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Composition of the Catch of 28 GT Boat Bagan in Carocok Tarusan Waters, Pesisir Selatan District West Sumatra Province

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ABSTRACT

The waters of West Sumatra are one of the richest in Indonesia, and they have potential in the fisheries sector. They use various types of fishing gear, one of which is boat bagan. One of the most common fishing tools in fishing ports is the boat bagan in the waters of Carocok Tarusan, West Sumatra. The catches usually caught by boats are anchovies and tuna. The research aims to determine boat bagan composition in Carocok Tarusan Waters, Pesisir Selatan Regency, West Sumatra Province. This research was carried out on 20 July – 20 August 2023. The method used in this research was a survey method, with direct observations in the field and conducting interviews with fishermen. The tools used in this research were scales, a logbook, a cellphone camera, a ruler, a fishfinder, and a refractometer. The materials used are catches from bagan boats. The data is then calculated and differentiated between main catch, bycatch, and discard. The results of this research show that the composition of the main catch of boat charts is anchovies (*Stolephorus* spp) as much as 875 kg (24.7%) and tuna (*Euthynnus affinis*) 888 kg (25%). At the same time, fish that are bycatch consists of several types of fish, namely, trevally (*Selaroides leptolepis*) as much as 248 kg (7%), peperek (*Aurigequula fasciata*) as much as 710 kg (20%), mackerel (*Rastrelliger* sp) as much as 457 kg (12.9%), squid (*Loligo* sp) as much as 104 kg (2.93%), and mackerel scad (*Decapterus*) as much as 267 kg (7.5%), for the discarded catch, namely pufferfish (Tetraodontidae) as much as 0.25 kg (0.01 %). The discard catch consists of pufferfish.

Keywords: Catch Results, Anchovies, Main Catch

1. INTRODUCTION

West Sumatra's water resources have great potential, especially for the fishing industry. However, fishers face several challenges when fishing in the Indian Ocean, especially in the West Sumatran waters. The first challenge is the lack of information needed to determine the right fishing location or fishing location that suits the fishermen's fishing objectives (Siregar et al., 2018). A fishing port is where land and surrounding waters with certain boundaries are used for government activities and fisheries business systems. Fishing vessels also lean, anchor, or load and unload fish, equipped with shipping safety facilities and fishery support activities (Guswanto, 2012). One of the ports in West Sumatra is the Carocok Tarusan Fishing Port, where this port is used as one of the activities, namely fish landing.

Fishermen in Carocok Fishing Port use bagan to catch small pelagic fish and squid, shrimp, and other small fish. Bagans are operated out to sea for several days or even months. Bagan boats used by fishermen in Carocok Tarusan waters range from 7 GT to 48 GT, consisting of a frame, net, net frame, roller, generator, and lamp. Bagan boats often used in the waters of Carocok Tarusan are tancap bagan and floating bagan.

The diversity of biological resources can be identified through the composition of the catch. Each type of fishing gear has a specific target catch. According to Bahari et al. (2019), the composition of the fish species caught can indicate the condition of the waters where the fish are caught, and this species composition can help determine aquatic biodiversity (Jukri et al., 2013). Fishers expect to catch fish species known as the main catch, which is their primary objective when conducting fishing operations. This follows the opinion of Paputungan et al. (2023), which states that the main catch has a high selling value and is the main target in fishing operations. The main fish often caught

using Bagan boats are anchovies (*Stolephorus* spp) and tuna (*Euthynnus affinis*).

Bycatch is fish caught because they are in the catchable area, not because of phototaxis, but because they are looking for their prey so that fishermen can utilize them. Paputungan et al. (2023) stated that bycatch, or bycatch, is fish caught by fishing gear accidentally, but fishers still utilize them. This Bagan boat shows various types of bycatch fish, including selar (*Selaroides leptolepis*), peperek (*Aurigequula fasciata*), mackerel (*Rastrelliger* sp), squid (*Loligo* sp), and swallowfish (*Decapterus ruselli*). However, the number of catches varies depending on the transportation operation (Boesono et al., 2020). The discarded catch was 0.25 kg (0.01%) of pufferfish, which does not have high economic value and is not wanted by fishers; fishers even discard the catch alive or dead (Nofrizal et al., 2018).

2. RESEARCH METHOD

Time and Place

This research was conducted in July - August 2023 in the waters of Carocok Tarusan, Pesisir Selatan Regency, West Sumatra Province.

Method

The survey method was used in this research. Data were obtained from the results of primary data collection through interviews with fishermen and participation in fishermen's activities using boat bagan fishing gear in Carocok Tarusan Waters, South Pesisir Regency. While secondary data is obtained from the coastal fishing port (PPP).

Procedures

Samples were taken 12 times from the boat bagan of 1 fisherman. The boat chart used in this study was 28 GT, 28 m in length and net width, and 40 m in depth. The data collected in this study were the types of fish caught, the most caught fish, and the composition of the catch of the bagan boat gear each trip. Catch composition consists of main catch, bycatch, and discard.

Data Analysis

This study analyzed the composition and proportion of main and bycatch. The objects taken include the weight per type of fish (kg) and the composition of the catch, which consists of the main catch, bycatch, and discard. Later, each catch is calculated as a percentage and compared to which HTSU, HTS, and Discard are more significant in proportion. All catch data used can be calculated using this formula:

$$HTU = \frac{\text{Total main catch}}{\text{Total catch}} \times 100\%$$

$$HTS = \frac{\text{Total bycatch}}{\text{Total catch}} \times 100\%$$

$$HTB = \frac{\text{Total discard catch}}{\text{Total catch}} \times 100\%$$

The observed results of the catch handling process are evaluated to explain how much of the catch is used and how much is discarded. The extent of catch diversity in Bagan boat gear can be measured using composition. According to Bahari et al. (2019), the species composition of the catch also shows that fish are caught in these waters. The sum of per species weight and total catch while in the field is the composition of the analyzed data, which is then presented as a graph or table. However, Susanti et al. (2013) stated that the species composition of the catch can be based on the composition of each hauling time (pulling fishing gear) unit (kg) of fish species. This can be done using the following calculation formula:

$$P = \frac{Ni}{N} 100\%$$

Description:

P : Species composition (%)
Ni : Number of each fish species
N : Total number of fish caught

Based on the equation, the final results obtained from the catch composition analysis can be presented in a graph and tabular boat bagan, where the proportion of the number of fish caught by each species compared to the total number of fish caught is shown as a percentage.

