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Analysis Export of Tuna-Skipjack-Mackerel Fisheries through Bali Province

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Abstract. One of the main export commodities for Indonesian fishery products is tuna-skipjack-mackerel, the largest in the world. Bali waters have significant fishery potential for catching Tuna-Skipjack-Mackerel. The development potential of the Tuna-Skipjack-Mackerel fishing industry must be considered. Denpasar Fish Quarantine Center for Quality and Safety Control of Fishery Products (BKIPM Denpasar) is the agency authorized to provide quality and safety assurance for fishery products. This research aims to determine the export conditions of Tuna-Skipjack-Mackerel fishery products to various destination countries from Bali Province based on 2019-2023 time series data. This research used purposive sampling methods. Export data is grouped based on destination country, frequency, and volume of export commodities. Data was obtained from the Denpasar Fish Quarantine Center, Quality Control, and Fishery Products Safety (BKIPM Denpasar). This research was conducted in February 2024. The results of this research are less stable in export volume; ups and downs in volume occur every year. Export frequency and volume are not directly proportional. The frequency of exports was quite high in 2019, reaching almost 5 thousand trips, and decreased drastically in 2020, with a total of around 2.9 thousand trips. COVID-19 in 2019 significantly impacted, dropping to half the export frequency. Tuna-Skipjack-Mackarel products supply various export markets, with 46 destination countries recorded from Bali Province across all chains between 2019-2023. Japan, the United States, and Australia are the biggest customers of Tuna-Skipjack-Mackerel products. The Tuna-Skipjack-Mackerel commodity types are divided into ten species.

Keywords: fisheries commodities; tuna-skipjack-mackerel; export; bali

I. INTRODUCTION

Indonesia's vast waters have great opportunities to increase production and exports of fishery commodities. The primary export commodities for fishery products are shrimp, lobster, tuna-skipjack-Mackerel, seaweed, and crabs [1]. Fish resources with great potential are Tuna-Skipjack-Mackerel fisheries [5]. Indonesia is the country with the most significant Tuna-Skipjack-Mackerel production in the world, and it is included among the top seven countries producing capture fisheries in the world, contributing almost 50 percent of the total output [2]. Tuna fisheries are the largest export market and generate significant food supply benefits [6]. Tuna-Skipjack-Mackerel exports contribute to the economy and development of Indonesian fisheries [4]. Export destinations throughout the world with the main markets are Japan (95.09%), the United States (1.85%), Vietnam (1.55%), Australia (0.47%), and Singapore (0.44%).

Bali's waters have enormous marine potential, including capturing fisheries' resources that significantly contribute to Tuna-Skipjack-Mackerel. The development of the annual industrial-scale Tuna-Skipjack-Mackerel fishing fleet at Benoa-Bali Harbor is dynamic due to changes in fleet numbers, catch production, and fishing efforts [7]. The development potential of the Tuna-Skipjack-Mackerel fishing industry must be considered because it involves all main products, ranging from fresh or frozen and processed canned fish products. Great attention is paid to product quality assurance to ensure that exported fishery products are quality, safe, and healthy.

Standard tuna export requirements include quality, safety, sustainability, third-party certification, and traceability [3].

Fish quarantine procedures and certification of fishery products must be in place to guarantee the quality and safety of fishery products. Quality safety standards for fishery products refer to Law Number 21 of 2019 [21]. Bali Province has the Fish Quarantine Center for Quality Control and Safety of Fishery Products in Denpasar (BKIPM Denpasar) as an agency authorized to provide quality and safety assurance for fishery products. This research aims to determine the export conditions of Tuna-Skipjack-Mackarel fishery products to various destination countries from Bali Province based on 2019-2023 time series data.

II. RESEARCH AND METHODS

This research used purposive sampling methods. Collected data is the frequency of Tuna-Skipjack-Mackarel exports trafficked through Bali Province in the 2019-2023 period. The analysis used in this research is descriptive and aims to describe the condition of tuna exports in Bali Province. Export data is grouped based on destination country, frequency, and volume of export commodities.

Data was obtained from the Denpasar Fish Quarantine Center, Quality Control and Fishery Products Safety (BKIPM Denpasar). Data analysis was carried out using a qualitative descriptive method. This research was conducted in February 2024.

