

Aquatic Abundance: India's Marine Products and Global trade

Madhu, D. M ¹., Gangadhar, K ²., Hanumanthappa, R ³., Harish, B. P ⁴., V. V. D. Manisha ⁵ and Kota Karuna Sri ⁶

^{1, 3, 5 & 6} Ph.D. Scholar, Department of Agricultural Economics, University of Agricultural Sciences, Bengaluru, India.

² Ph.D. Scholar, Department of Agronomy, University of Agricultural Sciences, Bengaluru, India.

⁴ Ph.D. Scholar, Department of Agricultural Extension Education, University of Agricultural Sciences, Bengaluru, India.

*Corresponding Author: dmmadhu.econ07@gmail.com

Abstract

India's fisheries sector is vital for the economy, contributing significantly to national income, exports, food security, and employment. Globally, fish production grew at a 1.89 per cent CAGR from 2002 to 2023. India saw a steady increase in fish production from 6,399 thousand tonnes in 2003-04 to 17,545 thousand tonnes in 2022-23, driven by inland fisheries. Andhra Pradesh, West Bengal, Karnataka, and Odisha showed remarkable growth in fish production. Aquaculture's export share decreased, while capture fisheries increased. Major marine products exports include frozen shrimp and fish, reflecting India's growing contribution to global marine product markets.

Keywords: Marine fisheries, Inland fisheries, Aquaculture, Global trade and Food security

Introduction

India stands out as a significant oceanographic nation with rich water resources in both its inland and marine sectors, which support both capture and cultured fisheries. The country's fishery sector flourishes across diverse ecosystems that span its geographical breadth. This sector's biodiversity includes various physical and biological components, providing a crucial source of livelihood for about 28 million people, especially those economically deprived in coastal areas. Furthermore, it plays an essential role in contributing to national income, exports, food security, nutritional health, and employment within the Indian economy (Vinod *et al.*, 2023). Fish provides high-quality proteins, healthy fats, and vital nutrients, including long-chain omega-3 fatty acids, iodine, vitamins A, D, and B12, iron, zinc, selenium, and calcium.

India has emerged as a global leader in the fisheries sector, achieving several significant milestones. The country stands first in inland capture fish production and cultured shrimp export, and it is the second-largest aquaculture producer globally. Additionally, India ranks as the fourth-largest exporter of marine fish products and the sixth-largest producer of marine capture fish.

The fisheries sector also plays a crucial role in India's national economy. In the fiscal year 2022-23, fish exports reached Rs. 63,969.14 crores (US\$ 8.09 billion), reflecting an average annual export growth rate of about 14% over the last decade. The sector contributes 1.07 per cent to the national Gross Value Added (GVA) and 6.86% to the agricultural GVA. Furthermore, it provides direct employment to approximately 2.80 crore fishers and fish farmers, underscoring its importance as a livelihood source for millions of Indians (Anonymous, 2024).

Trends in Global Fish production

The compound annual growth rate (CAGR) of global fish production over the period from 2002 to 2023. The average global fish production stood at 157.86 mt. The CAGR over this period is approximately 1.89 per cent at 1% significant level, indicating steady growth in the industry. Fig. 1 indicated that the global fish production has shown a consistent upward trend from 2002 to 2023, increasing from 127 mt to 186.6 mt. There were slight dips in 2020, likely due to disruptions from the COVID-19 pandemic, but production quickly rebounded. The overall trend suggests increased demand and improvements in fishing practices or aquaculture (Statista, 2024).

