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ANALYSIS OF THE COMPETITIVENESS OF INDONESIAN TUNA AND SHRIMP EXPORTS IN THE UNITED STATES MARKET

Analisis Daya Saing Ekspor Tuna Dan Udang Indonesia Di Pasar Amerika Serikat

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ABSTRACT

Indonesia is exporting less prawns and tuna to the United States in 2021–2023. An analytical investigation on the competitiveness of Indonesian prawn and tuna products supplied to destination nations like the USA is required in light of these facts. The objective of this study is to examine the growth of Indonesian prawn and tuna exports to the US as well as their competitiveness in this market. This study examines Indonesian prawn and tuna commodities' export competitiveness in the US market from 2012 to 2022. Pustaka, UN Comtrade, Trademap, the Central Statistics Agency (BPS), and the Ministry of Maritime Affairs and Fisheries of the Republic of Indonesia (KKP RI) are the sources of the data. The Constant Market Share (CMS) and Revealed Comparative Advantage (RCA) approaches are the analytical techniques employed in this study. The results show that the trend of leading export commodities, one of which is still dominated by shrimp. Shrimp is the main commodity with export volume increasing significantly from 197.4 million (kg) in 2018 to 250.7 million (kg) in 2021 but experiencing a decline in 2022. The trade value of American shrimp, shrimp consists of large shrimp cold air (0306.16) and tiger prawns (0306.17). The trade value of American tuna, tuna consists of fresh tuna, frozen tuna and tuna fillet. Fresh tuna consists of yellowfin tuna (0302.32) and 0302.34 bigeye tuna. Frozen tuna consists of longfin tuna/albacore (0303.41), yellowfin tuna (0303.42), skipjack tuna (0303.43) and southern bluefin tuna (0303.46); Tuna fillet consists of skipjack tuna (0304.87). The competitiveness of tuna and shrimp in the United States has strong competitiveness.

Key words: America, Competitiveness, Export markets, Prawns, and Tuna

ABSTRAK

Trend ekspor udang dan Tuna Indonesia pada tahun 2021-2023 ke USA mengalami penurunan. Berdasarkan fakta tersebut, perlu dilakukan sebuah kajian analisis terkait kemampuan daya saing produk udang dan tuna Indonesia yang diekspor ke negara tujuan seperti USA. Penelitian

ini bertujuan untuk menganalisis perkembangan ekspor tuna dan udang Indonesia ke Amerika Serikat dan menganalisis daya saing ekspor tuna dan udang Indonesia ke Amerika Serikat. Penelitian ini menganalisis daya saing ekspor komoditas tuna dan udang Indonesia di pasar Amerika Serikat dalam kurun waktu 2012 – 2022. Data bersumber dari Pustaka, *UN Comtrade*, *Trademap*, Kementerian Kelautan dan Perikanan Republik Indonesia (KKP RI) dan Badan Pusat Statistik (BPS). Metode analisis yang digunakan dalam penelitian ini adalah metode *Revealed Comparative Advantage* (RCA) dan *Constant Market Share* (CMS). Hasil menunjukkan tren komoditas unggulan produk ekspor salah satunya masih didominasi udang. Udang adalah komoditas utama dengan volume ekspor yang meningkat secara signifikan dari 197,4 juta (kg) pada tahun 2018 menjadi 250,7 juta (kg) pada tahun 2021 namun mengalami penurunan pada tahun 2022. *Trade value* udang Amerika, udang terdiri dari udang besar air dingin (0306.16) dan udang windu (0306.17). *Trade value* tuna Amerika, tuna terdiri dari tuna segar, tuna beku dan tuna fillet. Tuna segar terdiri dari tuna sirip kuning (0302.32) dan 0302.34 tuna mata besar. Tuna beku terdiri dari tuna sirip panjang/*albacore* (0303.41), tuna sirip kuning (0303.42), cakalang (0303.43) dan tuna sirip biru selatan (0303.46); tuna fillet terdiri dari cakalang (0304.87). Daya saing tuna dan udang di Amerika Serikat memiliki daya saing yang kuat.

