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CHARACTERISTICS OF FROZEN FISH RESULTS FROM THE CATCH STOCKING ON A CONTAINING VESSEL KM. SEA OF BERLIANS-99 AT PPP MAYANGAN

Karakteristik Ikan Beku Hasil Tangkapan yang Ditampung pada Kapal Penampung KM. Lautan Berlian-99 di PPP Mayangan

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ABSTRACT

A fish collection vessel is a vessel specifically used to transport fish including the process of loading, holding, storing, cooling, and preserving fish on board. This research was conducted at the Mayangan Coastal Fisheries Port (PPP) with the aim of determining the characteristics of the types of fish catches collected at KM. Lautan Berlian-99 which were landed at PPP Mayangan. This research was conducted from September to November 2024 at PPP Mayangan using a qualitative method where data collection in this study was collected through the observation method, namely by directly observing the landing of fish at PPP Mayangan. The identification results showed ten types of fish that were successfully caught by fishermen from various fishing gear including purse seines, bottom longlines and drift nets. The fish were then put into the hold of the collection vessel by the transhipment process to be taken to the port. The measurements to be used are standard length measurements with units of cm. The measurements carried out include total length, half body length, tail length, eye height, body width, head width, and eye width.

Keywords: Fishing Vessel, Type of Catch, Morphology, PPP Mayangan, Frozen Fish

ABSTRAK

Kapal penampung ikan (*collecting*) adalah kapal yang secara khusus untuk mengangkut ikan termasuk proses pemuatan, penampungan, penyimpanan, pendinginan, serta pengawetan ikan dalam kapal. Penelitian ini dilakukan di Pelabuhan Perikanan Pantai (PPP) Mayangan dengan tujuan untuk mengetahui karakteristik jenis hasil tangkapan ikan yang ditampung di KM. Lautan Berlian-99 yang didaratkan di PPP Mayangan. Penelitian ini dilaksanakan pada bulan September sampai November 2024 di PPP Mayangan dengan metode kualitatif dimana pengambilan data pada penelitian ini dikumpulkan melalui metode observasi yaitu dilakukan dengan cara mengamati secara langsung pendaratan ikan di PPP Mayangan. Hasil identifikasi

menunjukkan sepuluh jenis ikan yang berhasil ditangkap oleh nelayan dari berbagai alat tangkap diantara *purse seine*, rawai dasar dan jaring insang hanyut. Ikan- ikan tersebut kemudian dimasukan ke dalam palka kapal penampung dengan proses *transhipment* untuk dibawa ke pelabuhan. Pengukuran yang akan digunakan adalah pengukuran panjang standar dengan satuan cm. Pengukuran yang dilakukan meliputi panjang total, panjang setengah badan, panjang ekor, tinggi mata, lebar badan, lebar kepala, dan lebar mata.

Kata kunci: Kapal Penampung Ikan, Jenis Tangkapan, Morfologi, PPP Mayangan, Ikan Beku

INTRODUCTION

Fishing is one of the largest fisheries businesses in Indonesia. Fishing includes activities that use vessels to load, transport, store, cool, handle, process, and/or preserve fish in waters that are not cultivated using any tools or techniques (Ariefandi & Isdianto, 2023). East Java Province is one of the provinces that has quite high potential for marine fisheries resources (Arkham *et al.*, 2021). Fisheries Catching Area 712 includes the Java Sea and the fisheries management area on the North Coast of East Java. The potential for fish resources in Fisheries Catching Area 712 includes small pelagic fish and demersal fish resources (Arkham *et al.*, 2021).

Vessels used to transport fish are usually large and equipped with cooling facilities to maintain the freshness of fish and processed fishery products (Pujianto *et al.*, 2020). A fish collection vessel is a vessel specifically for transporting fish including the process of loading, holding, storing, cooling, and preserving fish on board (Wibawa *et al.*, 2013).

A mother boat is a fishing vessel that relies on a collecting vessel for its needs while sailing. The collecting vessel supplies supplies such as basic ingredients, spare parts, fresh water, and diesel to fishing vessels in the middle of the sea (Niam & Hasanudin, 2017). Fishing vessels usually sail for 8-11 months. The fishing vessel carries out a sailing trip from the fishing base to the waters according to the location where the fish are taken from the fishing vessel, when the load is full the ship will return to the port of origin (Idrus *et al.*, 2022). This collection vessel targets fish caught by fishermen with high economic value such as snapper, mackerel, squid and tuna who catch them using bottom longline fishing gear, trolling rods, hand lines and purse seines (Aini, 2023).

KM. Lautan Berlian-99 is one of the container ships operating in Indonesian waters. This ship functions to accommodate the catch from various fishing vessels before the catch is sent to the port or fish auction place.

