

An ill-thought ban

This article was written before the Government of India's recent revocation of the total ban on shark fishing

The ban on shark fishing under the Wild Life (Protection) Act, 1972, by the Ministry of Environment and Forests (MOEF), Government of India, came as bolt from the blue for the entire fisheries sector of India. In a Gazette notification dated 11 July 2001, the government has included 60 different items caught or removed from the sea under Schedule 1 of the Wildlife Protection Act. The items include certain types of coral, a wide range of mollusc species, including *chanks* (conch shells), sea horses and the giant grouper.

However, the most prominent inclusion is the entire class of elasmobranchii that includes all species of shark, rays and skates. The inclusion of these items under Schedule 1 of the Act means that they can not be caught or harvested. Neither can they be traded or made into any product for sale. Mere stocking of these species in any form is a crime.

The entire ban process has been something of a mystery. Even now, there are no details on the basis of the ban and how the MOEF has concluded that these 60 items are endangered. There was no consultation whatsoever with fishermen's organizations and NGOs working in the sector. We understand that even the fisheries departments of the State governments were not consulted.

Whether the central scientific institutions in fisheries were consulted is not clear at the moment. Some press reports indicate that they did not recommend any ban and have questioned its wisdom (see *The Hindu* Trivandrum edition, 5 October 2001, page 5).

Even some officials we contacted in the Fisheries Division, Department of Animal Husbandry and Dairying, Ministry of

Agriculture in Delhi appeared unaware of the ban as late as end September.

The ban itself came to light some time in September, when the Coast Guard started harassing the fishermen of Thoothoor in Tamil Nadu, who have the only fleet in India dedicated to shark fishing. It was the Coast Guard that informed the fishermen about the ban and not the State fisheries departments. Subsequently, in early October, shark fin exporters in Chennai got wind of the problem when their consignments to Singapore were held up by the Customs authorities. Only then did news about the ban spread rapidly.

According to newspaper reports, the ban is the result of lobbying by environmental groups. An NGO called Reef Watch Marine Conservation and *Sanctuary Asia*, an ecology magazine published from Mumbai, have been particularly mentioned (see *Times of India*, 4 August 2001 and 11 October 2001).

Most media comments refer to the whale shark, the subject of an international protection campaign by environmental groups. True, the campaigners for ban on whale shark fishing had been in touch with fishermen organizations like the National Fishworkers' Forum (NFF), but there was no talk about all shark species or the entire family of elasmobranchs. The newspaper reports also seem to refer to problems of shark fishing in the Andamans, where unauthorized foreign fleets are said to be catching shark and discarding the carcass at sea, after removing the fins (*Times of India*, 11 October 2001; *Sanctuary Asia* April issue: article by Mitali Kakkar and Bittu Sahgal).

Cruel practice

There appears to be considerable unhappiness over the cruel way sharks are

slaughtered and the environmental pollution caused by dumping the shark carcass at sea. It seems unlikely, however, that this alone could have been the rationale for the ban on shark fishing all over India's Exclusive Economic Zone (EEZ) of 2,000,000 sq km.

We can only take a stand based on our own understanding of shark resources and the current level of exploitation. 1977 saw the publication of the first estimate of India's potential catch of fish. Subsequently, it was revised in 1991 by a committee appointed by the Government of India (Working Group on Revalidation of the Potential Marine Fisheries Resources of the EEZ of India, Ministry of Agriculture, Government of India).

The total fish resource harvestable is estimated to be 3,900,000 tonnes. Of this, 2,200,000 tonnes are available within a depth of 50 m, and the rest are spread out in the deeper waters. The following is the information available on the potential catches of elasmobranchii (sharks, rays and skates): up to 50 m depth: 65,000 tonnes; beyond 50 m: 103,000 tonnes; total: 168,000 tonnes (*The maximum potential yield has since been revised downwards by the Central Marine Fisheries Research Institute, CMFRI, to 96,000 tonnes—Editor.*)

The approximate break-up of the available elasmobranch resources in depths up to 50 m along the Indian coast is as follows (No information is available on individual categories):

Northeast (W.Bengal, Orissa and Andhra)	11,000 tonnes
Southeast (Tamil Nadu and Pondicherry)	19,000 tonnes
Southwest (Kerala, Karnataka and Goa)	11,000 tonnes
Northwest (Maharashtra and Gujarat)	24,000 tonnes
Total	65,000 tonnes

Another piece of information from the report of the working group referred to earlier, is that there are 31,600 tonnes of pelagic shark that can be harvested in the

open ocean (beyond depths of 200 m). This is part of the 103,000 tonnes of elasmobranchii available beyond 50 m depth.

