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A DAY FOR TUNA AND A FEW INDIAN REFLECTIONS

On the occasion of World Tuna Day, observed on May 2nd, E. M. Abdussamad and C. Ramachandran highlight the economic and ecological importance of tuna resources in Indian waters.

"If the ocean were divided into sovereignties, then the tunafish would be in trouble because it would need a visa"

-Sun Myung Moon

CONTEXT

Amongst the 20,000 known species of marine fish, tuna is the most migratory and hence the most captivatingly globalised one. Cruising at about 30-40 km /hr a type of tuna called Pacific bluefin tuna can complete the trans-Pacific migration in as little as 55 days covering about 8000 km[i]. Harvested by more than 80 countries (with a total catch of more than 7 million tons) tuna and tuna –like species contribute 20 per cent value of all marine capture fish. It forms about 8 % of all globally traded fish too. Thanks to the Japanese new year custom where Tuna is believed to be the harbinger of good luck for the entire year, this fish is reckoned as the most expensive one in the world.[ii].

No other fish could flaunt as grandiose a badge of international awe and adulation as of Tuna. And no wonder that there are five Regional Fisheries Management Organizations just for these fishes[iii]. Tuna is more than taste buds[iv] and deep pockets[v] but an enigma, cultural icon and a symbol of global seafood sustainability.[vi]

TUNA DAY: A CALL FOR AWARENESS AND SUSTAINABLE PRACTICES

Since 2016, May 2nd has been observed as World Tuna Day, following a resolution by the United Nations General Assembly. The purpose is not merely to celebrate an iconic species, but to raise public awareness about the ecological and economic significance of tuna—often referred to as the "red gold superfish"[vii]—as well as the threats it faces and the urgent global need for sustainable fishing practices.

Encouragingly, the UN's call appears to be resonating. Conservation efforts have yielded positive results: the Atlantic bluefin tuna has been reclassified from "Endangered" to "Least Concern," while the Southern bluefin tuna, though still listed as "Endangered," has improved from its previous "Critically Endangered" status on the IUCN Red List (2021).

However, given the soaring global demand for tuna as a prized delicacy, it is essential to further strengthen international efforts to ensure that tuna stocks are harvested responsibly. In this blog, we provide a concise overview of the economic and ecological importance of tuna resources in Indian waters.

TUNA FISHERY IN INDIA: AN OVERVIEW

Tuna fishery in India has a history that parallels the development of the country's broader marine fisheries. Until the 1980s, tuna was primarily an incidental catch in most fisheries, with the exception of specific regions such as Lakshadweep, parts of Kerala, and Tamil Nadu, where targeted tuna fishing had already been established. Box 1 provides a brief description of the different types of tuna.

In Lakshadweep, a well-organized and traditional fishery for skipjack tuna has long been practiced using pole-and-line and troll line methods. At Vizhinjam, bullet tuna is in high local demand and has been specifically targeted using hand lines, small longlines, and gillnets. Similarly, in Tuticorin, tunas and other large pelagic species have historically been targeted by traditional fishers. Spurred by the success of these traditional fishers, several trawlers in Tuticorin were modified in the 1980s to enable tuna fishing using gillnets in deeper waters[viii].

A fisherboy carrying yellowfin tuna to auction hall

In the mid-1980s, commercial longlining for oceanic tunas was introduced under a charter scheme using "Letter of Permit" (LOP) vessels, intended as a precursor to joint ventures. However, this initiative was discontinued following opposition from local fishing communities.

Since the early 2000s, traditional fishers from the southern coastal regions have increasingly targeted oceanic tunas and associated species with notable success[ix]. These fishers operate artisanal crafts equipped with small longlines, hand lines, troll lines, pole-and-lines, and gillnets in the outer continental shelf areas. Motivated by their achievements and a policy shift by the Government of India to explore oceanic resources, many commercial trawlers were retrofitted for longlining—primarily to target yellowfin tuna—around 2005–06. These fleets typically operate with multiple fishing gears, focusing their efforts along the shelf edge and in adjacent oceanic waters.

Pole and line fishing, a more sustainable method than the globally common purse seining, is practiced by Lakshadweep fishers for whom Tuna (called as *Massmeen /masmin*) forms a mainstay of the island economy.