Mayangan Coastal Fisheries Port (PPP) acts as a center for capture fisheries trade in Probolinggo City, supported by various facilities, including a fish market, ice factory, and adequate road access, making it a center for fishermen's economic activities (Fadhila, 2019). PPP Mayangan Probolinggo is dominated by the use of cantrang, purse seine, and long line fishing gear, with catches in the form of demersal and pelagic fish.

Although fishing operations are always carried out throughout the year, several species of fish targeted by fishermen in East Java Province are still not well known and have not been documented (Saadia *et al.*, 2021). If fish catches are not controlled, it will result in a reduction in the number of individuals or fish species (Rosana & Prasita, 2015) in (Saadia *et al.*, 2021).

This research was conducted at the Mayangan Beach Fishing Port with the aim of determining the characteristics of the types of fish catches accommodated on the KM.Lautan Berlian-99 which were landed at the Mayangan Beach Fishing Port.

RESEARCH METHODS

This research was conducted from September to November 2024 at the Mayangan Coastal Fishing Port in Probolinggo City, East Java. This study uses a qualitative method which is a theory that is only needed to help researchers in formulating questions or helping researchers in the field according to (Firmansyah *et al.*, 2021), where data collection in this study was collected through the observation method, namely a data collection technique carried out through observation, accompanied by recording the behavioral conditions of the target object according to (Hasibuan *et al.*, 2023). This method is carried out by directly observing the fish landing process at the Mayangan Coastal Fishing Port. Data collection was carried out by taking fish samples when the KM. Lautan Berlian-99 container ship landed its catch. The data collected includes morphological data and identification of the types of fish caught on the KM. Lautan Berlian-99 ship. The measurement to be used is the standard length measurement with units of cm. The measurements taken include total length (TL), half body length (HL), tail length (CL), eye height (EH), body width (BW), head width (HW), and eye width (EW). In addition, interviews were conducted with fishermen to determine the types of fish caught and the length of time of capture.

RESULT

Specifications of the ship KM. Lautan Berlian-99

1. Name of Ship	:	KM. LAUTAN BERLIAN-99
2. Address	:	NUSA INDAH STREET, NO.37 SUKABUMI VILLAGE MAYANGAN DISTRICT PROBOLINGGO CITY EAST JAVA
3. Marking	:	GT.263 NO.1963/Mp 2014 PPF NO.5270/L
4. Ship Size		
Length (L)	:	31.75 M
Length (Loa)	:	34.45 M
Gross Weight	:	263 GT
Net Weight	:	170 NT
Width	:	8 M
5. Brand Engine Power	:	Mitsubishi 600 PK
6. Type of Ship	:	Container/transporter
7. Fishing Operation Area	:	WPP NRI 718

Types of fish held at KM. Sea of Diamonds-99

Table 1. Types of fish accommodated on KM. Lautan Berlian-99 in September to October 2024

No	*Famili*	*Spesies*	Local Name	Result
1.	*Lutjanidae*	*Lutjanus malabaricus*	Red Snapper	28.470
2.	*Lutjanidae*	*Etelis coruscans*	Anggoli Fish	58.720
3.	*Lutjanidae*	*Lutjanus johnii*	Jenaha Fish	8.500 kg
4.	*Latidae*	*Lates calcarifer*	Baramundi Fish	1000 kg
5.	*Trichiuridae*	*Trichiurus lepturus*	Scallop Fish	4.870 kg
6.	*Polynemidae*	*Eleutheronema*	senangin Fish	22.200 kg
7.	*Serranidae*	*Epinephelus bleekeri*	Grouper Fish	29.680 kg
8.	*Carangidae*	*Parastromateus niger*	Babunyai	200 kg
9.	*Carangidae*	*Caranx tille*	Black Pomfret Fish	1.751 kg
10.	*Rachycentridae*	*Rachycentron canadum*	Kwe Lilin Fish	2.050 kg
				157.441 kg

Figure 1. KM ship. Sea of Diamonds-99

Observation results at KM. Lautan Berlian-99 show that the catches collected on the container ship at the Mayangan Coastal Fishing Port consist of various types of fish. The identification results show ten types of fish that were successfully caught by fishermen from various fishing gear including purse seine, bottom longline and drift gillnet. The fish are then put into the container ship's hold through the transhipment process to be taken to the port. The fish collection process is carried out for 1 trip in the Arafura Sea area of the Fisheries Catching Area - RI 718.

