

WHOSE SEA IS IT ANYWAY

India's fisheries are passing through a critical phase where the relation between production, livelihood and consumption reflects various trends of concern



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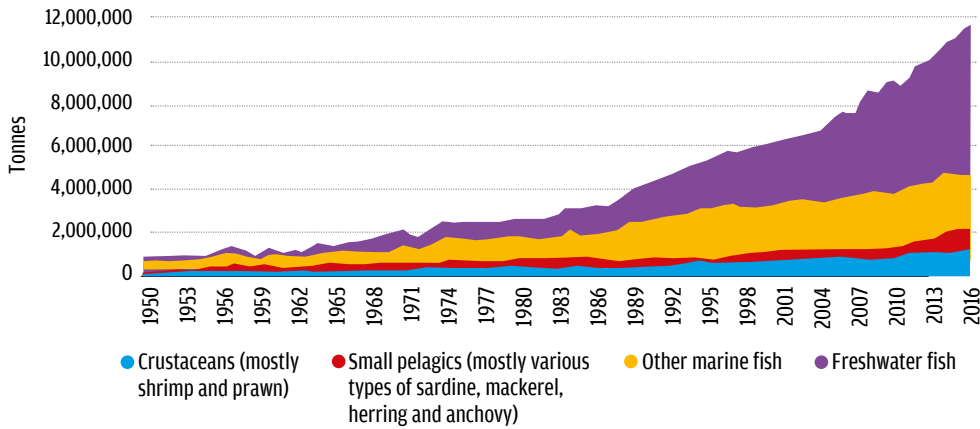
JOERI SCHOLTEN AND AMALENDU JYOTISHI

Crossing the symbolic production threshold of 10 million tonnes in 2015, India has become the world's second largest producer of fish and has one of the most rapidly expanding aquaculture sectors. At the same time, annual fish consumption of the average Indian is approximately 5 kg per capita, which is one of the lowest in the world and a mere quarter of the global average of 20kg/capita/year, as per a 2018 report by the Food and Agriculture Organization (FAO). And yet, for many Indian households, fish is an important and relatively cheap source of nutrition, a contribution which is strikingly under-researched. While fisheries researchers have tended to focus on fish production and fisheries management, food security research has been tilted towards agriculture and non-fish animal protein sources like milk, egg and meat. This ignorance of the role of fisheries for food and nutritional security poses a problematic oversight in a country that ranks squarely number one in terms of wasted and stunted children, as per the Global Nutrition Report 2018.

Fish in general and marine fisheries in particular provide at least two major contributions to a country's food and nutrition security. First, they provide an often irreplaceable source of

AT A LOW EBB

Though fish production in India has been rising, the country has produced more freshwater fish than marine fish since 2013. Marine fish are vital for the poor in coastal areas because of their affordability and exceptional nutritional value



Source: FAO Food Balance Sheets 2016

essential nutrients like omega-3 fatty acids, iodine, vitamin A and D, and minerals like iron, zinc and calcium. Secondly, they provide millions of viable, albeit precarious livelihoods that provide households with an income necessary to access food. This article reflects on some critical trends that are affecting these vital contributions, with particular attention to the impact on poor households.

Decommonising the seas

Marine resources are typically understood as a common-pool resource, characterised by non-excludability and rivalry. A commons perspective on the sea foregrounds the possibility of communal ownership and management, minimally resorting to the state or private property regimes, building on the historical relationships that coastal people have with the sea. Three "Blue Revolutions", however, have led to a progressive "decommonisation" of the ocean, which have affected the triad relationship between fish production, fish consumption and fisheries-based livelihoods.

The first "Blue Revolution" denotes the emerging mechanisation of India's fishing fleet that started in the late 1960s and is unfolding until today. The process of mechanisation, while causing tremendous increases in production, also led to conflict with artisanal fishers, increased the role of state in the management of marine fisheries affairs and undermined traditional institutions that managed fisheries as a common pool resource. While only partially related to the sea, the boom in aquaculture arguably constituted a second "Blue Revolution". While this boom plays an important role in increasing fish production, questions have been raised about the relatively poor nutritional value and relatively high price of its produce, the nature of raw material input requirements, high levels of capital concentration and problematic environmental externalities. A third "Blue Revolution" is currently gaining weight through the emerging narrative of the "blue economy". This powerful narrative frames the coasts and seas as the new frontier of economic opportunity and growth, and is translated into practice through a booming construction of harbours and coastal industry. These three "Blue Revolutions" have affected, and continue to affect, the complex and diverse relationships between people and the marine and inland commons. They have also undermined the role of traditional governance and collective ownership and displaced many communities depending on the seas for their livelihood. These shifts are thus affecting the way fish is produced, impact livelihoods involved in the harvests and post-harvest chain, and eventually also affect patterns of fish consumption. In short, while these "Blue Revolutions" have increased fish production,

PRODUCTION-DIVERSION-CONSUMPTION

While fish availability in India has increased by 257% between 1980 and 2012, fish consumption per capita has risen by just 69% while marine fish consumption per capita has declined

		1980	2000	2012
Fish provisions (in 1,000 tonnes)	Fish imports	1	34	40
	Fish production	2,441	5,603	7,978
	Total fish available	2,442	5,637	8,018
Fish utilisation (in 1,000 tonnes)	Fish export (99% marine, 15-20% small pelagics)	111	513	1,036
	Fishmeal and other non-food uses (mostly small pelagics)	160	450	673
	Remaining fish for human consumption	2,171	4,659	6,310
Fish consumption (kg/capita/year)	Freshwater fish	1.31	2.62	3.52
	Crustaceans	0.29	0.34	0.33
	Marine	1.41	1.52	1.25
	Total fish consumption	3.01	4.48	5.1

Source: FAO Food Balance Sheets 2016

the vital question to ask is how are the benefits from this increased production distributed?

