
Shark fishery and conservation in Indian waters: need for a National Plan of Action

P.U. Zacharia* and E. Vivekanandan

Central Marine Fisheries Research Institute, Cochin - 682018, India

*Email: zachariapu@yahoo.com

Shark fishing in India has, over the years progressed from “incidental” to “targeted.” Sharks, which were predominantly landed as by-catch in different gears, is shifting from an artisanal coastal fishery towards oceanic targeted fishery, employing drift gillnets, hooks and line, and longlines operated from mechanized craft in recent years. Decades ago, artisanal fishermen in India conducted shark fishing in a sustainable way. Shark finning was practiced in the past, *i.e.*, the carcasses were discarded after removing the fins. In recent years, the meat of sharks are in high demand in fresh, salted and dried form, particularly in the southern states of India and hence fishing for fins alone has stopped. In recent years, increase in demand for sharks in international markets, especially for fins, has encouraged directed fishing and expansion of fishing areas for shark fishery. In spite of attempts to increase production, the landing of sharks is on the decline indicating that their abundance is dwindling in the Indian seas.

India is ranked second, next to Indonesia in shark landings, contributing about 9% to world catch in 2010. Time series landings data indicate that small-sized sharks have increased in the landings as opposed to larger sharks. Most of the sharks have biological characteristics typified by slow growth, delayed maturation, long reproductive cycle, low fecundity and long life span. Due to these disadvantageous biological characteristics, the sharks are vulnerable to overexploitation, and unplanned and indiscriminate exploitation could lead to population decline. Moreover, sharks occupy a position high in the marine food chain and their indiscriminate removal may alter the structure and function of the ecosystem.

For sustainable management of sharks, the primary requirement is estimation of the status of shark stocks. Recent stock assessments and a number of studies in the Northwest Atlantic Ocean have found declines in many shark species (sandbar shark, dusky shark, hammerhead sharks, blacknose shark, porbeagle shark, shortfin mako shark, spiny dogfish etc.).

The landings of sharks in India over the last 32 years shows an increasing trend up to 2000 (48,000 t) and a declining trend thereafter. The landings were only 22,530 t in 2012 (Fig.1), i.e., less than half of the landings in the year 2000. The Indian seas are home to more than 70 species of sharks, most of which however, are of either limited occurrence, or of low commercial value. Carcharinid sharks contribute about 50% to the shark landings in India, major species landed being *Carcharhinus sorrah*, *C. limbatus* and *C. dussumieri*. In the last few years, *C. falciformes* has emerged as an important species in the landings along the west coast.

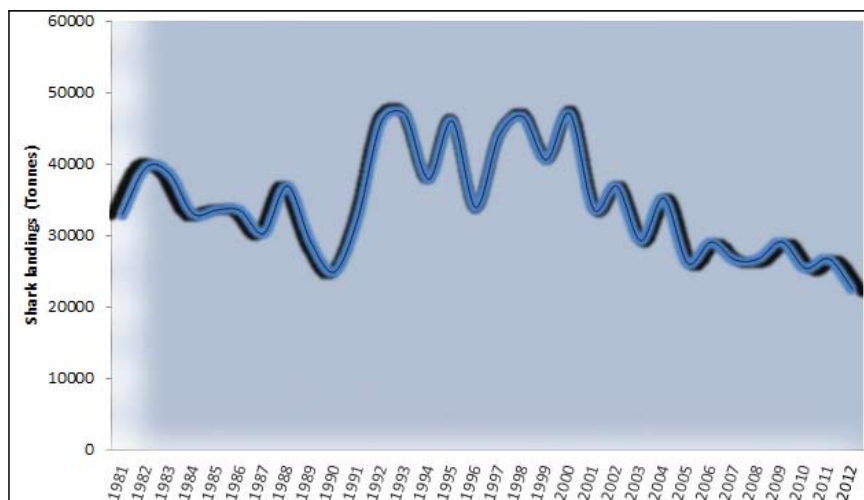


Fig. 1. Shark landings in India

The scalloped hammerhead shark, *Sphyrna lewini* also features significantly in the landings. Recently, small - sized shark species belonging to the genera *Iago*, *Mustelus*, *Squalus* and *Centrophorus* have also emerged in the fishery.

The exploitation of sharks in India is carried out by trawlers, gillnetters, hooks & lines and long lines operated from mechanised and non-mechanised vessels. The fishing village of Thoothoor in Tamil Nadu (southeast coast of India) is well known for its specialised shark fishery. The fishermen of this village venture all along the Indian coast in medium-sized vessels, which are converted for oceanic fishing. This fleet uses bottom longlines in continental and oceanic waters, up to 1000 m depth, for shark fishing. It is estimated that a total of 15,000 – 20,000 fishers are engaged in targeted shark fishing in India. However, the number of registered boats has decreased from 600 to 500 in recent years, out of which only 100 are engaged in targeted shark fishing. Other boats are targeting for tunas in Andaman & Nicobar and Lakshadweep waters.

Shark fins are one of the commodities in great demand in international markets. The shark fins find their way to East Asia to meet the demands of an expanding international shark fin market. Hong

Kong is the major centre for shark fin trade and the Indian export of shark fins is directed there. As per MPEDA statistics, India exported 195 tonnes, worth US \$ 14.99 million in 2011 against 960 tonnes worth \$2.74 million in 1998. Due to the intervention from conservation groups and research organisations against finning and discarding of half-dead animals, the ban on landing of sharks without fin, as enforced in some countries including USA, has been implemented in India too for the conservation of sharks through an order dated 21st August 2013.

Developing strategies for conservation and management of shark populations are becoming increasingly important globally, especially because many species are exceptionally vulnerable to overfishing. IUCN has included Whale Shark *Rhincodon typus*, Pondicherry shark *Carcharhinus hemiodon*, Ganges shark *Glyphis gangeticus* and Speartooth shark *Glyphis glyphis* in the critically endangered list whose populations have reduced drastically owing to indiscriminate fishing. These species have been listed in the Wildlife Protection Act (1971) of India. Capture and trade on these species are punishable under the Act.

Success story of the ban on whale sharks needs special mention here. The Whale shark, which migrated towards Saurashtra coast (northwest coast of India) formed a regular fishery for several years for its meat, fins, liver, skin and cartilage. Over 1000 whale sharks were hunted off Saurashtra in 1998. Most of the whale shark landings in Gujarat were by directed fishing, whereas the capture was incidental in other states. Following a ban on whale shark fishery by the Government of India, the fishery has totally stopped along the Saurashtra coast in the last ten years.

Considering the importance of India as a major shark fishing nation and vulnerability of sharks to fishing, it is important that the country evolves a management plan for shark fisheries. Preparation of National Plan of Action for Sharks (NPOA – Sharks) will pave the way for implementation of an effective management plan. Following FAO's technical guidelines for the conservation and management of sharks (FAO, 2000), the four elements of the IPOA-Sharks may be considered:

- species conservation;
- biodiversity maintenance;
- habitat protection; and
- management for sustainable use.

The guiding principles of NPOA-Sharks may be as follows:

1. All maritime states and Government of India have to participate in shark management with support from research institutions
2. Management and conservation strategies should aim to keep fishing mortality for each stock within sustainable levels by applying precautionary approach.

3. Management and conservation objectives and strategies should recognize that shark catches are a traditional and important source of food, employment and income. Such catches should be managed on a sustainable basis to provide a continued source of food, employment and income to local communities.

Being a major shark fishing nation, it is important that India should evolve Shark Plan and participate in their conservation and management for their long-term sustainable harvest. The participation of fishermen is essential for the successful implementation of the policies.