Table 1 illustrates the results of the fish collection at KM. Lautan Berlian-99 at the Mayangan Coastal Fishing Port which include: red snapper, anggoli fish, jenaha fish, barramundi fish, ribbon fish, senangin fish, babunyai grouper, black pomfret, candle kwe fish and sea snakehead fish. KM. Lautan Berlian-99 accommodates various types of fish with a total weight of 157,441 kg. The types of fish accommodated include red snapper (*Lutjanus malabaricus*) as much as 28,470 kg, anggoli fish (*Etelis coruscans*) as much as 58,720 kg, and jenaha fish (*Lutjanus johnii*) weighing 8,500 kg. In addition, there are barramundi fish (*Lates calcarifer*) as much as 1,000 kg, ribbon fish (*Trichiurus lepturus*) weighing 4,870 kg, and senangin fish (Eleutheronema) weighing 22,200 kg. Other types of fish loaded are babunyai grouper (*Epinephelus bleekeri*) as much as 29,680 kg, black pomfret (*Parastromateus niger*) weighing 200 kg, wax mackerel (*Caranx tille*) as much as 1,751 kg, and sea snakehead fish

(*Rachycentron canadum*) weighing 2,050 kg. With the total amount, the total fish collected reached 157,441 kg.

DISCUSSION

The results of fish morphology measurements carried out on each fish sample obtained from the catch and stored on a container ship landed at the Mayangan Beach Fisheries Port can be seen in Table 2.

Table 2. Results of measurements of fish from the collection

No	Local Name	TL (cm)	HL (cm)	CL (cm)	EH (cm)	BW (cm)	HW (cm)	EW (cm)
1	Red Snapper	70	35	11	3	20	19	3
2	Anggoli	46	23	11	2	13	11	2
3	Jenaha	56	28	10	3	19	15	3
4	Barramundi	80	40	10	2	20	11	2
5	Layur	94	47	6	2	9	6	2
6	Senangin	82	41	16	2	26	17	2
7	Grouper	56	27	10	2	17	16	2
8	Black Pomfret	37	18	10	2	20	12	2
9	Kwe	50	25	10	3	20	18	3
10	Sea Snakehead	76	33	15	3	16	8	3

The container ship KM. Lautan Berlian-99 plays a role in maintaining the quality of the fish catch before being landed at the Mayangan Coastal Fishing Port. The characteristics of frozen fish stored on this ship are influenced by the morphological conditions of each species, which reflect the size and proportion of the fish's body (Tarigan, 2021). Based on the results of morphological measurements of the stored fish samples, there were significant variations in body dimensions between species (Toha, 2021). The size and proportion of the fish's body affect the freezing process. Fish with larger dimensions may experience uneven freezing, which can cause quality problems such as the formation of large ice crystals that affect the texture and taste of the meat after the thawing process. Smaller fish can generally be frozen faster, reducing cell damage and maintaining quality (Chu *et al.*, 2013).

Morphology of frozen fish stored on KM. Lautan Berlian-99

1. Red Snapper

It is a type of demersal fish that has a total length (TL) of 70 cm. The measurements taken include a half-body length (HL) of 35 cm, a tail length (CL) of 11 cm, an eye height (EH) of 3 cm, a body width (BW) of 20 cm, a head width (HW) of 19 cm, and an eye width (EW) of 3 cm. This fish has high economic value and is often found in tropical waters (Puentes *et al.,* 2019).

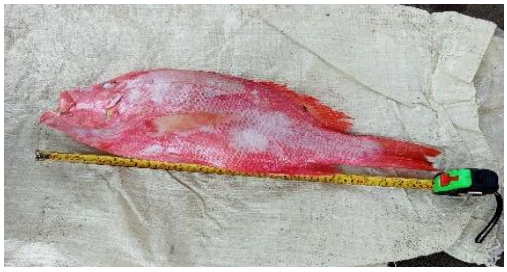

Figure 2. Identification of red snapper

2. Anggoli Fish

Anggoli has a total length (TL) of 46 cm. The measurements taken include a half-body length (HL) of 23 cm, a tail length (CL) of 11 cm, an eye height (EH) of 2 cm, a body width (BW) of 13 cm, a head width (HW) of 11 cm, and an eye width (EW) of 2 cm.

According to (Sari, 2020) this fish is included in the grouper group which has a high selling value in the international market. This fish is caught from waters with a depth of 200-300 m.

Figure 3. Identification of Anggoli fish

3. Jenaha Fish

Jenaha is a demersal fish that has a total length (TL) of 56 cm. The measurements taken include a half-body length (HL) of 28 cm, a tail length (CL) of 10 cm, an eye height (EH) of 3 cm, a body width (BW) of 19 cm, a head width (HW) of 15 cm, and an eye width (EW) of 3 cm. This fish is commonly found in rocky coastal waters and coral reefs (Saparinto, 2015).