Kata Kunci: Amerika, Daya saing, Pasar ekspor, Tuna, Udang

INTRODUCTION

International trade occurs because not all countries have sufficient capacity to meet their needs. This condition provides an opportunity for all countries to participate in the agreed free trade cooperation. As a country with great natural resource potential, Indonesia also has the opportunity to contribute through seafood exports such as shrimp and tuna. Based on KKP statistical data, shrimp and tuna production from fisheries and aquaculture is estimated to reach 293,136.37 tons and 319,166.88 tons in 2023. Shrimp and sea fish (tuna and bonito) are still Indonesia's main exports. The export volume until March 2024 reached 74,638 tons and 57,179 tons respectively. The United States is still the destination country for these products (Directorate General of PDSPKP, 2024).

Competitiveness is needed to enter the international market and meet the requirements of the target country. Based on the 2024 KPBU performance report, there are several challenges and problems in achieving export targets, namely 1) Production capacity and quality of raw materials for export are not optimal; 2) Indonesian seafood products are not yet competitive in the international market; 3) Indonesia's fisheries market and product diversification in the world market are still not optimal; 4) Constraints in registration and acceptance of registered exporters in the destination country and 5) Low use of UPI for export purposes. Until 2023, Indonesia will be one of the shrimp exporting countries to the USA after India and Ecuador. The trend of Indonesian shrimp exports in 2021-2023 to the USA decreased from 113,879 tons to 90,103 tons, while the trend of exports to Japan tended to stagnate from 24,345 tons to 23,908 tons (WITS, 2024). Indonesia's competitor countries in selling shrimp products to Japan include Thailand, Vietnam, and China (Prastika *et al*., 2023). For tuna commodities, Indonesia's exports to the USA are still low compared to Mexico, Spain and Brazil even though the export value has increased from 2022-2023. Based on this information, it is necessary to conduct an analytical study related to the competitiveness of Indonesian shrimp and tuna products exported to destination countries such as the USA. The purpose of this study is to analyze the development of Indonesian tuna and shrimp exports to the United States and to analyze the competitiveness of Indonesian tuna and shrimp exports to the United States.

METHODS

Analysis of export competitiveness of tuna and shrimp products in the US market using data from 2012 - 2022. The study was conducted in September 2024 using secondary data from the United Nations COMTRADE (UN COMTRADE). Secondary data is usually based on time series with Numeric Data format and Export Value Standard Data (HS) 030232 = Fresh yellowfin tuna (*Thunnus albacares*); 030234 = Fresh bigeye tuna (*Thunnus obesus*); 030341 = Frozen albacore or longfin tuna (*Thunnus alalunga*); 030342 = Frozen yellowfin tuna (*Thunnus albacares*); (*Ketsuwonus pelamis*), and shrimp (HS) fillet 03016 = large cold water shrimp and giant prawns (*Pandalus* spp, *Crangon crangon*; 030617 = *Penaeus monodon*) Indonesia starting in 2012 to countries targeted for export in 2022 including America. Data comes from official statistics of UN Comtrade, Trademap, the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia (KKP RI), and the Central Statistics Agency (BPS). Conducting a quantitative study of the competitiveness of tuna exports, analyzing Indonesian shrimp separately in each country, especially the United States. and comparing the competitiveness using the Comparative Advantage (RCA) and Constant Market Share (CMS) Methods carried outn.

RCA Method

There are several methods and indicators used to measure the competitiveness of a country, sector, or raw material. The competitiveness of a region, sector, and raw material can be determined using measurable indicators (Wahono, 2015). One method that is suitable for determining the export competitiveness of a product is the method expressed as comparative advantage (RCA). Wahono (2015) stated that this method is one way to measure the comparative advantage of a product. The RCA calculation is based on the concept that the comparative advantage of a region is reflected in trade between regions themselves. Therefore, the RCA method can be a method for measuring the performance of a country's primary product exports by calculating the share of the product against the total exports of a country, compared to the share of the product in the complexity of world trade. Balasa and Marcus (1989), explain the writing of the RCA method mathematically as follows:

$$\text{RCA} = \frac{Xij/Xj}{Xiw/Xw}$$

Information:

RCA : RCA value
Xij : Export value of commodity i from country j (US$)
Xj : Total value of exports from Country j (US$)
Xij/Xj : Share of Indonesian products (tuna and shrimp) to total exports to the United States)(%)
Xiw : Export value of commodity i in the world (US$)
Xw : Total value of world exports (US$)
Xiw/Xw: Share of world products (tuna and shrimp) to total world exports to the country (United States) (%)

A country's product is considered more competitive compared to the previous year if the RCA index value is > 1. Conversely, if the RCA index value is < 1, then the competitiveness of the country's raw materials has decreased (Wahono, 2015). According to De Benedict & Tamberi (2001), if 0 <, a country is relatively in a less advantageous position in a particular field RCA value <1.

CMS Method

The constant market share method (CMS) is a method used to test what factors influence competitiveness and how these factors influence it (Wahono, 2015). The CMS method or constant market share model is a competitive analysis model used to determine the competitive advantage or export competitiveness of a producing country in the world market compared to other countries. Based on the CMS calculation, three determinants of export growth were identified. Each determinant provides different information. These determinants can be divided into market distribution effects, raw material composition effects, and competitiveness effects. The results of the CMS analysis are then used to determine what factors influence competitiveness and how these factors influence competitiveness. The CMS method used in this study refers to the CMS method from Leamer & Stern (1970). The calculation formula with the CMS method with the following equation:

$$Xijk2 - Xijk1 = \{mXijk2\} + \{(mi - m)\, Xijk2\} + \{Xijk2 - Xijk1 - miXijk1\}$$

Information :

Xijk2-Xijk1 : The actual change or margin of the actual year's export value minus the previous year's (US$)

Xijk2 : The actual value of exports of commodity i in country j to country k in the year (US$)

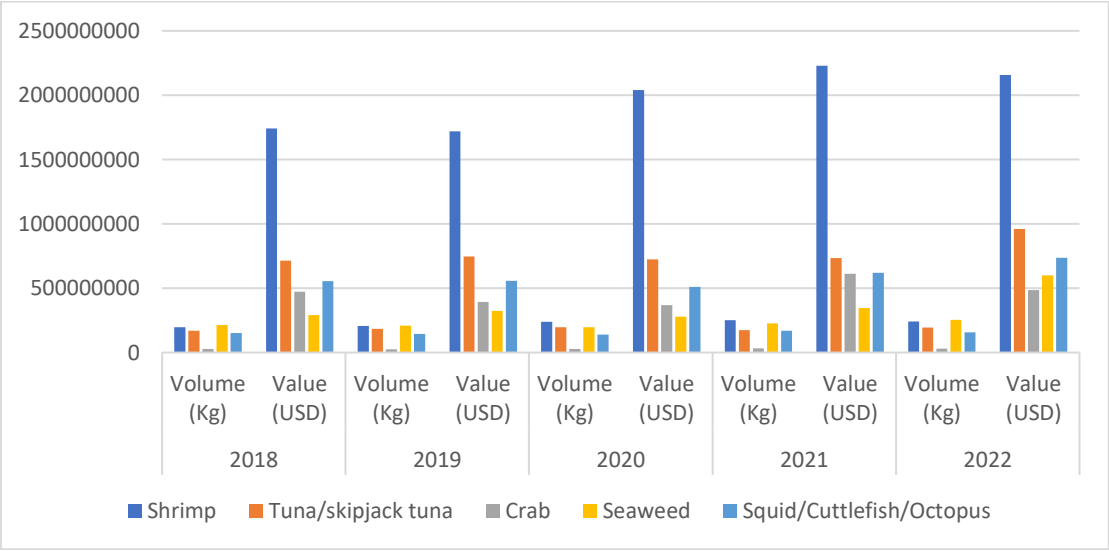
Xijk1 : The export value of commodity i from country j to country k in the previous year (US$)

m : Percentage change in general exports in country k (%)

mi : Percentage change in exports of commodity i to country K (%)

The analysis methods used are RCA and CMS to measure the comparative advantage of a product and to determine the competitive advantage or export competitiveness of a producing country in the world market compared to other countries.