Importantly, the above figures are not for the total stock available but for what can be safely harvested for each species, depending on its longevity and reproductive capacity. The percentage of elasmobranch stock (or any other species) that can be safely harvested is not mentioned. We do not know enough to question the basis of these figures and, until more information is available, we have to take them at face value.

A few words on how these estimates are made may be useful. There are two agencies responsible. The CMFRI is responsible for collecting information on the catches landed all over India for the purpose of resource estimation. It does this through a sampling method that is accepted internationally.

Based on the figures for the fish caught, and other scientific information, CMFRI has methods to estimate the resource availability in areas where fishing occurs. For the deeper waters, where fishing activity is low, the resource estimates are made by the Fisheries Survey of India (FSI), whose vessels are involved in surveying different parts of the Indian seas.

The final resource estimates are based on CMFRI and FSI putting together their respective information and working out a common estimate. Though there can be many questions about the quality of data and the assumptions made by these scientific institutions, it is acknowledged that the resource estimates in India are a reasonable approximation and are much better than those available in many other developing countries.

Detailed published information on the catches is somewhat difficult to come by. From various reports, it appears that the total catch of elasmobranchii is around 70,000 tonnes.

Catch figures

In 1999, the following were the catches of elasmobranchii as per CMFRI figures: shark: 42,778 tonnes; rays: 23,064 tonnes; skates: 2,670 tonnes; total: 68,512 tonnes.

The current catches are only half of the potential catch of 168,000 tonnes in the Indian EEZ. Importantly, elasmobranch catches have been steadily increasing since 1950, when it was only 17,000 tonnes. Thus, the overall figures give the impression of a fish resource that is still underexploited.

A detailed study of the landings between 1987 and 1999 by CMFRI (CMFRI Special Publication No. 70: *Pelagic Sharks in the Indian Seas: Their Exploitation, Trade, Management and Conservation* by P. P. Pillai and Baiju Parakkal, August 2000) reveals the following:

- The average catch of elasmobranchii during 1987-99 was 61,591 tonnes. The landings of sharks during the same period was 41,483 tonnes.
- The peak landings of elasmobranchii was in 1998—more than 70,000 tonnes. The peak landing for shark was 47,279 tonnes the same year.
- While there has been some year-to-year fluctuations, the overall trend during the period is one of a steady increase.
- The major share of landings is in Gujarat and the northwest coast. During the period, the catches

increased in all States, except in Maharashtra and Kerala, where there was a decline.

- While some caution is required, there is scope for increased exploitation of sharks in deeper waters.

However, aggregate figures can conceal a number of problems. Within the overall picture of an underexploited fishery, one can perhaps find individual species or areas that are overexploited. Even a single category of shark is made up of a number of individual species. The actual number of species in Indian waters is not known exactly. Around 49 species are detailed in CMFRI reports.

However, only six of these are found in abundance, 12 in moderate abundance and 22 in limited quantities (From Hanfee F. 1999. *Management of Shark Fisheries in Two Indian Coastal States: Tamil Nadu and Kerala*, quoted in Pillai and Parakkal, op cit).

Without information on each species, it will be difficult to determine whether or not there is overfishing of any of the species.

Another aspect to be considered is that, compared to many short-lived species, sharks are long-lived and produce very few offspring. Thus, they are more

vulnerable to overfishing. One has to, therefore, adopt a cautious approach to their exploitation.

While not ruling out overfishing of individual species, there seems to be no concrete evidence of elasmobranchii being overfished as a whole. The issue of elasmobranchs being endangered does not arise at all. In fact, there is a strong case for improving the catches in the deep, especially of pelagic shark.