Figure 4. Identification of the jenaha fish

4. Barramundi Fish

Barramundi is a fish that has a total length (TL) of 80 cm. The measurements taken include a half-body length (HL) of 40 cm, a tail length (CL) of 10 cm, an eye height (EH) of 2 cm, a body width (BW) of 20 cm, a head width (HW) of 11 cm, and an eye width (EW) of 2 cm.

Barramundi is a catadromous fish known as "Asian Salmon" because of its high nutritional content, similar to salmon. Barramundi has a high economic value as a consumption fish (Megantaro, 2018).

Figure 5. Identification of barramundi fish

5. Ribbon Fish

The total length (TL) of the Layur is 94 cm. The measurements taken include a half-body length (HL) of 47 cm, a tail length (CL) of 6 cm, an eye height (EH) of 2 cm, a body width (BW) of 9 cm, a head width (HW) of 6 cm, and an eye width (EW) of 2 cm.

This fish is known for its long, ribbon-like body and is commonly found in tropical and subtropical waters (Young, 2012).

Figure 6. Identification of ribbonfish

6. Senangin Fish

Senangin is a demersal fish that has a total length (TL) of 82 cm. The measurements taken include a half-body length (HL) of 41 cm, a tail length (CL) of 16 cm, an eye height (EH) of 2 cm, a body width (BW) of 26 cm, a head width (HW) of 17 cm, and an eye width (EW) of 2 cm.

Senangin fish live in waters with muddy, sandy, clayey, and rocky bottoms. This fish is often found in estuary waters and muddy beaches (Saila, 2022).

Figure 7. Identification of senangin fish

7. Babunyai Grouper Fish

Grouper has a total length (TL) reaching 56 cm. The measurements taken include half body length (HL) of 27 cm, tail length (CL) 10 cm, eye height (EH) 2 cm, body width (BW) 17 cm, head width (HW) 16 cm, and eye width (EW) 2 cm.

This fish is a fishery commodity that has high economic value This fish has high economic value and is often found in tropical waters This fish has high economic value and is often found in tropical waters (Jasmine, 2014).

Figure 8. Identification of grouper fish

8. Black Pomfret Fish

Black pomfret is a pelagic fish that has a total length (TL) of 37 cm. The measurements taken include half-body length (HL) of 18 cm, tail length (CL) 10 cm, eye height (EH) 2 cm, body width (BW) 20 cm, head width (HW) 12 cm, and eye width (EW) 2 cm.

This fish is often found in coastal waters and has meat that is popular with the public (Rachma *et al.,* 2015). Black pomfret belongs to the Carangidae family with a flat body. The dorsal and ventral parts extend to the tail. Black pomfret can grow to a maximum length of 550 mm, but is generally found with a length of around 300 mm. This fish lives in coastal waters up to a depth of 105 meters and more often inhabits coastal areas with muddy bottoms (Arkham *et al.,* 2021).

Figure 9. Identification of black pomfret fish

9. Pompano

Pompano is a large pelagic fish that has a total length (TL) of up to 50 cm. The measurements taken include a half-body length (HL) of 25 cm, a tail length (CL) of 10 cm, an eye height (EH) of 3 cm, a body width (BW) of 20 cm, a head width (HW) of 18 cm, and an eye width (EW) of 3 cm. This fish is often found in coastal waters and river estuaries (Syahputra, 2022).

Figure 10. Identification of pompano

10. Sea Snakehead Fish/cobia

The total length (TL) of the Sea Snakehead is 76 cm. The measurements taken include a half-body length (HL) of 33 cm, a tail length (CL) of 15 cm, an eye height (EH) of 3 cm, a body width (BW) of 16 cm, a head width (HW) of 8 cm, and an eye width (EW) of 3 cm.

According to (Azhary *et al.,* 2022), Cobia fish is a type of marine fish species and is widely found on the coast in the Rachycentridae family. This fish is known as a predator with high survival rate and has good economic value (Tuhumena, 2024).

Figure 11. Identification of sea snakehead fish

CONCLUSION

Based on the research results, there are 10 types of fish caught that are accommodated on the KM. Lautan Berlian-99 container ship, namely red snapper (*Lutjanus malabaricus*), anggoli fish (*Etelis coruscans*), jenaha fish (*Lutjanus johnii*), barramundi fish (*Lates calcarifer*), ribbon fish (*Trichiurus lepturus*), and senangin fish (*Eleutheronema*) babunyai grouper (*Epinephelus bleekeri*), black pomfret (*Parastromateus niger*), waxtail fish (*Caranx tille*), and sea snakehead fish (*Rachycentron canadum*). Each type of fish has different morphological characteristics, such as total length, tail length, eye height, and body width. These fish have high economic value, both as local consumption fish and for the international market. The diversity of these fish species emphasizes the important role of container ships in supporting the fisheries industry and the sustainable use of marine resources.

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