II. RESULTS AND DISCUSSION

Bali is one of the areas with considerable potential for pelagic fish resources, including Tuna-Skipjack-Mackarel. Based on the regulation of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia number 18/permit-kp/2014 concerning the fisheries management area of the Republic of Indonesia [8], Bali waters are in the WPPNRI 573 area, which includes the waters of the Indian Ocean south of Java to the south of Nusa Tenggara, the Savu Sea, and the western Timor Sea.

Tuna-Skipjack-Mackarel is a group of highly migratory fish and includes fish located within the Exclusive Economic Zone (EEZ), either from one or more countries, on the high seas. The Benoa Ocean fishing port is one of the ports with industrial-scale Tuna-Skipjack-Mackarel fishing vessels. The fishing gear used is Purse Seine, Hand Line, Long Line, Pole and Line, or Huhate [9]. The distribution of fishing areas of tuna longline vessels (>70%) is generally carried out in EEZ and territorial regions [16,17]. The proportion of skipjack and yellowfin tuna reached 95% in WPPNRI 573 [18]. The highest Tuna-Skipjack-Mackarel fishing ground coordinates are between 8° -10°S and 107° - 110°E, where the area is still within the EEZ region [19].

Export of Tuna-Skipjack-Mackerel Fisheries

Based on data from the Fish Quarantine, Quality Control and Safety of Fishery Products (BKIPM) Denpasar, Bali Province's Tuna-Skipjack-Mackerel export frequency fluctuates wildly (Figure 1). The frequency of exports was relatively high in 2019, reaching almost 5 thousand trips, and decreased drastically in 2020, with a total of around 2.9 thousand visits. COVID-19 in 2019 significantly impacted, dropping to half the export frequency. COVID-19 is impacting Indonesia's national marine and fisheries sector [11]. The large-scale social restrictions or LSSR policy caused fish prices to fall by up to 50% due to declining demand and the closure of fish exporting companies, collectors, hotels, restaurants, and catering services [10, 12].

The decrease in export activity occurred due to trade restrictions from various countries. Limitations on capacity and quantity of exports via air and shipping routes. The fleet that serves export departures is also only at Soekarno Hatta Airport and Tanjung Perak Port, Surabaya. The production of fishery products has not changed much because exports cannot be carried out, so a lot of fish is stored in the Fish Processing Unit. This condition soon recovered with traffic increasing significantly, as restrictions on overseas mobility were relaxed since 2020 and have been sloping into 2023. The graphic in Figure 1 shows that the frequency of export growth is positive from 2020 to 2022. The decline in exports in 2023 was caused by various factors, one of which is the fisheries' export standards, which are still challenging for exporting many fishery products.

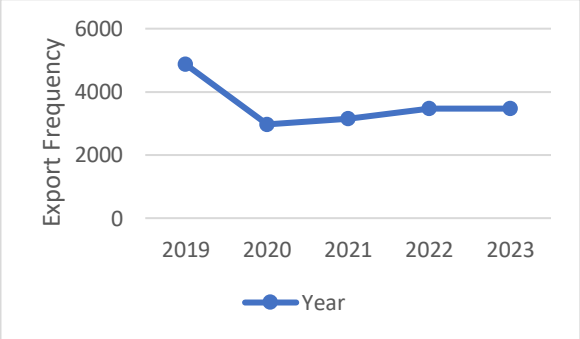


Figure 1. Graphic Tuna-Skipjack-Mackarel export period 2019-2023 of Bali province

The data in Table 1 indicate that exports of Tuna-Skipjack-Mackarel products continue to increase. Export volume is less stable; ups and downs in volume occur

every year. The highest export volume occurred in 2022 but decreased in 2023, although the frequency did not decrease much. So, it can be interpreted that the frequency and volume of exports are not directly proportional. Even though the highest export frequency was in 2019, the most significant export volume was in 2022, with a volume of 13188337.31 kg (Table 1). Export volume of fishery products according to the Province of Bali time series 2018-2023, export volume in 2018 reached 27 tons, and the lowest in 2023 was only 14 tons [1]. Table 1. Data on traffic of the export of tuna products through the Province of Bali for 2019-2021.

