

Indian Ocean – Fishing

The Practice of Living-With the Sea

Introduction

This article intends to offer a brief summary of the phenomenon of fishing in the Indian Ocean through glimpses of its history and techniques as well as by posing involved questions on the future of this practice in the area, in an attempt to better understand fishing as an integral part of humanity's collective practices directed at the exploitation of the planet's resources.

History of Lacunae

A comprehensive and complete history of fishing in the Indian Ocean preceding the colonial explosion of the 19th century is at the present moment extremely difficult: Ancient and Classical sources touch on the subject only tangentially and even there, only on the situation of a small region of India, ignoring, for the most part, the practices and experiences of Eastern Africa, South East Asia and Australasia.

Most of the data available on pre-colonial fishing comes from archaeological excavations in form of inscriptions and pictorial representations, such as those of the Mahadeo Hills in Rajat Phrabad, ill-surviving remains of hamlets and settlements on the coast and fragments of fish bones or ornaments made from marine materials like sea-shells¹; though unfeasible to construct a detailed phenomenology of proto- and early-Indian fishing from these partial remnants, they did allow scholars to understand the phenomenon as embedded in a bigger, more organized system of trade and cultural exchanges that encompassed the Indian subcontinent and the Middle East, carrying the product of Indian fisheries hundreds of miles inland or across the Ocean.

Later secondary sources, from the poetic Tamil works of the Akananuru and the Pattinappalai to the works of a number of notable Greek historians (notably, Pliny in his *Historia Naturalis*)² and votive inscriptions commissioned by fishermen, denote continuity in the practice of fishing in the region, though details on how it was practiced are scarce, limited to literary similes and relayed information, especially in the case of Greek historians. Similarly, the ethnographical make up of these communities is known only through literary and religious texts, whose almost prescriptive descriptions are liable to be the result of an ideological bent on the part of the authors. Still, it is possible to note that most scholars are in agreement on the low social status of the "fisherman" figure, as well as its inter-caste nature³.

It is also worth noting that the practice of aquaculture, now producing around four thousand tonnes

1 Ray, H. P., 2000, The Indian Ocean in Antiquity: whither maritime history?. *Topoi*, Volume 10, Number 1, pp. 345-8

2 Ray, H. P., 2000, op. Cit., pp. 345-8

3 Sadasivan, S. N., 2000, A Social History of India. APH Pub. Corp, pp. 357-8; Sadasivan is widely understood to be partisan in his celebration of the role of Buddhism in the social, political and spiritual history of India but the texts he offers as an anecdote are, I believe, expressive of the underlying social structures of the period.

of product per year in India, traces its origins through mentions in literary works, namely Kautilya's Arthashastra and King Someswara's Manasoltara, as early as the 12th century BCE⁴; the aquacultural breeding of carps, especially, has been reported throughout the history of India without interruption to modern days, and to a lesser extent in the area of Western Africa.

Next to no information are available on the following period of Indian fishing history: the practice, presumably, continued without many changes in habits or tools as, when the British-era Indian Fisheries Act of 1897 passed, putting all fisheries under the nominal authority of the Indian government (more specifically of the single Indian States, each autonomous in its regulatory ability)⁵, it is reasonable to suppose most of them were still "village-run", employing traditional techniques to reach their target of mere self-sufficiency – one of the reasons behind the Act itself. Later developments in fishing were consistent with the colonial status of the nation and, after its independence, with the global trend towards Western standards. As of today, India's fishing fleet and techniques are very similar to, and at least on par with, those of most Western nations, while the majority of traditions related to fishing has either been forgotten or commodified and turned into spectacle for touristic purposes.

To Sail, To Catch, To Evolve

Fishing as a practical activity is characterized by its connection and reliance on two defining elements – the boats used to fish and the tools employed in fishing. The polymorphous and ever-evolving intersection of these components, along with the socio-cultural background of the fishermen, constitutes the praxis of fishing: briefly analyzing the way these elements evolved, and are now operating, in the Indian Ocean is essential to understand the phenomenon in question.