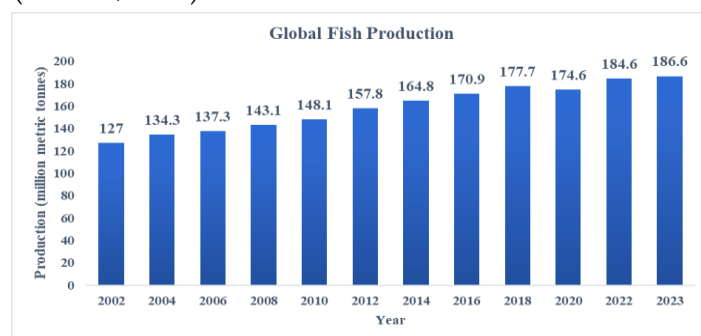


Fig. 1: Trends in global fish production in 2023

Country wise fish production

Fig. 2 revealed that the global fish production reached a total of 178.10 mt. China was the leading producer, contributing a substantial 67.80 mt, which accounted for 38.07% of the world's total fish production. Following China, Indonesia and India produced 16.70 mt (9.38%) and 16.24 mt (9.12%),

respectively. The remaining countries collectively produced 33.55% of the global fish production. This distribution highlights the dominance of China in the industry and the significant contributions from several Asian countries.

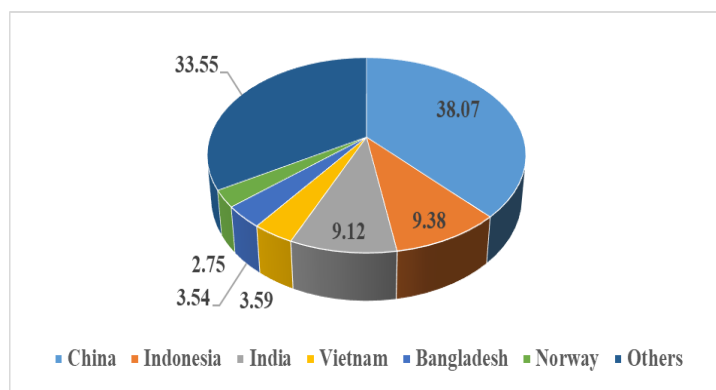


Fig. 2: Percentage share of global fish production in 2021

Indian fish production scenario

Fig 3 depicted that the annual fish production in India from 2003-04 to 2022-23, categorizing it into marine and inland production, and providing the total production in India. The total fish production has seen a steady increase from 6399 thousand tonnes in 2003-04 to 17545 thousand tonnes in 2022-23, reflecting a CAGR of 5.63% per annum at 1% level of significance. Marine fish production in 2003-04 was 2941 thousand tonnes and increased to 4432 thousand tonnes by 2022-23, indicating a modest CAGR of 2.08% per annum at 1% level of significance. In contrast, inland fish production exhibited a more robust growth, climbing from 3458 thousand tonnes to 13113 thousand tonnes over the same period, with a CAGR of 7.54% per annum at 1% level of significance (MPEDA, 2023).

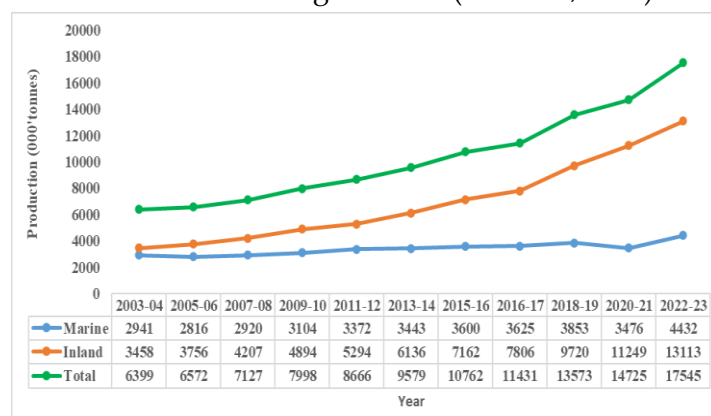


Fig. 3: Trends in fish production in India

The fig. 3 demonstrates a significant shift towards inland fish production, which has increasingly contributed to the overall fish production in India. By 2022-23, inland fish production outpaced marine production, making up a larger share of the total. This trend suggests improvements in inland

aquaculture practices and a growing focus on sustainable inland fishery resources.