Targeting of shark has been limited traditionally to some fishermen's groups. However, shark and other elasmobranchs form part of the by-catch of the trawl fishery, sometimes in large quantities. They are also found as non-targeted catches in other gear like gill-nets. The following are the various groups that exploit elasmobranchs.

- (i) Traditional fishermen using *kattumaram* with hand lines go for shark fishing seasonally in parts of the east coast. The *kattumaram* fishermen on the west coast in Kanyakumari and Trivandrum also used to do so, but this has declined with the coming of trawling.
- (ii) Motorized canoes like the *nava* of Andhra Pradesh go seasonally for shark fishing, with Kakinada being a major centre. Bottom-set gill-netting as well as hooks-and-line are used in different parts of India.
- (iii) Motorized *kattumaram* (including fibre reinforced plastic or FRP *teppa*) between Vishakapatnam and Puri go shark fishing with hooks-and-line seasonally.
- (iv) Traditional long-line fishermen of Malabar in north Kerala go shark fishing in certain locations like Elathoor.
- (v) Shark and other elasmobranchii are caught as by-catch by trawlers all over the country. To a large extent, this is an unavoidable feature.
- (vi) The only fleet that can be said to be specialized in shark fishing is the mechanized vessel fleet of the Thoothoor area in Kanyakumari District, Tamil Nadu. Around 500 to 600 mechanized vessels (32-45 ft long) use long-lines and go shark fishing all over the west coast of India, from Kanyakumari to Okha in Gujarat. This fleet, employing around 6,000 fishermen, came up in the late 1980s and is perhaps India's only genuinely deep-sea fleet. Though a part of the fleet has diversified to use large-mesh drift-nets for seer and hand-lines for perches, shark fishing remains the most important source of income. Though this fleet started with bottom long-lining for shark on the continental shelf, especially between 100 m and 300 m depth, some of the units now fish with pelagic lines in the open ocean, where the depth is more than 1,000 m and where pelagic sharks are plentiful.
- (vii) The catch in Gujarat today comprises over half the total landings, and shark is caught seasonally by a large number of vessels with a variety of gear, including gill-nets, hooks-and-line and trawls. The actual number of fishermen involved is likely to be significant.
- (viii) Sri Lankan fishermen with their multi-day fishing vessels fish for both tuna and pelagic shark in the deeper waters, using a combination of long-line and gill-nets. They operate seasonally in the Gulf of Mannar and the Arabian Sea. Some also go to the Andamans. Though strictly illegal, this fishing has not been opposed by the Indian fishermen as it is done by relatively small vessels using labour-intensive and selective fishing gear and techniques. However, the Coast Guard catches some of these vessels and the fishermen are detained for months in India. It must be mentioned that shark meat enjoys a good market in Sri Lanka, while the fins are exported to Singapore and Hong Kong.
- (ix) Foreign vessels from many other countries, mostly industrial and large-scale vessels, poach in Indian

waters. The extent to which they target or incidentally catch shark is not known.

- (x) A note on shark fishing in the Andamans is perhaps needed. For long, there has been the issue of shark finning (finning is the practice of removing the fin or fins from a shark and discarding the remainder of the shark or the carcass into the sea). Some of the local boats in the Andamans are also believed to indulge in such destructive practices. For them, the main problem is the lack of a market for shark meat in the Andamans and the problem of transporting salted shark meat to the mainland (salted shark meat is not accepted as cargo by ships). It is possible that some of the foreign fleet involved in illegal fishing in the Andamans is also dumping the shark carcasses back into the sea, as they do not want to carry the voluminous, low-value meat with them.