RESULT



Source : data kkp yang diolah, 2024

Chart 1.1 Export Value by Commodity

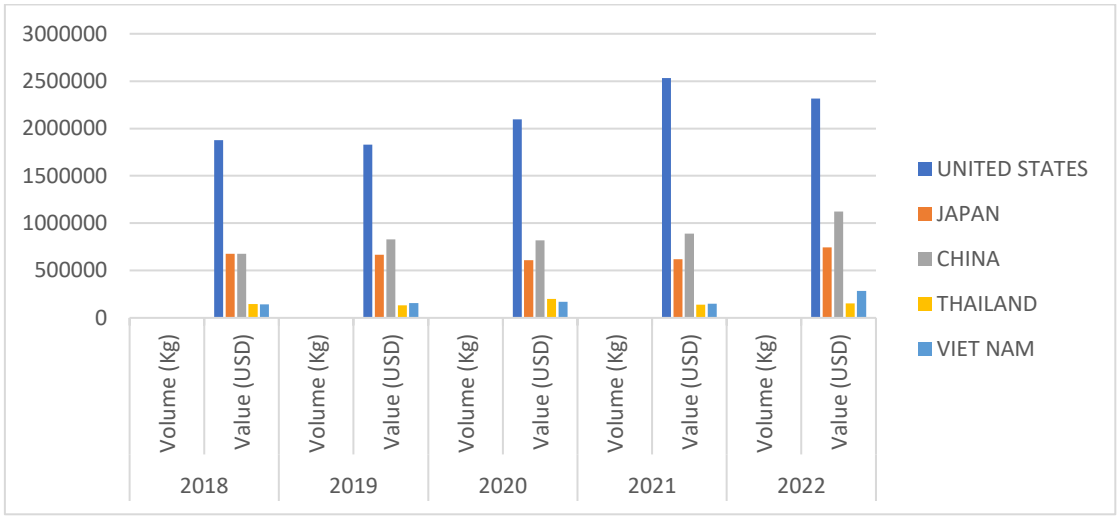


Figure 1.2 Export Value by Destination Country

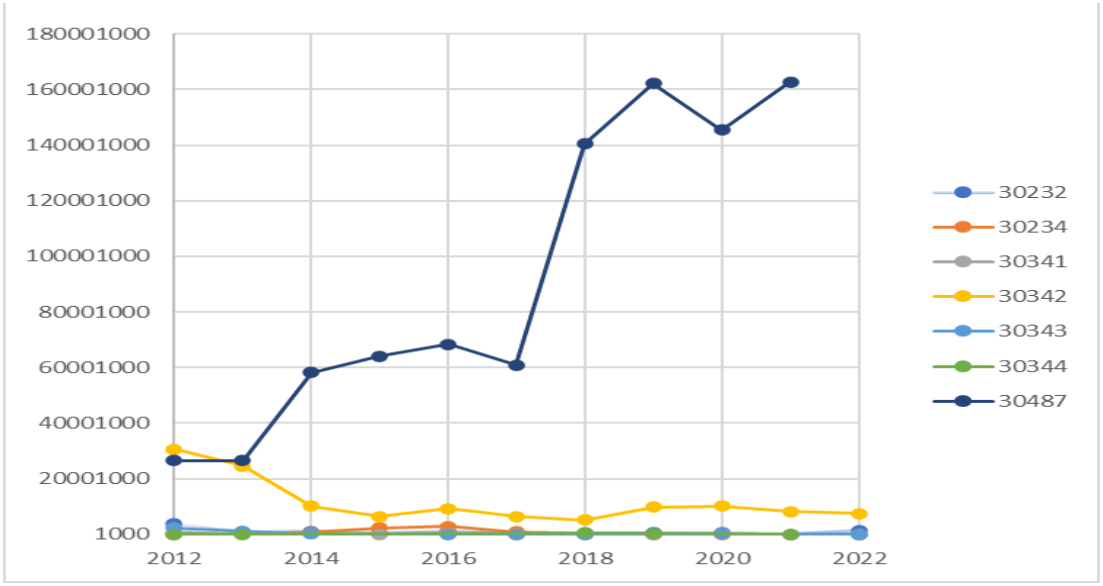


Figure 1.3 Trade value of USA Tuna Commodity

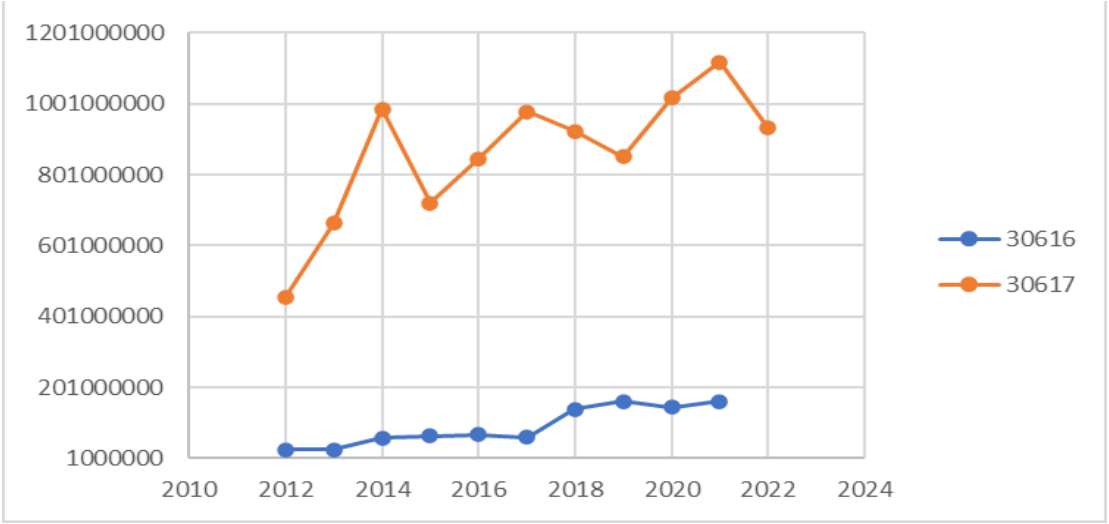


Figure 1.4 Trade value of USA Shrimp Commodity

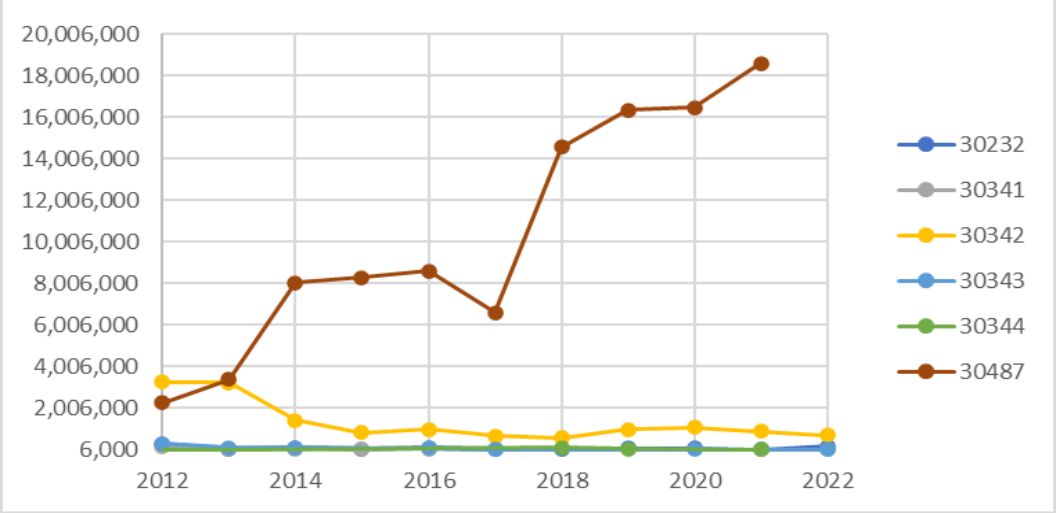


Figure 1.5 Net Weight of USA Tuna Commodity

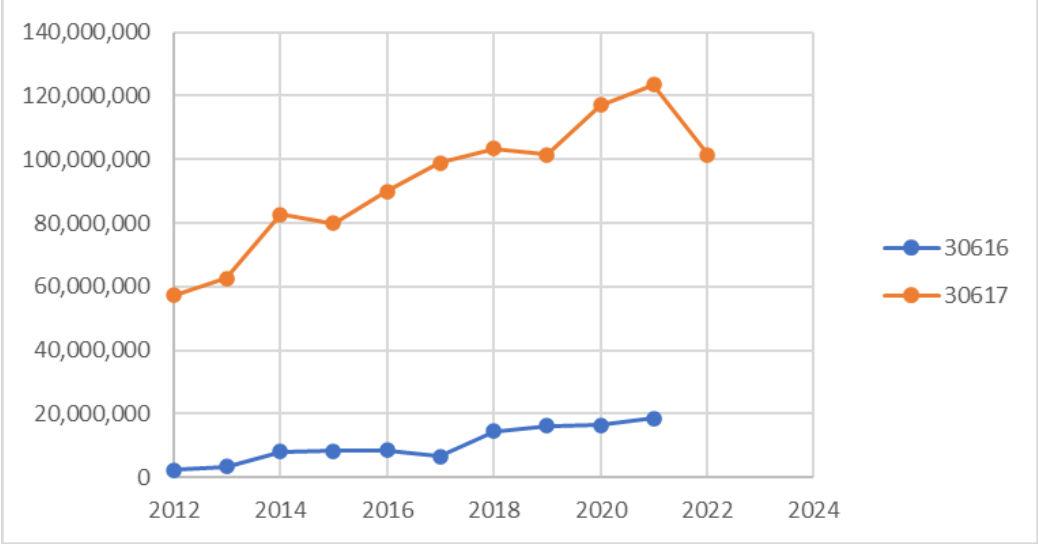


Figure 1.6 Net Weight of US Shrimp Commodities

Table 1.1 Competitiveness of US Tuna Commodity Exports with RCA

Commodity	Country	Expo Competitiveness	Information
030232	USA	1.83	Strong competitiveness
030234	USA	1.36	Strong competitiveness