Trends in state wise fish production in India

The data from Table 1 shows significant trends in state-wise fish production in India from 2013-2022. Andhra Pradesh leads with a remarkable increase from 1818.42 to 5106.00 thousand tonnes, a net change of 152.97% and a CAGR of 12.38% per annum. West Bengal follows with a moderate rise from 1580.65 to 2045.00 thousand tonnes with net change of 29.38% increase and growth rate of 2.34 per cent per annum. Karnataka's production more than doubled, increasing from 555.31 to 1225.00 thousand tonnes, a 120.60% rise with CAGR 2.34%. Kerala, Uttar Pradesh, Gujarat, and Tamil Nadu also showed positive trends, though with varied growth rates.

India's fish production surged from 9572.27 thousand tonnes in 2013 to 17545.00 thousand tonnes in 2022, marking an 83.29% increase and a growth rate of 14.66%, reflecting substantial growth in the fishery sector across various states.

Table 1: Trends in state wise fish production in India

Sl. No	States/ UTs	2013	2022	Net change (%)	CAGR (%)
1	Andhra Pradesh	2018	5106	153	12.38
2	West Bengal	1580	2045	29.38	2.34
3	Karnataka	555	1225	120.6	2.34
4	Odisha	413	1052	154.2	6.56
5	Kerala	708	921	29.97	10.81
6	Uttar Pradesh	464	915	96.99	1.54
7	Gujarat	798	897	12.34	7.39
8	Bihar	432	846	95.70	1.13
9	Tamil Nadu	624	829	32.79	7.06
10	Others	1976	3709	87.71	2.34
	India	9572	17545	83.29	14.66

Source: Indiatat, 2022

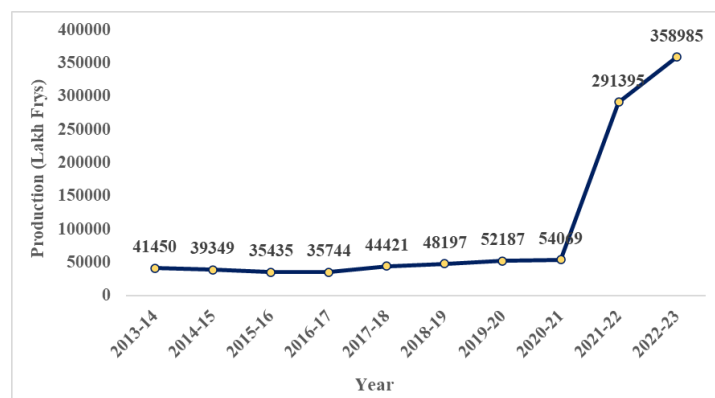
Fish seed production in India

Fig. 4 depicted that the India's fish seed production from 2013-14 to 2022-23. Initially, the production saw fluctuations, the most dramatic surge occurred in 2021-22, with production skyrocketing to 291,395 lakh fry, followed by an even higher increase to 358,985 lakh fry in 2022-23. This sharp rise reflects a substantial 766.07% net change from the initial production in 2013-14. The CAGR over this period was

24.97%, with an average production of 100,123.20 lakh fry. This significant growth can be attributed to enhanced government schemes like Pradhan Mantri Matsya Sampada Yojana, technological advancements, and increased investment in the aquaculture sector.

Fig. 4: Trends in fish seed production in India
Aquaculture Vs Capture fisheries

Table 2 illustrates the comparative contributions of aquaculture and capture fisheries for the fiscal years 2021-22 and 2022-23. In terms of



exported items quantity, aquaculture's share decreased from 49% in 2021-22 to 38% in 2022-23, while capture fisheries saw an increase from 51 to 62% over the same period. exported items, the value generated by aquaculture in Indian rupees declined from 69 to 63%, mirrored by a similar decrease in US dollars from 70 to 63%. Conversely, the value from capture fisheries rose from 31 to 37% in Indian Rupees and from 30 to 37% in US dollars.