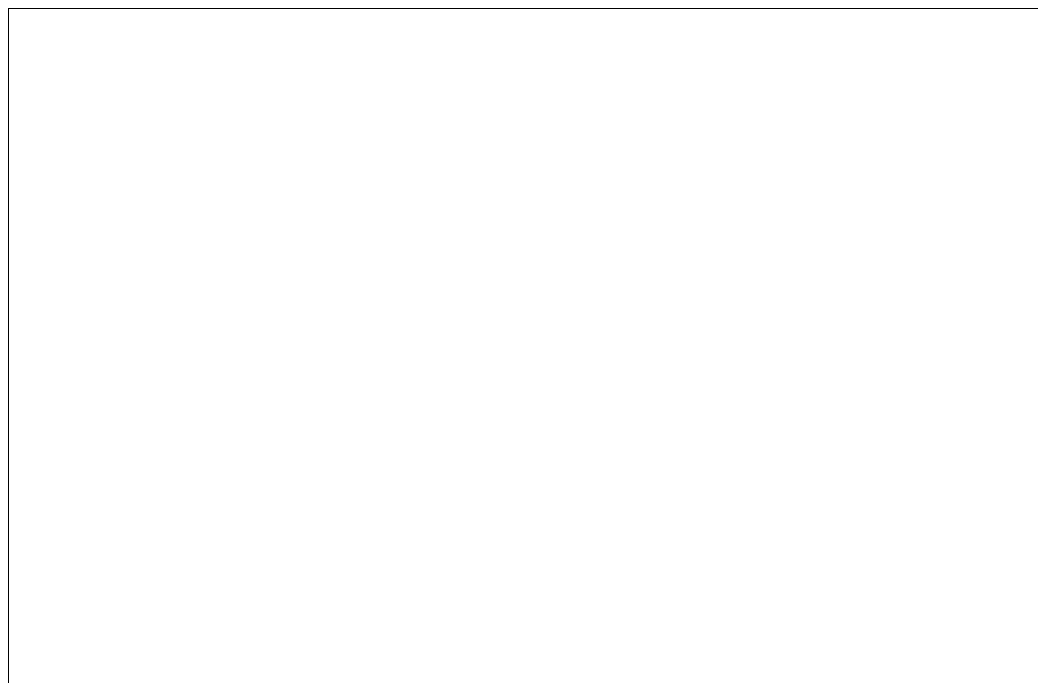
Thus, shark fishing is important for a significant number of fishermen all over India, despite it being a niche fishery. Sharks are valuable mainly for their fins, which enjoy a good market in the Far East, where it is an essential component of Chinese cuisine. The fins are cut off and dried. The dried fins are then cut by the merchants according to certain standard

practices, before being exported to Singapore and Hong Kong, where they are processed to extract fibres that are then used for shark fin soup. Chennai is the main centre for the export of shark fins, with supplies coming from all over the Indian coast.

The exact value of the Indian shark trade is difficult to obtain. Shark fin export from Chennai is an informal business, devoid of the formalities followed by other seafood exporters, like recording the sale. Often, couriers carry shark fins to Singapore by air. Thus, the statistics of the Marine Products Export Development Agency (MPEDA) on export of shark fins is likely to be a considerable underestimate.

Shark fin rays, which are the final products, are not normally produced in India, even though the technology has been developed by the Central Institute of Fisheries Technology (CIFT). One or two plants for rays are said to exist but whether they are successful is not known. Business interests in Hong Kong and Singapore are perhaps not keen on the final product being made in India.

Shark meat, as well as the meat of other elasmobranchii like rays, are salted and sold in the domestic market. The main market is Kerala, where the hill areas have a long history of consuming salted and dried fish products. Shark meat is a delicacy here and command high prices.



Hence, all the salted shark meat finds its way to the dry fish markets of Kerala like Athirampuzha, Kottayam, Changanassery, Alwaye and Thalassery. Mangalore is a major assembling centre for shark meat for catches from Karnataka and the upper west coast.

The meat of juvenile shark is consumed fresh in many coastal areas, especially by the poor. Shark liver oil is extracted by simple local methods and used for oiling wooden canoes as well as for pharmaceutical purposes.

From the above, it is apparent that the immediate impacts of the ban are several. The approximately 15,000 to 20,000 fishermen who depend almost entirely on shark fishing will lose their source of livelihood. This will affect, in turn, their families and dependents. The total population affected is likely to be between 150,000 and 200,000. Tamil Nadu and Gujarat will be the most affected States.