030341	USA	2.43	Strong competitiveness
030342	USA	3.29	Strong competitiveness

030343	USA	3.83	Strong competitiveness
030344	USA	3.4	Strong competitiveness
030487	USA	1.44	Strong competitiveness

Table 1.2 Competitiveness of US Shrimp Commodity Exports with RCA

Commodity	Country	Export Competitiveness	Information
030616	USA	0.93	Weak competitiveness
030617	USA	0.99	Weak competitiveness

Description RCA > 1 strong competitiveness
RCA < 1 weak competitiveness

Table 1.3 Competitiveness of Tuna Commodity Exports with Constant Market Share (CMS) Analysis

HS Code	Country	Standard growth	Market Distribution Effects	Commodity Composition Effects	Competitiveness Effect
30232	USA	1.288222767	1.330051726	-0.086672840	-0.0000126235
30234	USA	0.509421292	0.615024229	-0.198192700	-0.0000042568
30341	USA	4.118956974	3.973161019	0.115236766	0.0000022167
30342	USA	0.058416936	-0.078159537	0.091732591	0.0000241405
30343	USA	-0.138627241	-0.356791846	0.115052432	-0.0000009311
30344	USA	-0.586987473	-1.287440752	1.052757359	0.0000012755
30487	USA	0.303462717	0.025700076	0.226770750	0.0001078000

Table 1.4 Competitiveness of Shrimp Commodity Exports with Constant Market Share (CMS) Analysis

HS Code	Country	Standard growth	Market Distribution Effects	Commodity Composition Effects	Competitiveness Effect
30616	USA	-0.124181552	0.062290738	-0.145943161	0.0000036600
30617	USA	0.100206912	0.042013584	0.008059144	0.0004194082

