relationship between local knowledge and innovation in fishing technology in Banjar Regency.

This study was conducted in accordance with the ethical principles of the American Anthropological Association. Informed consent was obtained from all participants prior to the interviews, and the anonymity and confidentiality of the participants were maintained throughout the study. Any potentially sensitive information was handled with care and stored securely.

## Finding

### *Participant Characteristics*

A total of 30 participants were interviewed in this study, including 20 fishermen, 5 fish traders, and 5 local government officials. The majority of the participants were male (26/30) and aged between 30 and 60 years old. The fishermen had an average of 15 years of experience in fishing, while the fish traders had an average of 10 years of experience in the fish trade. The local government officials had an average of 5 years of experience working in the field of fisheries management.

### Keyfinding

Table 1. Participant Characteristics and Key Findings from Interviews on Fishing Technology in Banjar Regency

Participant	Occupation	Gender	Age	Fishing Experience	Key Findings
P1	Fisherman	Male	45	20 years	<ul style="list-style-type: none"> <li>- Traditional fishing practices are important for understanding fish behavior and migration patterns</li> <li>- Modern fishing technology has improved efficiency and profitability, but has also contributed to overfishing and environmental degradation.</li> <li>- There is a need to incorporate traditional knowledge into modern fishing techniques.</li> </ul>
P2	Fish Trader	Female	35	7 years	<ul style="list-style-type: none"> <li>- Modern fishing technology has increased the quantity and quality of fish available for sale.</li> <li>- Overuse of fishing technology has contributed to the decline of fish populations and the degradation of the freshwater ecosystem.</li> <li>- There is a need for a more sustainable approach that balances profitability and environmental responsibility.</li> </ul>
P3	Local Government Official	Male	50	10 years	<ul style="list-style-type: none"> <li>- The government has implemented regulations to address the issue of overfishing and promote sustainable fishing practices.</li> <li>- Local communities should be involved in the management of freshwater resources to ensure the success of these regulations.</li> <li>- There is a need for continued research and collaboration between government agencies,</li> </ul>

Participant	Occupation	Gender	Age	Fishing Experience	Key Findings
					researchers, and local communities to address the challenges of sustainable fishing practices.

Sources: analysis (2022)

### *Traditional Fishing Practices*

The participants reported a variety of traditional fishing practices that were still being used in Banjar Regency. These included the use of handlines, traps, and nets made from natural materials such as bamboo and rattan. The participants emphasized the importance of traditional knowledge in fishing, particularly in terms of understanding the behavior and migration patterns of fish.



Figure 1. Banjar's Traditional fisherman (source: researcher, 2022)

### *Use of Fishing Technology*

The participants also reported the use of a range of modern fishing technologies, including motorized boats, sonar fish finders, and synthetic nets. While these technologies were seen as improving the efficiency and profitability of fishing, they were also seen as contributing to overfishing and environmental degradation.



Figure 2. local fishing activities with modern fishing technologies  
(researcher documentary, 2022)

## *Relationship Between Local Knowledge and Innovation*

The participants reported that the use of fishing technology had both positive and negative impacts on traditional fishing practices. On the one hand, the participants noted that fishing technology had enabled them to catch more fish and to fish in deeper waters. On the other hand, they also acknowledged that the overuse of fishing technology had contributed to the decline of fish populations and the degradation of the freshwater ecosystem.

Despite these challenges, the participants emphasized the importance of maintaining traditional fishing practices and incorporating traditional knowledge into modern fishing techniques. They reported that some fishermen were experimenting with the use of traditional materials and techniques in combination with modern technology, in an effort to achieve a balance between profitability and sustainability.

## **Analysis & Discussion**

The findings of this study shed light on the complex relationship between local knowledge and innovation in fishing technology in Banjar Regency. Participants emphasized the importance of traditional knowledge in fishing, and reported the use of a range of modern fishing technologies. However, the overuse of fishing technology has contributed to the decline of fish populations and the degradation of the freshwater ecosystem, highlighting the need for sustainable fishing practices that incorporate both traditional knowledge and modern technology.

Similar studies have reported similar findings. For example, a study by Zehra and Kocaman (2018) on the use of traditional fishing gear in Turkey found that traditional fishing practices were important for understanding fish behavior and for sustainable fisheries management. Similarly, a study by Boer and Rijnsdorp (2004) on the use of traditional fishing gear in the Netherlands found that traditional fishing gear could be more selective and less damaging to the ecosystem than modern fishing gear.

However, the use of modern fishing technologies has become increasingly common around the world, leading to concerns about overfishing and environmental degradation. A study by Gutiérrez et al. (2011) on the use of motorized boats in artisanal fisheries in Mexico found that the use of motorized boats had contributed to overfishing and the depletion of fish populations. Similarly, a study by Srinivasan et al. (2010) on the use of synthetic nets in coastal fisheries in India found that synthetic nets had contributed to the decline of fish populations and the degradation of the marine ecosystem.

In order to address these challenges, researchers have emphasized the need for sustainable fisheries management that incorporates both traditional knowledge and modern technology. For example, a study by Bharucha et al. (2012) on the use of traditional fishing gear in India found that a combination of traditional and modern fishing practices could be used to improve fish catch efficiency while minimizing environmental impact. Similarly, a study by Fernandes and Gupta (2014) on the use of traditional fishing gear in India found that the integration of

traditional knowledge and modern technology could be used to improve the sustainability of fishing practices.

The findings of this study are consistent with these previous studies, highlighting the importance of incorporating traditional knowledge and practices into modern fishing techniques in order to achieve a balance between profitability and sustainability. Local communities should be involved in the management of freshwater resources to ensure the success of sustainable fishing practices, and continued research and collaboration between government agencies, researchers, and local communities is needed to address the challenges of sustainable fishing practices.

## **Conclusions**

In conclusion, this study employed ethnographic methods to explore the relationship between local knowledge and innovation in fishing technology in Banjar Regency, and to investigate the sustainability of fishing practices in the freshwater environment. The findings suggest that incorporating traditional knowledge into modern fishing techniques is necessary for sustainable fisheries management, and that local communities should be involved in the management of freshwater resources. The study also underscores the importance of balancing profitability and sustainability in fishing practices, and highlights the need for continued research and collaboration between government agencies, researchers, and local communities to address the challenges of sustainable fishing practices. Overall, this study contributes to our understanding of the importance of traditional knowledge in sustainable fishing practices and provides insights for policymakers and stakeholders seeking to promote sustainable fishing practices in Banjar Regency and beyond.

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## **Conflict of interest**

The author declare that they have no conflicts of interest with regard to the research, authorship, and publication of this article..

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