3. RESULT AND DISCUSSION

Overview of the research location

Indonesia is the largest archipelago with a sea area of 5.8 million km^2, and the maritime sector is very strategic. The potential of fisheries and the marine environment of West Sumatra is very large, both in open and marine waters. DKP Pesisir Selatan Regency (2014) stated that Carocok Tarusan Fishing Port is one of the centers of the highly developed fisheries business in Pesisir Selatan Regency.

Fish Landing Base (PPI) is one of the three fishing ports in West Sumatra Province, Carocok Tarusan, built in 1997 and has an area

of 2.19 ha. The Minister of Marine Affairs and Fisheries converted the PPI into a PPP in 2003. The Fishing Port is only 4 km from the sub-district center, 20 km from the district center of Pesisir Selatan, and 65 km from Padang City, the capital of West Sumatra Province. Carocok beach fishing port was converted into a Regional Technical Implementation Unit (UPTD) by the West Sumatra Provincial Marine and Fisheries Office.

Composition of the Catch

Table 1 states that the main types of fish catches are anchovy (*Stolephorus spp*), as much as 875 kg (24.7%) and tuna (*Euthynnus affinis*), as much as 888 kg (25%), bycatches consist of several types of fish, namely, mackerel (*Selaroides leptolepis*) as much as 248 kg (7%), peperek fish (*Aurigequula fasciata*) as much as 710 kg (20%), mackerel (*Rastrelliger sp*) as much as 457 kg (12.9%), squid (*Loligo sp*) as much as 104 kg (2.93%), and fly fish (*Decapterus*) as much as 267 kg (7.5%). In contrast, the discarded catch is puffer fish (*Tetraodontidae*) as much as 0.25 kg (0.01%).

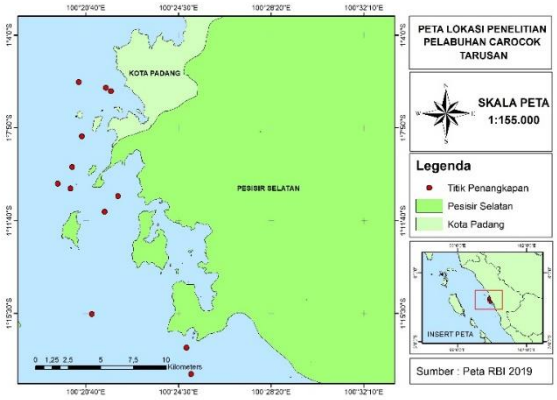

Figure 1. Research location map

Table 1. Catch of the Bagan boats

Types of catch	Types of catches	Total catch (kg)	Composition of catch (%)
HTU	Tongkol	875	24,7
	Teri	888	25,0
	Cumi	104	2,93
	Kembung	457	12,9
HTS	Peperek	710	20,0
	Layang	267	7,5
	Selar	248	7,0
HTB	Buntal	0,25	0,01
Total		3549,25	100,0

Main Catch

When fishermen design and install a bagan boat gear, they expect the primary catch to dominate the overall bagan boat gear catch of the entire catch operation. The main catch is usually very profitable (Nofrizal et al., 2018). Anchovy and tuna are the main catches at Carocok Tarusan harbour.

In this study, the main catch was 1,763 kg, with 875 kg (24.7%) of tuna and 888 kg (25%) of anchovy. Many tuna and anchovies were caught because the lights on the boat chart pushed the fish to the sea surface to approach the light source. Because changes in temperature and salinity can affect nervous excitability, metabolism, and body activity, tuna are particularly sensitive to these changes. Tuna usually lives in hot water. They can live at depths of up to 40 m above the water surface, with ideal temperatures between 200-320 (Rahmatang, 2013).

Bycatch

Fishermen do not want a catch called bycatch. Although its economic value is low, this catch still has economic value (Nofrizal et al., 2018). Bycatch shows that peperek was caught the most and squid the least. Wiyono

(2010), the fast-recovering nature of peperek fish biology may cause high peperek fish stocks. Peperek fish are generally small and short-lived, so the growth and recovery of new members are faster.

The total bycatch was 710 kg (20%) of peperek, 104 kg (2.93%) of squid, 457 kg (12.9%) of mackerel, 267 kg (7.5%) of kite, and 248 kg (7%) of mackerel for a total of 1,786 kg.

Discard Catch

In this study, the discarded catch of pufferfish was 0.25 kg (0.01%), but this catch does not have high economic value and is not wanted by fishers; fishers even discard the catch alive or dead (Nofrizal et al., 2018).

4. CONCLUSION

The results of this study indicate that the composition of the main catch of 28 GT boat bagan in Carocok Tarusan waters consists of anchovy as much as 875 kg (24.7%) and tuna as much as 888 kg (25%), bycatch consists of several types of fish, namely, mackerel as much as 248 kg (7%), peperek as much as 710 kg (20%), mackerel as much as 457 kg (12.9%), squid as much as 104 kg (2.93%), and fly fish as much as 267 kg (7.5%). In contrast, the discard catch is puffer fish as much as 0.25 kg (0.01%).

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