DISCUSSION

Seafood products with the highest raw material export value in 2018 to 2022 are shrimp, tuna, bonito, crab, nori, squid, squid, and squid, this is in accordance with research by Amri *et al*., (2024). Chart 1.1 includes export volume and export value in 2018 - 2022. The main product is shrimp, and the export volume increased significantly from 197.4 million (kg) in 2018 to 250.7 million (kg) in 2021, but decreased in 2022. The export value of shrimp also recorded growth, although it fluctuated in the previous year, it increased significantly to 960.3 million USD in 2022. The quantity and price of crabs fluctuate every year. The highest export volume in 2021 was 32.2 million (kg), and the highest export value in 2021 was 613.2 million (USD). Algae have stable export quantities and values. Seaweed exports increased from 213 million (kg) in 2018 to 253.7 million (kg) in 2022. Exports showed a significant increase, reaching a record high of $604 million in 2022. Seaweed exported in the form of raw materials is still relatively low when compared to its processed form in 2018 reaching 176,481 (Adiguna *et al*., 2021). Squid Export Volume, the number of squid showed a decline and fluctuation in 2019 and 2020, but increased in 2021 and increased again in 2022. The export value showed a positive trend, reaching a maximum value of $737.1 million in 2022.

The value of Indonesian fishery exports based on the top destination countries in 2018 - 2022 consisted of America, Japan, China, Thailand and Vietnam according to research conducted by Sasabone *et al*., (2024). Export volume to America increased from 2018 - 2021, but there was a decrease in volume in 2022 while the export value to America remained relatively high with the highest value in 2021 of 2532864.43 (USD). The volume and value of exports to Japan tend to fluctuate but there was a significant increase in value in 2022 and for the highest volume of 120,235.83 (tons) in 2019. The export volume to China increased from 2018 - 2021, although it decreased in 2022 and the export value showed a significant increase each year. The volume and value of exports to Thailand fluctuated with the highest value and volume in 2020, but decreased in 2021 and 2022. The export volume to Vietnam tended to decrease until 2020, but the export value experienced the highest value in 2022 of 283832.3 (USD).

Trade value of American tuna, tuna consists of fresh tuna, frozen tuna and tuna fillet. Fresh tuna consists of yellowfin tuna (0302.32) and 0302.34 bigeye tuna. Frozen tuna consists of longfin tuna/albacore (0303.41), yellowfin tuna (0303.42), skipjack (0303.43) and southern bluefin tuna (0303.46), tuna fillet consists of skipjack (0304.87). Yellowfin tuna in the raw tuna category with code (0302.32) showed the highest US commercial tuna value in 2012 and the lowest in 2021. Bigeye tuna with commercial value in the US in the raw tuna category with HS code 0302.34 reached its highest point in 2016 and its lowest point in 2022. Longfin Tuna/Albacore (0303.41) in the frozen US commercial tuna category had a high US tuna value in 2016 and a low value in 2022 of $27,477 (USD). Yellowfin tuna (0303.42) in the frozen USA tuna trade value category has decreased but remains above 5 million (USD) annually. Skipjack tuna (0303.43) in the frozen category had the highest trade value in 2012 and the lowest value in 2018. Skipjack tuna (0304.87) in the USA fillet trade value category in 2021 had the highest value in 2021 and the lowest value in 2012.

The trade value of American shrimp consists of large cold-water shrimp (0306.16) and tiger shrimp (0306.17). The trade value of large cold-water shrimp in the USA was highest in

2019 and lowest in 2012. The trade value of tiger shrimp in the USA was highest in 2021 and lowest in 2012. The volume of American tuna, tuna consists of fresh tuna, frozen tuna and tuna fillets. Fresh tuna consists of yellowfin tuna (0302.32) and bigeye tuna (0302.34). The export volume of yellowfin tuna (0302.32) to the USA was highest in 2014 and lowest in 2013. The export volume with HS code 0302.24 bigeye tuna was highest to the USA in 2016 while the downward trend in volume was seen from 2018 - 2022 USA. Longfin tuna/albacore (0303.41) in export volume to the USA was highest in 2012 and lowest in 2017. Yellowfin tuna (0303.42) in export volume to the USA was highest in 2012 and lowest in 2018 at 570,966 (kg). Skipjack tuna (0303.43) in export volume to the USA was highest in 2012 and lowest recorded in 2018. Bigeye tuna (0303.44) in export volume to the USA was highest in 2018 and decreased in 2021. US shrimp volume, shrimp consists of large cold water shrimp (0306.16) and tiger shrimp (0306.17). The volume of US shrimp shows consistent growth as seen in the highest US export volume in 2021 and lowest in 2012 at 2,251,602 (kg). The export volume of tiger prawns to the USA in 2012 was 57,241,310 (kg) while the highest volume of tiger prawns in the USA in 2021 was 123,573, 031 (kg). According to Aryudiawan (2022), shrimp (0306) is an export commodity that remains the most significant contributor to exports in 2019.