As one of the most important practical components of fishing, the analysis of the kind of vessel types employed in the activity in a defined area is necessary to understand the process as a whole: evolving at the intersection of culture, geographical necessity and the peculiarities of local biomarine fauna, ships and boats are the territorial and ontological borders of mankind's life on water, as well as an important part of our proprioception as a waterfaring species⁶.

The watercrafting tradition of the Indian Ocean could be split, and thus considered, in two ways: firstly the construction of heavier tonnage cargo ships for trade- and war-like activities, adapted for longer voyages on open seas and oceans and constructed in boat yards at centralized maritime hubs, and secondly the construction of smaller boats, used for personal transportation and fishing, built by either the communities using them or by itinerant boat builders.⁷ Underlying this teleological

4 FAO (Food and Agriculture Organization of the United Nations). National Aquaculture Sector Overview: India

5 Silas, E. G., 2003. History and Development of Fisheries Research in India. Journal of the Bombay Natural History Society, 100 (2&3), Aug.-Dec., pg. 503

6 Ray, H. P., 2000, op. Cit., pp. 341-5

7 Ray, H. P., op. Cit., pp. 341-5

dichotomy, however, is a general shipbuilding ethos shared by the populace on the various coastlines of the Indian Ocean, the idea that every vessel should be adapted to the hydrogeological idiosyncrasies of its environment – to the point where it is said that every river in India has its boat type.

While the exactness and historicity of the last statement is debatable, its general premise is correct if disingenuous: shipbuilding in the Indian Ocean coalesced around a small number of general "designs" (among whom we can name coracles, catamarans, dhows and canoes) shared from the Eastern Coast of Africa to Indonesia, each milieu gave rise to a multitude of local modifications, improvements and changes, in a way mirroring the lives of their users⁸.

This dialectics of essential similarity and minute, adaptive differences can also be applied to the tools and techniques these fishing and sailing communities employed in their maritime endeavors: across the Indian Ocean it was possible to see all forms of fishing, from spearfishing, especially employing harpoons, to fishnetting, angling, rudimentary forms of trawling and, obviously, aquacultures – mostly homemade backyard ponds, as the laws restricting the activity in this forms in Bengal and Orissa until the late 1950s formalized, rather than forcefully implemented⁹. The common threads uniting all these techniques were the collective nature of fishing activity and the tendency to fish in close vicinity to the shores, a reaction to the natural lack of landmasses in the Indian Ocean.

Similarly to shipbuilding, fishing was an activity that involved the majority of the villages in which it was practiced, being the main source of sustenance for costal populations: from the wide use of shore seines until the 20th century¹⁰, requiring a number of able bodied people to employ, to catamaran harpooning parties to children preparing lures and cleaning the catch, everybody had a part in the larger process of fishing.

Perspectives for the future¹¹

As the human population living around the Indian Ocean experiences the greatest process of demographical growth in the history of our species, increasing by more than 200% in the last sixty years¹², the role of fishing in the economy of the area is wont to become more central than ever. Historically, as noted above, one of the greatest sources of sustenance and food for those living in or near the coast, at the present time the only change in fishing's role lies in its magnitude and in the

8 Ray, H. P., op. Cit., pg. 341-5

9 FAO (Food and Agriculture Organization of the United Nations). National Aquaculture Sector Overview: India

10 Bavinck, M., Karunaharan, K., 2006. A history of nets and bans: Restrictions on Technical Innovation along the Coromandel Coast of India. MAST, 5(I), pg. 47

11 The data and statistics regarding India's fishing productions in this chapter are taken, where not specified otherwise, from the FAO reports and the ICSF's Indian Fisheries webpage; as the data itself is spread across a variety of webpages, for a more complete overview of the sectors I refer the reader to the links in the bibliography.