TABLE I
EXPORT TUNA-SKIPJACK-MACKAREL BALI PROVINCE
PERIOD 2019-2023

Year	Export Quantity (Frequency)	Volume of Commodities (Kg)
2019	4866	9.307.338,04
2020	2969	8.176.402,61
2021	3143	1.2409.644,59
2022	3473	13.188.337,31
2023	3468	966.6071,65

The stock status of bigeye tuna, albacore, skipjack tuna, and neritic tuna (como tuna) is still in the green zone, meaning that overfishing has not occurred, while yellowfin tuna is in the red zone, which means that overfishing or overfishing has occurred [13]. High export opportunities can be a change for fisheries entrepreneurs, especially Tuna-Skipjack-Mackarel. And it can have a good impact on increasing the state's foreign exchange earnings.

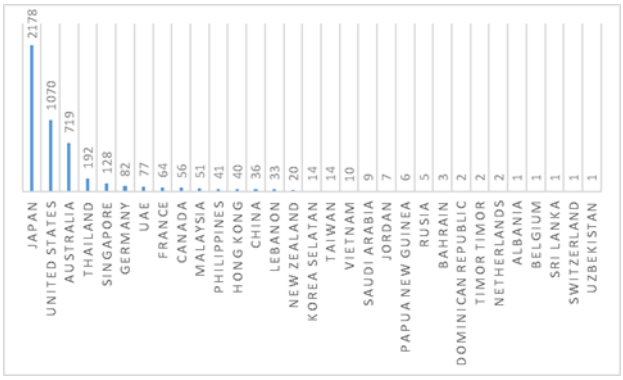
Based on Ministerial Decree Number 121 of 2021 concerning the management plan for Tuna-Skipjack-Mackarel issued by the Ministry of Maritime Affairs and Fisheries, the government is working to facilitate the requirements for Tuna-Skipjack-Mackarel management in the EEZ and high seas [20]. It also supports eradicating IUU fishing in tuna management, adaptation strategies to reduce carbon emissions, and preparing harvest strategies for Tuna-Skipjack-Mackarel in archipelagic waters.

Destination Export of Tuna-Skipjack-Mackarel Commodities

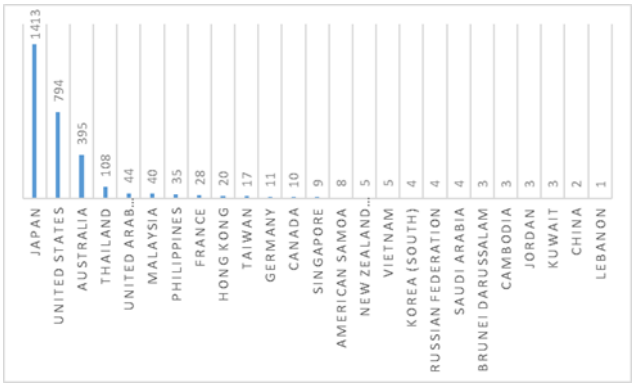
The export destination of Tuna-Skipjack-Mackarel products to other countries can be seen in Figure 2. The graphic shows the frequency of exports in different countries in the same year. Tuna-Skipjack-Mackarel products supply a wide variety of export markets, with 46 destination countries recorded from Bali Province across all chains between 2019-2023.

Compared to all graphics, it can be analyzed that Japan is the biggest customer of Tuna-Skipjack-Mackerel commodities. The United States takes second place as the biggest export destination. The next position is in Australia. The EU, US, and Japanese markets are significant destinations for canned and fresh tuna products [14]. According to the UN Comtrade list of supplying markets, Indonesia is the 3rd largest Tuna-Skipjack-Mackarel exporting country to the United States in the world [15].

Country destinations from 2019 to 2023 have a different list. Total export destinations in 2019 are 31 countries, in 2020 are 25 countries, in 2021 are 27 countries, in 2022 are 24 countries, and 30 countries in 2023. 2019 has the most significant number of countries and frequency of exports.



