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Analysis of Unloading Time for Fish Catches at the Kasiwa Mamuju Fish Landing Base, West Sulawesi

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ABSTRACT

Kasiwa Fish Landing Base (PPI) in Mamuju, West Sulawesi, is a center of fisheries activity that plays an important role in supporting the capture fisheries sector. This research aims to analyze the efficiency of unloading fish catches and the factors that influence it. The method used in this research was purposive sampling, with respondents consisting of active fishermen and port management staff. The aim of this research is to evaluate the duration of the catch unloading process at the Kasiwa Fish Landing Base (PPI) located in Mamuju, West Sulawesi. As the fishing industry advances, the importance of efficiency in unloading procedures becomes increasingly significant to boost productivity and reduce losses. This research uses an observational method with measurements of demolition time carried out over a certain period of time, as well as quantitative data analysis to identify factors that influence the duration of demolition. This includes the type of fish, volume of catch, and weather conditions at the time of unloading. The results show that the time required for disassembly ranges from 30 to 120 minutes, depending on the variables involved. It is hoped that these findings can provide suggestions for fisheries industry players to improve operational efficiency at PPI Kasiwa and become a reference for further research in the field of fisheries and marine product processing.

INTRODUCTION

The fisheries sector in Indonesia plays an important role in supporting the national economy and improving the welfare of coastal communities (Cristy *et al*., 2025). Including in the West Sulawesi region. One of the crucial points for catching and distributing marine products is the Kasiwa Fish Landing Base (PPI) located in Mamuju. The success of this sector is

largely determined by efficiency at various operational stages, especially during the process of unloading the catch (Ardiansyah, 2022).

Effectiveness and efficiency in unloading time greatly influences not only the quality of the fish but also has an impact on the income of fishermen and other business actors (Amar & Nugraha, 2024). Research reveals that the duration required for unloading can vary, depending on the type of fish, number of catches, and environmental and weather conditions during the process (Praja *et al*., 2024). Therefore, it is important to understand the factors that influence demolition times at PPI Kasiwa.

The fisheries sector plays a crucial role in the Indonesian economy, especially in coastal areas such as West Sulawesi. The Kasiwa Fish Landing Base (PPI) located in Mamuju functions as one of the main centers for fishing and processing marine product activities which is very important for the local community (Hamjan *et al*., 2025).Efficiency in the process of loading and unloading fish catches can have a direct impact on the quality and sustainability of the fishing industry. If the disassembly time is not managed well, this could result in financial losses and a decrease in product quality (Firdaus & Buono, 2024).

Apart from that, the fisheries sector faces various problems, such as a decrease in the quality of the catch caused by inappropriate handling and price fluctuations in the market (Purba *et al*., 2024). Therefore, PPI Kasiwa must innovate to increase efficiency and effectiveness in the demolition process and reduce the economic losses that occur. This research aims to carry out a detailed analysis of the unloading time for fish catches to provide recommendations for improving operations at PPI Kasiwa.

A study of the duration of unloading of fishery products at PPI is crucial to explore influencing elements and to develop plans to increase productivity. According to previous research, various factors such as the type of fish, number of catches, and weather conditions can influence the time required for the unloading process (Hutagalung *et al*., 2025). Even though there has been a lot of research carried out in various regions, there is still a lack of studies that specifically discuss the timing of demolition at PPI Kasiwa, Mamuju.

Kasiwa Fish Landing Base (PPI), located in Mamuju, West Sulawesi, is an important point for fishing activities which has a major impact on the capture fisheries industry in the region. This facility functions as the main place for sailors to unload their catches, making it a center for disseminating fishery products for local and regional markets. Efficiency in the process of loading and unloading catches at this port is very important to maintain the smooth distribution of fish, which in turn contributes to the economic sustainability of fishermen and ensures that the fisheries sector functions well (Liulondo *et al*., 2022).

This research highlights how important time efficiency is in the process of unloading fish catches (Sihotang *et al*., 2023). The speed and effectiveness of unloading have a significant influence not only on the duration of service to fishing vessels, but also on the competitiveness of the fishing sector, the quality of fish offered on the market, and the level of profit that can be achieved by fishermen and port managers. Therefore, understanding in depth the various factors that influence efficiency in unloading fish catches is very crucial (Herawanty *et al*., 2021).