Indian waters are rich in tuna stocks, with an estimated annual harvestable potential of approximately 2,91,300 tonnes. Of this, around 1,05,480 tonnes—representing 36.2% of the total—comprise mostly smaller tunas found in the shallow continental shelf regions. These are classified as coastal or neritic tunas. The remaining 1,85,820 tonnes consist of oceanic tunas, which inhabit open waters beyond the continental shelf and around oceanic islands.

Tunas in India are harvested using a variety of fishing gear, including gillnets, longlines, handlines, pole and lines, troll lines, purse seines, ring seines, and even trawls, depending on the fishing ground and the target species.

Box 1: Types of Tuna

Tunas are epi-pelagic marine fishes under the family Scombridae. Some of them have a specialized circulatory system that allows them to retain a significant portion of the heat generated by their muscles. Thus they can thrive in a wider range of water temperatures and do hunting and migration efficiently. Globally they are represented by 15 species, which grow to varying sizes and longevity. Their maximum size ranged from 50 cm in length and weight of 1.5 kg for the smaller species, the bullet tuna and up to 460 cm and weight: 684 kg for Atlantic bluefin tuna. The latter is believed to live over 50 years.

Tunas in Indian waters are represented by nine species belonging to five genera. Among them little tuna (*Euthynnus affinis*), frigate tuna (*Auxis thazard*), bullet tunas *(Auxis rochei),* longtail tuna *(Thunnus tonggol)* and bonito (Sarda orientalist) represent the coastal/netritic species. Yellowfin tuna *(Thunnus albacares),* skipjack tuna (Katsuwonus pelamis), dogtooth tuna *(Gymnosarda unicolor)* and bigeye tuna *(Thunnus obesus)* represents the Oceanic species. They have been exploited along the Indian coast since time immemorial with neritic groups being the mainstay of the tuna fishery till recently. Increased demand for Sashimi grade tuna from export markets, improved harvesting methods, storage and transportation facilities provided an impetus for fishermen to harvest all commercially important resources including oceanic resources, which resulted in overall increase in their production

TUNA PRODUCTION

With the modernization of fishing practices—including diversification, intensification, and the expansion of operations into new fishing grounds—the status of tuna in India has shifted from an incidental bycatch to a targeted commercial fishery. Tuna landings along the Indian mainland coast have shown a steady upward trend, rising from 6,962 tonnes in 1961 to 46,334 tonnes in 2000. Since then, landings have continued to improve, albeit with significant year-to-year fluctuations, reaching an all-time high of 119,465 tonnes in 2024(Fig 1).

The seas around Andaman and Nicobar Islands and Lakshadweep are known to support abundant tuna stocks. Tuna landings from Lakshadweep average around 20,000 tonnes annually, supported mainly by traditional pole-and-line and handline fisheries respectively targeting skipjack and yellowfin tuna. However, despite the presence of rich tuna resources around the Andaman Islands, annual production remains disappointingly low, consistently below 3,000 tonnes of neritic tunas—highlighting the need for strategic interventions to unlock this region's full potential mostly the oceanic tunas.

