

An analysis of export trends and growth of marine products in India

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DOI: <https://doi.org/10.66856/ijme.2026.8.3.8046>

Abstract

Marine products play a significant role in India's export sector by generating foreign exchange, supporting employment and contributing to the economic development of coastal communities. India's marine-product exports increased from 1,369,264 metric tonnes valued at US\$7,759.58 million in 2021–22 to a record 1,972,018 metric tonnes valued at ₹73,890.46 crore, or US\$8.46 billion, in 2025–26. Frozen shrimp continued to dominate India's marine-export basket, contributing 66.52% of total US-dollar earnings in 2025–26. The quantity index increased considerably relative to the export-value index, while export unit value showed fluctuations and remained below the 2021–22 level in the later years. The study concludes that India's future marine-export strategy should focus not merely on volume expansion but also on value addition, product diversification, market diversification, quality assurance, traceability and improved unit-value realisation.

Keywords: Marine products, seafood exports, export growth, CAGR, index number, unit value, multiple regression

Introduction

India possesses extensive marine resources and has developed a substantial seafood-processing and export industry. Marine products constitute an important category of India's merchandise exports and provide income and employment opportunities across fishing, aquaculture, processing, transportation, cold storage and international trade. MPEDA collects, compiles and disseminates marine-product export statistics and maintains item-wise, market-wise and port-wise data. Its database provides historical export information in quantity, rupee value and US-dollar value. The Indian marine-product sector experienced strong expansion during the study period. In 2021–22, exports reached 1,369,264 MT valued at US\$7.76 billion, which MPEDA reported as an all-time high at that time. Export quantity increased by 19.12% and US-dollar value by 30.26% over 2020–21. The sector subsequently experienced fluctuations. Export earnings declined in 2023–24 before recovering in 2024–25 and reaching a new record in 2025–26. MPEDA reported 1,972,018 MT of exports valued at ₹73,890.46 crore (US\$8.46 billion) in 2025–26. These developments make it important to examine not only the direction of export growth but also whether growth has been generated through higher physical volume, improved price realisation, product diversification and market expansion.

Statement of the Problem

India's marine-product export sector has achieved considerable growth, but the sector remains exposed to several structural and external risks. These include dependence on shrimp exports, international seafood-price fluctuations, changing consumer demand, food-safety requirements, exchange-rate movements, logistics costs and competition from other seafood-exporting countries. A particularly important issue is the difference between growth in export quantity and growth in export value. If quantity increases substantially while unit value declines, the country may experience only limited growth in foreign-exchange earnings. Therefore, the present study analyses the following central problem: To what extent has India's marine-product export performance improved during

2021–22 to 2025–26, and is export growth primarily volume-driven or value-driven?

Review of Literature

1. Sarada *et al.* (2006) ^[1] examined the instability, commodity concentration and geographical concentration of Indian seafood exports using data from 1981–82 to 2003–04. The study applied concentration measures and instability indices to assess the structure and volatility of exports. The authors found that cultured shrimp contributed substantially to export earnings and that commodity and geographical concentration were important factors influencing export instability. The study recommended diversification and technological development to reduce export instability. This study provides an important methodological foundation for the present research because it establishes the relevance of concentration, instability and diversification analysis.
2. Shinoj *et al.* (2009) ^[2] analysed changes in the composition and pattern of India's fish and fishery-product exports in the post-WTO period. The researchers used growth rates, ratios and indices of diversity and instability. The study highlighted changes in India's export basket and destination markets and showed the importance of changing international demand and trade policies. The study is relevant to the present research because it demonstrates the usefulness of growth, index and diversification measures for analysing marine-product exports.
3. Salim and Biradar (2009) ^[3] examined India's shrimp trade using data covering 1979–2005. The study analysed growth, instability, competitiveness, trade dynamics and constraints using econometric tools. The authors found that shrimp was the dominant product in India's marine-export basket, while excessive dependence on shrimp and particular markets created risks. The study recommended infrastructure development, quality assurance, value addition, branding and market diversification. The findings are

