

## SHARK FISHING IN INDIA

P. DEVADOSS

*Madras Research Centre of CMFRI, 68/1, Greaves Road, Madras - 600 006*

### INTRODUCTION

FROM time immemorial sharks have been the object of amusement for the sea faring men and anglers and they were fished for sports. At certain times of history they were dreaded as monsters of the sea because of the ravage they wrought on bathers, fishermen and their boats. Even the very appearance of an heavily built creature with open mouth full of sharp and ferocious teeth and black fins gives a fearsome apparition to unarmed people taking bath in the shallow waters. Of all the 350 species of sharks inhabiting the seas of the globe, only less than 35 species are aggressive and attack human beings, boats and other objects. While it is true that there are a few attacks sporadically on human beings throughout the world, recent findings have shown that one is less likely to be attacked by a shark than having a serious accident at home or in the roads. One should give a wide berth to larger sharks considering their size and speed of action. Even a slight contact with their abrasive skin may result in severe lacerations and damage will be irreparable. One should also avoid bathing in sea with fresh wounds especially when sharks are around.

During the wars there were great demands for sharks for their liver which is a rich source of vitamins A and D. The nutritive value of their flesh also is equal to any other fish or

animal meat and their skin and skeleton also have ornamental value. The value of sharks had further been realised because of the high price of their fins in the overseas markets.

Now that the concept on sharks has changed from one of fearsome and awe-inspiring animals to valuable foreign exchange earners, fishing for sharks gained momentum.

### PRESENT STATUS OF SHARK FISHING

There are about 42-45 species of sharks occurring in our seas of which 50% belong to minor category having only very limited occurrence and less value, 40% are moderate category and only 10% are major category and are economically important.

The requiem sharks of the family carcharhinidae are the largest and most important sharks abundantly fished in India and all tropical seas. The hammerhead sharks with a highly developed sensory system form an important coastal fishery. They are capable of swimming from surface to bottom atleast 275 m depth. Some sharks like white tip sharks, blue sharks, mako sharks, thresher sharks, tiger sharks etc. are truly oceanic in habitat. Some are deep water forms like squalids and scyliorhinids occurring up to 200 m.

Upto early sixties our fishermen followed traditional methods for fishing. Due to mechanisation of fishing industry and the

availability of shore based infrastructure facilities from the 70's there was tremendous improvement in the marine catches including sharks.

There is no specific gear exclusively for shark fishing. Elasmobranchs as a group are landed by various gears like trawl, hook and line, drift gill net, set net, long lines, surface trolling etc. But long line is the most effective gear in which sharks form around 80% of the catch, drift gill net which is operated at the surface lands fairly good number of sharks. Elasmobranchs including sharks are landed by trawlers as a by-catch. The whale shark fishing, as an organised fishery, is practiced at veraval in recent years. The whale sharks are hunted for their huge liver which weigh from 200-900 kgs depending on the size of the shark. The fishery is a viable industry in veraval where the annual value of liver alone has been estimated at around Rs. 11.11 lakhs during 1991. (Vivekanandan and Zala 1994).

The landings of sharks, rays and skates increased steadily over the years and reached

the peak of 69.2 thousand tonnes in 1983. The production was on the increase for the three decades from 35.5 thousand tonnes during 1960's to 53.9 thousand tonnes during 70's and 57.1 thousand tonnes during 80's. The increase during seventies was very prominent and the extant of mechanisation of fishing helping the industry in increasing the production was evident during the period. The catch which was 45 thousand tonnes in 1973 rose to 66 thousand tonnes in 1974, an increase of 47% over that of previous year.

Landing figures separately for sharks are available from the year 1985 onwards (Table-1). The production of sharks for these nine years fluctuated from 24 thousand tonnes in 1990 to 46 thousand tonnes in 1993 (CMFRI - 1995) with an annual average of 34 thousand tonnes. More than 50% of this average national production of sharks are available from the north western region along 18-25°N. In fact the state of Gujarat which is endowed with potentially rich grounds for demersal fishes, contributes one thirds of total sharks landings.

TABLE 1. *Sharks landings (in tonnes) state wise for the years 1985-93*

States	1985	1986	1987	1988	1989	1990	1991	1992	1993	Total	Average
Gujarat	10,523	6,964	6,997	9,203	7,259	7,139	13,263	15,976	21,628	98,952	10,995
Maharashtra	6,461	6,587	7,962	9,180	7,354	6,939	8,421	8,038	6,495	67,437	7,493
Goa	209	681	136	266	42	107	93	115	344	1,993	221
Karnataka	1,418	1,996	1,469	1,783	1,283	758	1,046	885	609	11,247	1,250
Kerala	4,940	4,649	3,114	5,151	1,907	2,881	1,883	2,437	3,091	30,053	3,339
Tamilnadu	1,654	3,545	5,047	4,295	4,799	901	2,673	7,463	5,568	35,945	3,994
Pondicherry	191	12	50	159	39	13	13	47	37	561	62
Andhra Pradesh	6,230	5,333	4,162	4,851	4,026	3,679	2,411	5,624	5,239	41,555	4,617
Orissa	1,376	3,077	1,161	1,374	1,492	1,603	1,112	2,986	1,302	15,483	1,720
West Bengal	97	140	136	44	40	267	939	1,692	1,828	5,183	576
Total	33,099	32,984	30,234	36,306	28,241	24,287	31,854	45,263	46,141	308,409	34,267

As a matter of abundance, the whole of west coast which is replete with centres of shark production accounted for more than two thirds of this resource (Table-2).

mannar and along the Wadge Bank is known and they are not fully exploited (Sudarsan *et al*, 1988). The bountiful resource should be harnessed, otherwise it would be a national

TABLE 2. Region wise average shark landings in tonnes during the years 1985 - 93

Region	West coast		Total	East coast		Total
	North West	South West		North East	South East	
Landings	18,488	4,810	23,298	2,296	8,673	10,969
% in total landings	54.0	14.0	68.0	7.0	25.0	32.0

On the east coast of India the south eastern region comprising Andhra Pradesh and Tamilnadu accounts for one fourth of the total all India production. Fairly good fishing ground exists off Andhra coast along 14-18°N.