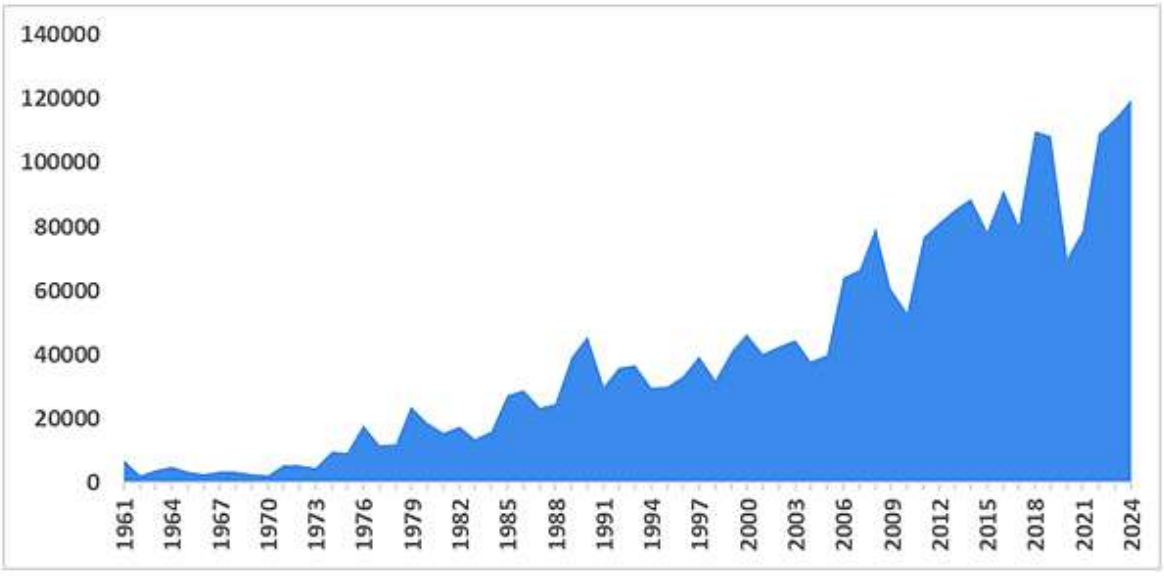

Fig 1. **Growth in tuna landings in tons from mainland India**

Catch Composition

Coastal (neritic) tunas account for approximately 57% of India's total tuna catch. This segment is primarily supported by species such as little tuna (36.3%), frigate tuna (10.7%), bullet tuna (2.8%), longtail tuna (6.5%), and bonito (0.8%). Among the oceanic species, yellowfin tuna contributes 24.3%, followed by skipjack tuna (18.6%). Smaller proportions are made up of dogtooth and bigeye tunas.

Traditional catamaran fishermen carrying yellowfin tuna catch to auction point/

Production by Region

About 83.9% of the country's total tuna landings originate from the mainland coast, with the west coast contributing 43.7% and the east coast 40.2%. The Lakshadweep Islands account for 14.3%, while the Andaman & Nicobar Islands contribute 1.8% to the national tuna landings.

Utilization

Historically, tuna was considered a low-value fish in the domestic market—less preferred than sardines and mackerel. It was primarily consumed in salt-dried form or, to a lesser extent, as fresh fish. However, with the growth in oceanic tuna production and increasing export demand, both the perception and utilization of tuna within India have evolved significantly. Today, tuna is largely consumed fresh, with smaller quantities processed into dried or preserved products, while a substantial portion is directed toward export markets.

Approximately 90% of neritic tuna and 64% of oceanic tuna landings are marketed domestically. Among the neritic species, longtail tuna and a smaller share of little tuna are exported. Internationally, Indian tuna is traded in various forms—primarily as raw material for canning, including sashimi-grade cuts and loins (fresh, frozen, or pre-cooked). Tuna is also exported for direct consumption in fresh, chilled, or frozen formats.

Canned tuna is offered in several varieties, such as solid pack, chunks, flakes, and grated. Additionally, a range of value-added tuna products is produced, including dried and smoked tuna, tuna steaks, burgers, sausages, and roe.

The primary export destinations for Indian tuna are Japan and the United States, followed by markets in Sri Lanka, Malaysia, and several Gulf countries.

A view of typical traditional fishing units of Andaman Nicobar Islands

CHALLENGES AND OPPORTUNITIES

The tuna resources in Indian waters do not currently face the same level of sustainability challenges seen in other parts of the world. This is largely due to the small-scale, artisanal nature of the Indian fishery and the biological resilience of tropical marine ecosystems. However, coastal (neritic) tuna stocks are already being harvested at or near their maximum sustainable levels, limiting further expansion in these zones.

Future opportunities for commercial-scale development lie in the oceanic tuna stocks within India's Exclusive Economic Zone (EEZ). The oceanic tuna stocks of Lakshadweep seas are getting targeted in recent years; whereas, serious attempts were yet to be initiated for Andaman waters[x]. Enhancing fishing efforts in these areas can help India to fully utilize the allocation potential granted by the Indian Ocean Tuna Commission (IOTC), aligning with both national resource management goals and international obligations.