- directly relevant to the present study because frozen shrimp continues to dominate India's marine exports.
4. Gopal *et al.*(2012) examined the export performance and revealed comparative advantage of Indian finfish exports during 2001–2005. The study found that Indian finfish exports did not demonstrate strong comparative advantage relative to the overall marine-product export basket. The authors suggested greater emphasis on high-value finfish and value-added products. This finding supports the present study's emphasis on export unit value and value addition as important dimensions of export performance.
 5. Jeyanthi and Gopal analysed India's frozen scampi exports for 1995–2009 using compound growth rates, market concentration and instability indices. The study found substantial market concentration and a high degree of export instability. The authors observed low or negative growth in quantity, value and unit value during the study period and suggested the need to improve market selection and export performance. This study is particularly relevant to the present research because it demonstrates the application of CAGR, market concentration and instability indices to marine-product exports.
 6. Somasekharan *et al.* (2013) ^[6] analysed the competitiveness of Indian shrimp and cephalopod exports in major markets such as the EU, USA and selected Asian countries. The study used the Constant Market Share (CMS) model to decompose export growth into market-size, market-composition and competitiveness effects. The study found enhanced competitiveness for cephalopods, whereas shrimp competitiveness was comparatively weaker. Food-safety standards and regulatory requirements were identified as important factors influencing export competitiveness. This study supports the inclusion of market and competitiveness variables in advanced export-performance analysis.
 7. Radhakrishnan *et al.* (2018) ^[7] studied the growth and instability of Indian fish and fishery-product exports over approximately five decades. The researchers used time-series export data from MPEDA and estimated compound growth rates and several instability measures, including the coefficient of variation, Cuddy-Della Valle Index, Ray's Instability Index and Coppock's Instability Index. The study concluded that seafood exports experienced increasing growth, but instability also increased. This study is highly relevant to the present research because it establishes the importance of time-series data, growth rates and instability measures in evaluating India's marine exports.
 8. Singh *et al.* (2021) ^[8] examined India's shrimp-export performance, changing markets and product profiles. The study identified shrimp as the flagship commodity of India's seafood exports and highlighted the need for vertical development of the product profile. The authors recommended diversification away from frozen shrimp towards value-added products, greater market diversification and improved resilience to exchange-rate volatility. The study is directly relevant to the present research because shrimp concentration remains a major feature of India's marine-product exports.
 9. Chandrasekar *et al.*(2024) ^[9] analysed marine-product export growth, instability and geographical diversification using MPEDA data for 2000–01 to 2019–20. The study used a semi-log regression model, Ray's instability index and Simpson's Diversity Index. The authors reported an overall export growth rate of 7.13% and found significant geographical diversification of India's marine-product exports. However, growth rates declined in the later period for several commodities and export instability increased. This is one of the most directly relevant recent studies for the present research because it combines regression, instability and diversification analysis.

Objectives of the Study

The study has the following objectives:

1. To study the export performance of marine-product in India
2. To analyse annual changes in export quantity and export value.
3. To construct export quantity and export-value index numbers.
4. To analyse export unit value and its changes.
5. To identify the structural characteristics of India's marine-product exports.
6. To suggest policy measures for improving export competitiveness.

Methodology of the study

The study is based on secondary data collected from Marine Products Export Development Authority (MPEDA) database. MPEDA provides export statistics by item, market and port, with historical data available for download. This study has taken a period of five years from 2021–22 to 2025–26. The study applies Compound Annual Growth Rate (CAGR), Annual Growth Rate (AGR), Index Number Analysis, and Export Unit-Value Analysis.

Export Performance of Marine Products

India's marine-product exports show a positive long-term trend, despite fluctuations in volume caused by international demand, prices, trade conditions and supply factors.

Table 1: India's Marine-Product Export Performance

Year	Quantity (MT)	Value (₹ crore)	Value (US\$ million)
2021–22	1,369,264	57,586.48	7,759.58
2022–23	1,735,286	63,969.14	8,094.31
2023–24	1,781,602	60,523.89	7,381.89
2024–25	1,698,170	62,408.45	7,453.73
2025–26	1,972,018	73,890.46	8,460.00
CAGR	7.57%	5.11%	1.74%

Source: MPEDA official export statistics

The table 1 reveals that an overall upward movement in export quantity, although the trend was not continuous. Quantity increased sharply in 2022–23 and 2023–24, declined in 2024–25 and subsequently reached a record level in 2025–26.

Export value followed a more volatile pattern. It increased from US\$ 7,759.58 million in 2021–22 to US\$8094.31 million in 2022–23, declined to US\$7381.89 million in 2023–24 and recovered to US\$7453.73 million in 2024–25 before reaching approximately US\$8460 million in 2025–26.

The Marine-product CAGR for export quantity grew at approximately during the year 2021-22 to 2025-26 7.57 % per annum on a compound basis. Therefore, CAGR export

volume expanded substantially faster than export earnings. This is a major finding of the study and indicates the importance of improving value addition and price realisation.

Annual Growth Rate Analysis

India's marine-product exports reached an all-time high of ₹72,325.82 crore (US\$ 8.28–8.43 billion) in FY 2025–26, growing at a long-term annual volume growth rate of about 6% to 7% and a value growth rate ranging between 11% and 13% annually.