Product competitiveness is measured by several factors, one of which is RCA (Revealed Comparative Advantage). Weak competitiveness if the RCA value is less than 1, the product is considered not to have a comparative advantage in exports, meaning that the country is less competitive than other countries in the commodity. A country has a comparative advantage below the world average so that a commodity has weak competitiveness. Strong competitiveness if the RCA value is greater than 1, the product is considered to have a comparative advantage and is more competitive in exports than other countries. The share of a product in total exports is greater in the world market indicating that the country has a comparative advantage in the commodity. The competitiveness of Indonesian tuna commodity exports to the USA varies based on the commodity code and its RCA value. HS code tuna 030232 (fresh yellowfin tuna) has strong competitiveness with an RCA value of 1.83, indicating that Indonesia is very competitive in the US market. Bigeye tuna (*Thunnus obesus*) - fresh with HS code (030234) has an RCA competitiveness value of 1.36, meaning strong competitiveness shows a comparative advantage in the US market. 030341 Longfin tuna/albacore in the frozen category has strong competitiveness with a value of 2.43 to the USA. 030342 Yellowfin tuna in the frozen category shows very strong US competitiveness with an RCA value of 3.29. 030343 Skipjack tuna in the frozen category has the highest competitiveness with an RCA value of 3.83. 030344 Bigeye tuna in the frozen category has an RCA value of 1.25, indicating strong competitiveness. 030487 Skipjack tuna (0304.87) in the USA competitiveness fillet has an RCA value of 1.44 indicating strong competitiveness, this is in accordance with (Osmaleli *et al*., 2023) Indonesian tuna exports have a strategic position in the American market because Indonesia can produce various variants of tuna products (fresh, frozen and fillets). Based on the results of the study, the RCA> 1, the RCA value if above 1 means that its competitiveness is strong in the international market or has a comparative advantage above the world average and vice versa (Oktavilia *et al*., 2019).

0306.16.- - Shrimp and large cold-water prawns (*Pandalus* spp, *Crangon crangon*) US competitiveness is weak with an RCA value of 0.93. 0306.17 - - Shrimp and other large prawns: - - Tiger prawns (*Penaeus monodon*) US competitiveness is weak with a value of 0.99 although

approaching 1. Constant market share (CMS) analysis is an analysis to explain the performance or competitiveness of a country's exports which is carried out to measure the dynamics of the level of competitiveness of an industry or country in international trade. Factors that influence export growth include standard growth effects, market distribution effects, commodity effects and competitiveness effects (Aminata & Lauria, 2019). The average standard growth value in 2012 - 2022 shows a standard growth effect with a positive value in almost all US HS codes except HS code 030343 to the USA with a value of -0.138627241 and HS code 030344 to the USA with a negative value of -0.586987473 indicating challenges in maintaining market share. The dynamics of the global tuna market are greatly influenced by commodity composition and competitiveness effects (Xoan *et al*., 2023).

HS code 030616 in the USA has a negative growth value with low competitiveness (0.0000036) this is also below the average world shrimp export standard growth of 0.0570, this is because Indonesia is not the only country that exports shrimp to America (Fatimah *et al*., 2020). HS Code 030617 USA standard growth, market distribution, composition effect and competitiveness are positive with competitiveness value (0.000419) then it has comparative advantage that can be associated with export price if shrimp price is high in competitor country then it has positive influence on Indonesia competitiveness (Ashari *et al*., 2016). Shrimp with HS code 030616 and 030617 in USA shows more fluctuating growth with lower competitiveness.

CONCLUSION

The value and volume of Indonesia's exports to America in 2012-2022 tend to increase. Indonesia has a comparative advantage in tuna and shrimp commodities in trade in America, this is indicated by the average RCA value >1, with this value meaning that Indonesia is no less competitive than other countries. The competitiveness of Tuna and Shrimp (CMS) exports is influenced by several things, including standard growth, market distribution, commodity composition and competitiveness effects.

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