12 Worldometers, I refer to the bibliography for exact links to the pages of the countries bordering the Indian Ocean.

means used to achieve it: according to the United Nations Food and Agriculture Organization (FAO), from less than 900,000 tons in 1950, Indian Ocean marine capture fisheries supplied 11.3 million tonnes of fish in 2010, about 14.6 percent of the world catch. An estimated 35 species of fish, most of them pelagic and midwater, are the objects of marine capture; the bulk of the catch is constituted by oil sardines, followed by penaeid and non-penaeid shrimp, Indian mackerel, Bombay duck, croakers, smaller quantities of cephalopods, other sardines and threadfin breams.

A similar trend in perfecting the exploitation of marine life-forms can be seen when considering the inland aquacultures of India, which were credited with producing around 3.9 million metric tonnes of product in 2010 – with some suggesting that this output could be increased tenfold with a widespread adoption of advanced aquacultural techniques and focused policies, following the example of China; inland fish capture plays a much more contained role, coming in a distant in Indian fish production with a yield of about 800.000 tonnes in 2007.

The situation in the African regions bordering the Indian Ocean is markedly different, as inland fish capture makes up the bulk of the fishing production of those states: in Tanzania, for example, on a total of about 380.000 tonnes of production, an estimated 322.000 tonnes came from inland capture fisheries¹³.

The undeniable flourishing of the fishing industry, though, hides a series of contradictions and underlying tensions that will profoundly impact any future development of the field; worldwide processes like global warming and exploitative, industrial deforestation are taking their toll locally, permanently influencing the environment of the Indian Ocean: in the last thirty years, more than 3 million hectares of mangroves on Southeast Asian coastlines have been cut down, and the massive CO₂ emissions in our atmosphere have increased both the overall temperature of the oceans by 0.1 degrees and their chemistry, lowering their pH by at least 0.1 units¹⁴. A global assessment by the Sea Around Us project dating to 2009 reports that the combined action of these and other causes could see maximum catch potential across all marine bodies of water in the world diminish by 20 to 50%¹⁵, numbers fraught with ominous implications for the future of both marine environment and human population.

Similarly, albeit more circumscribedly, the phenomenon of cyanide fishing in South East Asia is heavily taxing the environment: coral reefs, marine fauna and large stretches of marine flora are killed or gravely damaged every time one employs this fishing methodology. The Philippines' government has started an ambitious project, the Cyanide Fishing Reform Program, devoted to the eradication of this practice through the education of fisherfolk in alternative ways to capture reef

13 Rothuis, A., et al., 2014. Aquaculture in East Africa; A regional approach. Wageningen, LEI Wageningen UR (University & Research centre), pp.17-18

14 Michel, D., Sticklor, R. 2012. Plenty of Fish in the Sea? Food Security in the Indian Ocean, The Diplomat

15 Cheung, W.W.L., et al., 2009. Large-scale redistribution of maximum fisheries catch potential in the global ocean under climate change. *Global Change Biology*, Volume 16, Issue 1, pp. 24-35

fishes, though the financial prospect of a prey's sale keeps luring people back to the trade, as they are highly prized delicatessen in Southern Chinese luxury restaurants as well as valuable items for Western aquarium enthusiasts¹⁶.

In these and other cases of over-exploitation of marine resources a solution, be it definitive or a temporary compromise, is direly needed to advance beyond the contradictions inherent to satisfying the needs of both an ever increasing and hungry human population and an over burdened environment – an aporia that may prove one of the greatest challenges of this century.

Conclusion

Through the dusty relics of a mostly forgotten history and digitalized, hyper-advanced data projections, through living practices and forgotten techniques, the activity of fishing in the Indian Ocean has revealed itself for what it is: an ever evolving collective set of practices aimed at human survival, an infinitely nuanced process of living-with the sea. On board of a leaky coracle as well as the most modern of trawlers, fishing is the necessary interface between the endless hunger of humanity and the generous bounty of the ocean; our species would do well in remembering that it is precisely in this fragile point of contact that every effort should be made in finding and preserving an equilibrium between the needs of mankind and those of Earth, because it is via the practices with which we interact with the world that the future of humanity will be written.

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16 World Resources Institute, 2008. Destructive Fishing is Widespread in Southeast Asia

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