Table 2: Annual Growth Rate of Marine-Product Exports

Year	Quantity Growth (%)	US\$ Value Growth (%)
2022–23	26.74	4.31
2023–24	2.67	-8.80
2024–25	-4.68	0.97
2025–26	16.13	13.50

Source: Computed

The table 2 presents that highest growth in export quantity occurred in 2022–23, when exports increased by approximately 26.74%. However, export value increased by only 4.31%. In 2023–24, quantity increased slightly while export value declined by approximately 8.80%. This indicates that increased physical exports were not accompanied by corresponding value realisation. The sector recovered in 2025–26, with quantity increasing by approximately 16.13% and export value by approximately 13.50%. The annual figures therefore demonstrate considerable volatility and suggest that international prices, product composition and market conditions play an important role in determining export earnings.

Index Number Analysis

It sets a reference base period value at 100 and scales current data as a percentage of that base. The table 3 presents export quantity and value index during the year 2021–22 to 2024–25.

Table 3: Export Quantity and Value Index

Year	Quantity Index	Value Index
2021–22	100.00	100.00
2022–23	126.74	104.31
2023–24	130.11	95.13
2024–25	124.02	96.06

Source: Computed

The table 3 shows that quantity index increased from 100 in 2021–22 to approximately 143.97 in 2025–26. Thus, physical export volume was nearly 44% above the base-year level. However, the export-value index increased only to approximately 109.03. The large difference between the two indices indicates that volume expansion was considerably stronger than value expansion. This provides evidence that India's marine-export sector needs to improve its average export realisation rather than relying exclusively on higher quantities.

Export Unit-Value Analysis

Export unit value measures the average value earned per kilogram of exported marine products.

Table 4: Export Unit Value

Year	Quantity (MT)	Value (US\$ million)	Unit Value (US\$/kg)
2021–22	1,369,264	7,759.58	5.67
2022–23	1,735,286	8,094.31	4.67
2023–24	1,781,602	7,381.89	4.14
2024–25	1,698,170	7,453.73	4.39
2025–26	1,972,018	8,460.00	4.29

Source: Computed

The table 4 reveals that unit value fell considerably after 2021–22 and remained below the 2021–22 level during the remainder of the study period. This suggests that the increase in export volume was not matched by a corresponding increase in average price realisation. The policy implication is given for India needs to move from volume-oriented exports towards higher-value and value-added seafood exports.

Market Performance

India exports marine products to a wide range of international markets. Major destinations include such as United States, China, European Union, Southeast Asia, Japan, Middle East. In 2021–22, the USA was the largest market, accounting for 43.45% of India's seafood export earnings in US-dollar terms. MPEDA's later statistics continue to identify the USA and China among the most important markets. In 2025–26, MPEDA reported that the USA and China remained the primary importers of Indian seafood.

Findings of the study

The major findings of the study are:

- India's marine-product exports show an overall positive long-term trend.
- Export quantity increased from 1.369 million MT in 2021–22 to 1.972 million MT in 2025–26.
- Export value increased from US\$7,759.58 million to US\$8,460.00 million.
- The Marine-product CAGR for export quantity grew at approximately during the year 2021–22 to 2025–26 7.57 % per annum
- Export-value CAGR was approximately 1.74%.
- The quantity index reached approximately 143.97 in 2025–26.
- The export-value index reached approximately 109.03.
- Export unit value declined after 2021–22.

Suggestion

Frozen shrimp remains the central component of India's marine-export basket, contributing 66.52% of US-dollar earnings in 2025–26. MPEDA Although this demonstrates India's competitive strength, excessive dependence on shrimp also exposes the sector to international market and price risks. Consequently, India's future marine-export strategy should emphasise value-added seafood, product diversification, market diversification, quality assurance, traceability, sustainable production, modern cold-chain infrastructure and advanced statistical forecasting.

Conclusion

The study concludes that India's marine-product export sector has demonstrated substantial growth during 2021–22 to 2025–26. Export quantity increased from 1.369 million

MT to 1.972 million MT, while export earnings increased from US\$7.76 billion to US\$8.46 billion. The year 2025–26 represented a record performance in both volume and value. However, the statistical evidence reveals an important structural characteristic: quantity growth has been much faster than value growth. The estimated quantity CAGR of approximately 9.55% compared with value CAGR of approximately 2.19% indicates that India's marine-export expansion has been primarily volume-driven. The decline in unit value after 2021–22 further supports the argument that future export policy should focus on improving price realisation and value addition.

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