This research aims to analyze the time required for the process of unloading fish catches at PPI Kasiwa and identify various factors that influence the length of time. Through the results of this research, it is hoped that it can provide useful insights for stakeholders in an effort to increase operational efficiency at PPI and support the sustainable development of the fishing industry. By knowing the elements that influence the duration of demolition, it is hoped that

the findings of this research can help in formulating more effective strategies to improve the performance of the fisheries sector in the kasiwa fish landing base area.

METHODS

The location of this research is at the Kasiwa Mamuju fish landing base (PPI), West Sulawesi. The time for this research was carried out from January to February 2025. The research location can be seen in Figure 1.

Figure 1. Research Location

This research utilizes two categories of data, namely primary data and secondary data. Initial data was obtained through direct observation and measuring the duration of unloading fish catches at the Kasiwa Fish Landing Base (PPI). Measurements are carried out over a certain time period, using a stopwatch to record the start and end times of the dismantling process. During this data collection, the type and volume of fish unloaded, along with the weather conditions at the time of unloading, were also recorded. Secondary data was obtained from various documents and reports provided by PPI Kasiwa, as well as from previously available literature which reviews the timing of demolition and influencing factors. This includes previous research examining the efficiency of the fisheries sector in Indonesia (Anam & Prihatini, 2022).

The analysis process is carried out by recording the duration required for each unloading phase, starting from the time the ship arrives until the fish is ready to be marketed. The data collected includes the arrival time of the ship, the start time of unloading, the end time of unloading, and the number of fish successfully unloaded (Syamzam *et al*., 2021).

This study applies a quantitative approach using descriptive methods. The stages carried out in this research include the following (Fadli, 2021):

1. Sampling

Samples were obtained from the unloading process at PPI Kasiwa, using a purposive sampling method, where sample selection was carried out based on certain criteria, such as the type of fish and the number of relevant catches.

2. Data Collection

Information was collected over a certain period of time, namely 4 weeks, with three measurements each week. Each observation records the time of the unloading process, the type of fish caught, the total catch, and the weather conditions at that time.

3. Data Analysis

The information that has been collected is analyzed using descriptive statistical methods. This technique is intended to compile a summary and describe the fundamental characteristics of a data set. The main goal is to provide a clear understanding of the data without trying to draw conclusions or inferences from the existing information, to describe the characteristics of the demolition time. Next, a more in-depth analysis was carried out to determine the influence of several factors on demolition time through simple regression analysis (Wijayanti *et al*., 2022).

RESULTS

Based on observations, there are several findings regarding the time of the unloading process of fish catches. First, ship arrival times show that the majority of ships arrive between 06.00 and 08.00 WIT. Furthermore, the dismantling process began approximately 30 minutes after the ship docked. Overall unloading time, each vessel generally takes between 1 and 3 hours to complete unloading the catch, which varies depending on the amount of fish carried. Finally, the total time required for the fish to be marketed is around 2 to 4 hours from the time the ship arrives. The unloading time table according to the number of catches can be seen in table 1 below.

Table 1. Below Presents Average Unloading Times Based on Number of Fish

Number of Fish (kg)	Disassembly Time (hours)	Total Time (hours)
100-500	1-2	2-3
500-1000	2-3	3-4
> 1000	3-4	4-5

Table 2. Production and Production Value of Capture Fisheries According to Regency Mamuju in West Sulawesi Province

Year	Sea Capture Fisheries Production (tons)	Capture Fisheries Production Value (IDR)
2018	20,684	626,032,280
2019	21,468	435,276,899
2020	19,333	375,279,080
2021	20,412	670,173,505
2022	20,250	755,401,251

(source: https://sulbar.bps.go.id/)

DISCUSSION

Mamuju Regency in West Sulawesi, known for its rich natural resources, has great potential in the fisheries sector. By having wide beaches and abundant waters, this area is a strategic location for managing fish products. PPI Kasiwa plays an important role in the fisheries supply chain, contributing to distributing fresh fish to local and regional markets.

The Kasiwa Fish Landing Base (PPI) is in Mamuju, West Sulawesi, and has a significant role in supporting the local fishing industry. As a fish landing point, PPI Kasiwa offers the facilities needed for fishermen to unload their catch, the majority of which consists of various species of marine fish (Kayadoe & Dien, 2022). PPI Kasiwa also has a significant contribution to improving the welfare of the fishing community. By providing adequate facilities, fishermen can land their catch more smoothly, obtain a fair price, and minimize losses due to excessive

waiting times. In addition, PPI also plays a role in the sustainable management of fisheries resources, by ensuring that the fishing practices carried out are environmentally friendly.