Fish production for whom

Total fish production in India went from less than 1 to over 11 million tonnes between 1950 and 2016 (*see* 'At a low ebb' on p 227). Even though the accuracy of fish production data has been subject to debate, the graph points to an indisputable increase in fish production over the last few decades. The recent boom in aquaculture is especially noticeable, and since 2013, India produced more inland than marine fish. The graph points to noticeable increase in inland fish production over the last two decades which represents the boom in aquaculture. Indeed, since 2013, India produced more inland than marine fish. Having that said, marine fisheries constitute a vital source of nutrition to millions of poor consumers, both in coastal and inland regions. In particular small pelagics like sardines are significant given their general affordability and exceptional nutritional value for money.

However, increased fish production does not automatically translate into increased fish consumption (*see* 'Production-diversion-consumption'). In recent years, fish exports, which include a considerable amount of small pelagics, have increased exponentially. This trend indirectly compromises the contribution of fish to India's food and nutritional security because it reduces the availability of an affordable nutrition source for the poor, as per a study published by Central Marine Fisheries Research Institute (CMFRI) in 2015. In addition, increasing amounts of low price fish are diverted to satisfy the demand of a growing fishmeal and fish oil industry, poultry feed and fertiliser, further reducing the availability of marine fish for direct human consumption in the domestic market. Some estimates suggest that as much as 25 per cent of the trawl catch, and increasingly, bulk landings of oil sardines by ring seine boats, is diverted to these industrial uses. Since these industries target the cheapest varieties of fish, this trend is particularly concerning for low-income consumers.

Apart from the FAO's calculations presented above, the National Sample Survey Office's consumption expenditure survey provides an alternative source of consumption information. It suggests that approximately 25 per cent of India's households do eat fish. These fish-eating households consume on average 12 kg per year, for which they spend ₹320. These survey data also allow for digging beyond averages, and give insight into how fish consumption is distributed over different population groups. For example, coastal states consume much more fish than inland states, which is significant given the high concentration of under-nutrition in the hinterland of non-coastal India. No significant variation was found between rural and urban dwellers, or among various income groups, which suggests the relative importance of fish to poor households. Perhaps most strikingly, the expenditure on fish as a proportion of the overall food basket has increased considerably, indicating that consumers spend an

increasing proportion of their income on fish.

Fisheries access and livelihoods

There are over 3,000 marine fishing villages spread over nine maritime states, hosting 864,550 marine fisheries households of which 61 per cent are living below poverty line, as per a 2010 census by CMFRI. The post harvest sector provides livelihood to an additional estimated 8 million people, by and large women, says a 2010 study by the World Bank.

Fishers in India are generally divided into small-scale fishers (operating relatively small craft propelled by outboard engines or paddle and sail) and large-scale fishers (operating relatively large mechanized vessels). The mechanisation of Indian fisheries, the first “Blue Revolution”, led to an unprecedented growth in marine fish

production, yet also brought violent conflict over access to fishing grounds between traditional fishers and the new technologically superior contenders. The large-scale mechanised sector—mostly trawlers—over the past few decades has successfully secured an increasing share of the total landings (see ‘Squeezing the Small’). While many may celebrate this as a natural process of technological modernisation, this trend is of concern to India’s food and nutrition security for three reasons. First, in spite of an increasing number of boats, the total production from small-scale fisheries is stagnant, implying declining catches per boat in an intensely competitive sea and a declining ability for many small-scale fishers to make a livelihood from the sea’s resources. Second, in comparison to mechanised boats, small-scale fishing boats produce almost exclusively for domestic fish consumption rather than for export and industrial uses. Third, small-scale fishers landings are typically handled by women fish vendors, whose livelihoods are not only precious for their own sake, but also provide the vital link between landing sites to low-income consumers.

In conclusion, the three interrelated “Blue Revolutions” may be celebrated for having created a major boom in fish production and coastal modernisation. But, as Amartya Sen already observed in his 1981 book on poverty and famine, improving food security is not just about producing more food. Only by appreciating the intricate linkages between production, livelihoods, access and consumption can we understand why the contribution of fisheries to India’s food and nutrition security is at risk. ■

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SQUEEZING THE SMALL

Over the last five decades, the large-scale mechanised sector has secured an increasing share of the total catch



Source: *Sea Around Us*, 2016; Central Marine Fisheries Research Institute; *Handbook of Indian fisheries 1958*; *Overfishing along Kerala Coast: Causes and Consequences*, 1990

RESOURCES

- *The State of World Fisheries and Aquaculture*; FAO, 2018: The report highlights the critical importance of fisheries and aquaculture for the food, nutrition and employment of millions of people, many of whom struggle to maintain reasonable livelihoods: Available at <http://www.fao.org/state-of-fisheries-aquaculture>
- *Why marginality persists in a governable fishery—the case of New Zealand*: Andrew M Song, Hekia Bodwitch and Joeri Scholtens, November 6, 2018: The paper examines the reproduction of marginality evident in fisheries: Available at <https://maritimestudiesjournal.springeropen.com/articles/10.1007/s40152-018-0121-9>