Table 2: Contribution of Aquaculture and Capture fisheries export

	Aquaculture (%)		Captured Fisheries (%)	
Year	2021-22	2022-23	2021-22	2022-23
Quantity	49	38	51	62
Value in Rs	69	63	31	37
Value US\$	70	63	30	37
US\$/KG	8.15	7.72	3.33	2.79

Source: MPEDA, 2022

Marine product wise exported quantity

The table 3 revealed that the marine product exports amounted to a total quantity of 17,35,286 mt. The largest exported marine product by quantity was frozen shrimp, accounting for 711,099 mt, which

constituted 40.98% of the total exports. Frozen fish followed as the second-largest exported product, with 368,549 mt (21.24%), dried items (14.58%) of the total exports and so on. The remaining marine products, categorized as "others," collectively amounted to 231,703 mt, making up 13.35% of the total export quantity. The significant dominance of frozen shrimp and frozen fish in terms of export quantity, while also showcasing the diverse range of marine products exported by the country.

Table 3: Product wise export in 2022-23 (Qty in mt)

Sl. No	Marine Products	2022-23	Percentage share
1	Frozen shrimp	711099	40.98
2	Frozen fish	368549	21.24
3	Dried item	252918	14.58
4	Frozen squid	83846	4.83
5	Frozen cuttle fish	54919	3.16
6	Chilled items	24428	1.41
7	Live items	7824	0.45
8	Others	231703	13.35
	Total	1735286	100.00

Source: MPEDA, 2022

Trend in export of total marine products from India



Fig. 5: Export of total marine products from India

The fig 5 indicated that the annual export quantity and value of Indian marine products from the fiscal year 2003-04 to 2022-23. Over this period, the quantity of exports has increased steadily, starting at 412,017 mt in 2003-04 to 1,735,286 mt in 2022-23, with a CAGR of 7.04%. Simultaneously, the value of these exports has seen a significant rise from Rs 6,091.95 crore to Rs 63,969.14 crore, demonstrating a robust CAGR of 14.64%. This trend reflects not only an increase in the volume of exports but also an enhanced unit value of marine products, indicating their growing economic importance in India's export earnings.

Major supplying markets for a marine product imported by India

Table 4 indicated that the India's imports of fish, crustaceans, molluscs, and other aquatic invertebrates showed substantial growth and diversification across several major markets.

Table 4: Major supplying markets for a Fish and crustaceans, molluscs and other aquatic invertebrates imported by India (USD thousand)

Exporters	2013	2022	Average value (2013-2022)	Share of average value
Bangladesh	17714	47415	23739.30	24.22
USA	5634	35253	19476.40	19.87
Vietnam	11892	23289	16421.30	16.75
Myanmar	1238	20419	8537.00	8.71
China	20	13236	2664.30	2.72
Oman	236	7752	5190.30	5.29
Armenia	832	6640	4248.80	4.33
Others	878	31529	17755.90	18.11
Total	46444	185533	98033.30	100.00

Source: Trade Map statistics, 2022

Bangladesh was the top supplier, with import values increasing from USD 17,714 thousand in 2013 to USD 47,415 thousand in 2022. Bangladesh held a significant share of 24.22% of the average annual import value, which stood at USD 23,739.3 thousand. The USA was the second-largest supplier, averaging USD 19,476.4 thousand annually and capturing

19.87% of the share. Other countries collectively accounted for 18.11% of imports, with an average value of USD 17,755.9 thousand.

Conclusion

India's fisheries sector is a cornerstone of its economy, showcasing remarkable growth and diversity. The sector contributes significantly to national income, exports, food security, and employment. India leads globally in inland capture fish production and cultured shrimp export, ranking second in aquaculture production. The nation achieved a record fish production of 175.45 lakh tonnes in 2022-23, driven by both marine and inland sources. Fish exports reached Rs. 63,969.14 crores (US\$ 8.09 billion) in 2022-23. This underscores the sector's pivotal role in India's economy and its substantial impact on global fish production, affirming India's position as a leader in the fisheries industry.

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