(a)



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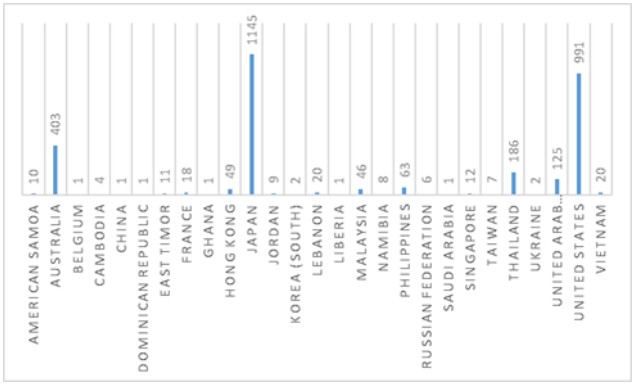
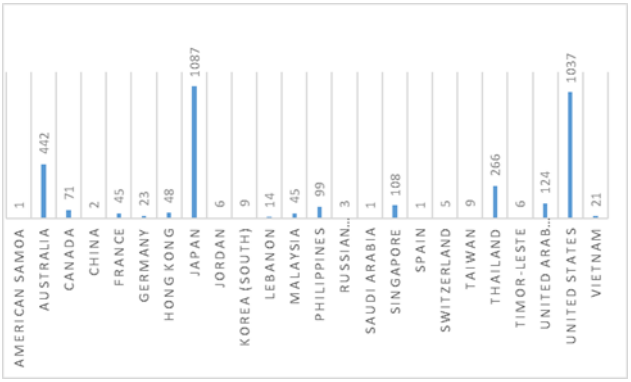


(c)



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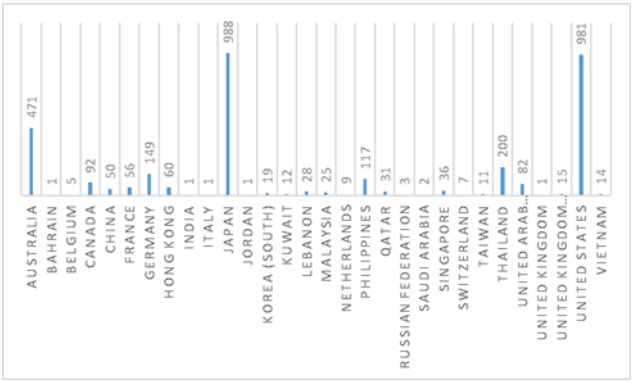

(e)

Figure 2. Graphic Country destination and frequency export of Tuna-Skipjack-Mackarel Commodity: (a) 2019, (b) 2020, (c) 2021, (d) 2022, (e) 2023.

Export Tuna-Skipjack-Mackerel Commodities

Fresh and frozen Tuna-Skipjack-Mackarel from different species. Tuna-Skipjack-Mackarel export product variations include fresh whole, fresh loin, fresh fillet, fresh belly, frozen pocket, frozen steak, and frozen maguro. Based on data from Sisterkaroline apps at the Ngurah Rai airport, tuna commodities are divided into three groups: Tuna-Skipjack-Mackarel. Tuna-Skipjack-Mackarel commodities included Tuna-Skipjack-Mackarel (an Indonesian term for up to six species of neritic tuna) [6].

Species of Tuna-Skipjack-Mackarel commodities exported are divided into ten species. Species commodities recorded are Bigeye tuna (*Thunnus obesus)*, Yellowfin tuna (*Thunnus albacares)*, Southern bluefin tuna (*Thunnus maccoyii)*, Albacore (*Thunnus alalunga)*, Atlantic bluefin tuna *(Thunnus tynnus)*, and Dogtooth tuna *(Gymnosarda unicolor*). Cakalang commodities is skipjack tuna (*Katsuwonus pelamis*). tongkol commodities are Longtail tuna (*Thunnus tongol*), Barramundi (*Lates calcarifer)*, Indian oil sardine *(Sardinella longiceps*).

IV. CONCLUSION

Export volume is less stable; ups and downs in volume occur every year. The frequency and volume of exports are not directly proportional. The frequency of exports in 2019 was relatively high, reaching almost 5 thousand trips, and decreased drastically in 2020, with the number of visits around 2.9 thousand trips. COVID-19 in 2019 had a significant impact, reducing export frequency by half. Tuna-Cakalang-Mackerel products supply various export markets, with 46 recorded destination countries from Bali Province in all chains in 2019-2023. Japan, the United States, and Australia are the largest consumers of Tuna-Skipjack-Mackarel products. The Tuna-Skipjack-Mackerel commodity types are divided into ten species.

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