When it comes to tuna, maintaining peak freshness from the point of capture through to the final consumer—by following best practices throughout the value chain—is the most effective form of value addition. This is particularly critical for sushi- and sashimi-grade tuna, which are consumed raw and command premium prices in global markets. There are now smart entrepreneurs in India, who have realized this opportunity, helping fishermen as well as entrepreneurs to reap huge financial benefits[xi].

The growing presence of sushi and sashimi outlets in Indian metropolitan areas is poised to redefine the Indian tuna industry, shifting the focus toward quality, value addition, and sustainability. This emerging domestic demand offers a unique opportunity to align the sector with international standards while enhancing the livelihoods of coastal fishing communities.

To fully optimize the utilization of India's tuna resources and to provide greater livelihood security for fishers, a multi-pronged strategy is essential, focusing on the following key areas:

- *Capacity building* – Training fishers across the entire value chain, from humane harvesting to efficient chilling and hygienic handling ("killing–chilling–filling");
- *Investment in harbour infrastructure* – Upgrading landing centers with modern handling, storage, and processing facilities;
- *Scientific stock monitoring* – Ensuring sustainable harvest through regular assessments of tuna populations;
- *Special schemes to support artisanal fishers* – Harnessing traditional knowledge and skills through targeted initiatives;
- *Promotion of vertical integration* – Encouraging linkages between fishers, processors, and exporters to increase efficiency and profitability;
- *Consumer awareness and ecolabeling* – Building demand for responsibly caught tuna through education and certification;
- *Enabling policy frameworks* – Creating supportive regulations and incentives for expanded, sustainable fishing in oceanic waters.

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(* Views are personal)

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[i] Being warm blooded, unlike most fishes which are cold –blooded, the Blue fin tuna is bestowed with unique physiological advantages to accomplish this fete. Not all tunas (eg., yellow fin tuna) are warm-blooded.

[ii] The first tuna auction of 2025 at the Toyosu Fish Market in Tokyo, fetched Rs 11 crore ($1.3 million USD) for a 276 kg bluefin tuna (about Rs 40,000/kg!) . Kiyoshi Kimura, known as the "Tuna King," paid $3.1 million for a 278-kilogram bluefin tuna in 2019. However, a similar-sized tuna on a normal day may cost you around $60,000.

[iii] Commission for the Conservation of Southern Bluefin Tuna (CCSBT), Indian Ocean Tuna Commission (IOTC), International Commission for the Conservation of Atlantic Tunas (ICCAT), Inter-American Tropical Tuna Commission (IATTC) and Western and Central Pacific Fishery Commission (WCPFC). India is a member IOTC.

[iv] Sasha Issenberg .2007. The Sushi Economy-Globalisation and the making of a Modern Delicacy, Gotham Books. (The opening quote is from this book).

[v] The Bangkok Teacher who saved the Lukin Tuna empire, by Greg Bearup. Feb 21, 2025 – Financial Review. The purse seine system developed by Dinko Lukin revolutionised tuna aquaculture in Australia.

[vi] Steven Adolf .2019. Tuna wars-Powers around the fish we love to conserve, Springer.
Al Mc Glashan. 2029.Life on the Line- The Amazing true story of Southern Blue Fin Tuna. Youtube

[vii] Jennifer Telesca 2020. Red Gold-the managed extinction of the giant Bluefin tuna,
University of Minnesota Press. The term “superfish” is attributed to Sir David Attenborough.

[viii] Abdussamad *et. al 2012*. Indian tuna fishery - production trend during yesteryears and scope for the future. *Indian J. Fish*., 59(3) : 1-13, 2012

[ix] Shinoj Parappurathu a, C. Ramachandran a, Muktha Menon b, K.K. Baiju a, Prathibha Rohit c, R. Narayana Kumar d, Shelton Padua e, Shiv Kumar Harnessing artisanal prowess in offshore fisheries: The case of Thoothoor fishers from India Marine Policy Volume 121, November 2020, 104174

[x] Pillai, N G K and Abdussamad, E M (2008) *Development of Tuna Fisheries in Andaman and Nicobar Islands.* Proceedings of Brainstorming Session on Development of Island Fisheries. pp. 23-34.

[xi] Priyadarshini, S. 2022. Fishermen focus on landing Sashimi quality tuna. The Hindu 2nd May 2022.

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