Around 100,000 fishermen will see a reduction in their seasonal and occasional income from shark and elasmobranchii. This will obviously affect their families and dependents, numbering anywhere between 500,000 and 1,000,000. The States affected will include Andhra Pradesh and Orissa.

Thousands involved in drying and processing shark and in the domestic and international trade will be affected. Large numbers of consumers in Kerala's uplands and plantations will be deprived of an important item of diet. The Mangalore dry fish market that assembles all the salted shark meat from Karnataka, Goa, Maharashtra and Gujarat will also be affected.

The long-term impacts will be even worse. The ban is a setback for the development of deep-sea fishing in India. Tuna and pelagic shark are the main offshore resources not exploited by Indian vessels, except to a limited extent by the Thoothoor fishermen.

For long, the Government of India has been trying to develop offshore fishing, but with little success, despite large

vessels and foreign technology through charters, joint ventures, etc. These have only had negative effects on coastal fishing. However, just when the Thoothoor fishermen, like the Sri Lankans, are showing the potential for an indigenous offshore fleet, using appropriate technologies and labour-intensive methods, comes the ban on shark fishing. This will perhaps be the biggest setback. The beneficiaries will be the poachers.

To some extent, India's neighbouring countries may also benefit. Some varieties of shark, especially pelagic species, are likely to be moving across boundaries. Therefore, the ban may benefit those who fish in the high seas or in neighbouring waters.

The ban will also have a negative effect on the populations of prey fish, which are the target of most fishermen. Not fishing an apex predator like the shark will decimate prey fish and seriously affect the livelihood of most fishermen. The actual impact is, however, difficult to assess at the moment.

Information on other species and items banned, like molluscs, is still somewhat hazy at the moment. However, the same problem of lack of consultation and disregard for the consequence of the ban on the livelihoods of marginalized sections is obvious.

Even scientific officers are still searching for the common and local equivalents of the zoological names of molluscs. These mollusc varieties include a large number of items that are collected by poor people near the seashore in a variety of ways for sale as handicrafts and decorative items. Included in the banned list are varieties of *chanks* (conch shells), which are caught by fishermen of Ramnad District of Tamil Nadu.

Ban on conch shells

The ban on *chanks* came to light in an interesting manner. A consignment of *chanks* that had been imported from Sri Lanka (proof of an obvious demand-supply gap), was unexpectedly seized by the customs in October (see *The Statesman* and *The Times of India*, 20 October 2001). This created a panic in the

trade and the Bengali press was full of stories of the ban. It is not clear, however, what the ban achieves by restricting imports from Sri Lanka.

The plight of the *chank* fishermen and those involved in the making of products from *chanks* is worth a special mention. While *chanks* are collected in many parts of the country like Orissa and even Gujarat, the most important *chank* fishery, which has a tradition extending over centuries, is the *chank* fishery of Ramnad District. Specialized skin divers risk their lives to collect a variety of *chanks* from the sea bottom. Ironically enough, this fishery is a regulated fishery, with the Tamil Nadu Fisheries Department licensing the fishermen as well as the traders. Only specified sizes of *chank* can be harvested from the sea and marketed. Interestingly, the use of oxygen cylinders while diving is prohibited.

Equally interesting is that while the production of *chanks* is concentrated in parts of Tamil Nadu, the main market is in West Bengal. The Hindus of Bengal put a great cultural value on *chanks*, which explains the extremely high annual demand. *Chanks* are used during the *puja* festival. A number of products, involving a large number of craftsmen, are made out of *chanks*, and married women wear bangles made of *chanks*.

To sum up, shark and elasmobranchs are, by no stretch of imagination, endangered in India. Potential dangers of overfishing can be tackled through normal fishery regulations, like fleet and gear control, and closed seasons and areas. The ban is clearly unscientific and arbitrary, and will have major negative consequences. 🐋

This article by V.Vivekanandan (vivek@siffs.org), Chief Executive, South Indian Federation of Fishermen Societies (SIFFS), is a revised version of a paper presented at a fishermen's meeting at Nagercoil, Tamil Nadu, India, organized by the National Fishworkers' Forum on 1 November 2001



India