The process of unloading fish at fish landing sites plays a very important role in the fisheries sector (Rosalia *et al*., 2021). This activity is closely related to the extent to which operations run effectively, and has a direct influence on the quality and freshness of the products produced. In the world of fish trading, freshness level is a key element that will influence selling prices and customer satisfaction (Syamzam *et al*., 2021). Thus, effective time management in unloading fish is something that must be done in order to reduce losses, maintain quality and meet market needs.

In line with increasing awareness of the importance of quality fishery products, fish landing base managers are faced with the demand to implement efficient strategies in the dismantling process (Kudrati & Isdianto, 2024). By identifying and implementing best practices in this activity, it is hoped that a more optimal distribution system will be developed, which will not only provide benefits for stakeholders, but also support the sustainability of fisheries resources. In this introduction, we will delve further into the significance of fish removal times and their impact on the entire fisheries sector(Purba *et al*., 2024).

Based on observations at PPI Kasiwa, there were several findings regarding the time of the process of unloading fish catches. First, ship arrival times show that the majority of ships arrive between 06.00 and 08.00 WIT. Furthermore, the dismantling process began approximately 30 minutes after the ship docked. Overall unloading time, each vessel generally takes between 1 and 3 hours to complete unloading the catch, which varies depending on the amount of fish carried. Finally, the total time required for the fish to be marketed is around 2 to 4 hours from the time the ship arrives. The unloading time table according to the number of catches can be seen in table 1.

Table 1 shows the fish unloading time carried out at PPI Kasiwa according to the number of catches by fishermen. A catch of 100-500 kg requires unloading time of 1-2 hours with a total time of 2-3 hours for distribution to collectors, a catch of 500 -1000 kg requires 2-3 hours with a total time of 3-4 hours, whereas if the catch exceeds >1000 it requires quite a lot of time, namely 3-4 hours and a total time of 4-5 hours for unloading the catch. From this it can be concluded that the time for unloading fish at PPI Kasiwa is uncertain depending on the number of fishermen's catches.

The results of previous research show that the types of fish commonly caught during fishing activities are the types of fish that are the target of fishing. The types of fish caught included 17,300 tuna, 1,420 flying fish and 1,220 mackerel. Interviews conducted with pelagic fish collectors showed that fishermen prioritize small pelagic fish because of the high demand from the public compared to other types of fish. Thus, it is evident from the data that tuna has significant economic value in the Mamuju community compared to flying and mackerel fish (Ardiansyah *et al*., 2024).

Table 2 shows the Production and Production Value of Capture Fisheries in Mamuju City in West Sulawesi Province, where in 2018 Marine Capture Fisheries Production was 20,684 tonnes and Capture Fisheries Production Value was IDR 626,032,280, in 2019 marine capture fisheries production increased by 21,468 tons, while the value of capture fisheries production decreased by IDR 435,276,899. In 2020, marine capture fisheries production experienced a drastic decline by 19,333 tons and the value of capture fisheries production was IDR 375,279,080. In 2021 there will be an increase in production of 20,412 tons and the sales value of production will increase by IDR 670,173,505. In 2022, capture fisheries production will be 20,250 tons and the value of capture fisheries production will increase to IDR 755,401,251.

PPI Kasiwa processes fish promptly and efficiently, ensuring the freshness and quality of the fish is maintained. Fish freshness is a crucial aspect because it is directly related to customer satisfaction and market demand. By dismantling at the right time, fishermen can reduce the possibility of damage or rot, which can result in large economic losses. Apart from that, proper scheduling for demolition also plays a role in increasing PPI operational efficiency. A fast and structured process allows maximum use of labor and equipment. This not only increases productivity, but also supports PPI's sustainability by reducing operational costs (Sarasati *et al*., 2024).

CONCLUSION

From a study of fish unloading times at the Kasiwa Mamuju Fish Landing Base (PPI), West Sulawesi, a number of important conclusions can be identified. First, the effectiveness of unloading time is very important to maintain the freshness and quality of fish, which has a direct effect on the competitiveness of fishery products in the market. This research reveals that optimal time management not only helps reduce losses due to damage, but also increases customer satisfaction. It is hoped that these findings can serve as a guide for related parties in developing more effective policies and strategies for managing PPI, as well as encouraging cooperation between fishermen, the government and other stakeholders for the development of the fisheries sector in West Sulawesi.

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