The commercial catches landed by the traditional gears like the gill netters, trawlers, hook and line etc. are mostly from the narrow coastal zone. Beyond the shelf area is a vast stretch of untapped rich resource of sharks, and other fishes. In addition to the Fishery survey of India and CIFNET vessels, there are a number of chartered vessels of private agencies operating long liners in the outer waters for pelagic sharks and tunas. The percentage of incidence of sharks are as high as 70-75% of the long line catches (Silas and Pillai, 1985). The hooking rate for sharks also is very high in the long lines in that in certain months more than 5-8%, better than any other pelagic fishes. They are available almost through out the year with slight variations in the monthly catches.

As a result of exploratory survey conducted by the vessels of the Fishery Survey of India and CIFNET, existence of potentially rich grounds for pelagic sharks off the Gulf of

waste. In the words of biblical saying 'There is a large harvest, but few workers together it in'. So every effort should be made to exploit this rich resource which is a foreign exchange earner, for the benefit of the nation.

The Govt. of India have formulated various new schemes which have started showing results. In addition to chartering of foreign vessels to fish in our EEZ, our own fishermen should be encouraged and helped to build larger vessels to enable them to operate long lines in our EEZ beyond the 100 m depth. It should be mentioned here that the venture of fishermen of Kanyakumari Dist. of Tamilnadu who employ long lines for fishing sharks is to be lauded. They operate from many centres along the west coast from Kanyakumari to Gujarat almost through out the year except during the monsoon months, the peak season being September to December. The catch per unit of boat on an average is around 800 Kg. (Joel and Ebenezer, 1993).

The incidence of non conventional species of sharks like the bramble shark, *Echinorhinus brucus* fairly in good magnitude as a fishery

in the deep sea trawlers operated off Tuticorin in Gulf of Mannar is an encouraging feature. Given all the facilities and liberal financial assistance our fishermen would successfully locate new grounds for this kind of deep sea sharks which can be exploited commercially.

Our knowledge of sharks and other elasmobranchs group is based on the species caught within the narrow belt of coastal zone up to 70 m or so. Beyond this there may be many more species about which we have no knowledge. At the present level of fishing elasmobranchs accounted for an annual average catch of 55 thousand tonnes of which sharks share with 35 thousand tonnes (65%). The projected potential yield for this group is about 0.18 million tonnes, leaving a large gap. The group is very much under exploited. We have scope for enlarging the commercial exploitation of this group without entertaining any fear of over exploitation in the near future.

#### MARKETING

As soon as sharks are landed they are auctioned. The fins are removed and the shark is cut open for the liver. Depending on the quality the liver oil is used in various industries like pharmaceutical, soap and paints. Of late it is used for coating the country crafts to repel marine fouling organisms. The flesh is salted and sold at the rate of Rs. 20-25 per Kg.

The fins used for the export market are the dorsals, pectorals and the lower lobe of caudal. In the case of guitar fishes from the families of Rhynchobatidae, Rhinobatidae and Rhinidae, the two dorsal fins and the whole of caudal fin are preferred as superior in quality fetching more price in the export markets than

the fins of sharks. The average yield of dried fins per shark roughly may be around 2.0 to 2.5 Kg. The maximum dried weight of fins per shark may be around 4 to 5 Kg. depending on the size of the shark. The main consumer centres are the countries of the South East Asia, the Middle East, the U.K. and the U.S.A. The quantity and value of dried fins are given in Table-3. Maximum of 211.8 tonnes was exported during 1981. A look at the quantity of fins exported over the years reveals that there is not much increase in quantity of fins but only the value that has shown ever increasing trend. There is a great demand for the fins in the export market, on the other hand the present level of exploitation of sharks is very low vis-a-vis the potential yield. It is high time we put in all our efforts to exploit to the maximum this most valuable foreign exchange earner for the benefit of the nation.

TABLE 3. *Export of fins of sharks and guitar fishes during 1981-93*

Year	Quantity (T) of Sharks and guitar fishes	Fins (T)	Value (in lakhs Rs.)
1981	34,169	211.8	210.3
1982	43,109	111.9	152.2
1983	43,431	140.6	205.3
1984	36,634	143.7	217.9
1985	36,579	93.4	129.4
1986	36,367	114.5	161.6
1987	34,340	117.5	193.8
1988	38,766	158.3	301.1
1989	30,432	192.8	410.9
1990	25,898	111.0	188.1
1991	33,032	144.0	471.0
1992	47,167	155.0	515.8
1993	47,629	146.0	685.6

## REFERENCES

C. M. F. R. I. 1995. Marine Fish landings in India during 1985-93. *Mar. Fish Infor. Serv., T & E Ser.*, **136** Jan.-Mar. : 1-31.

JOEL, J. J. AND I. P. EBENEZER 1993. Long-lining, specifically for sharks practised at Thoothoor. *Mar. Fish. Infor. Serv. T & E Ser.*, **121** May, June, July : 5-8.

SILAS, E. G. AND P. P. PILLAI 1985. A critique on National Tuna fishery. *CMFRI Bull.*, **36** : 8-19.

SUDARSAN, D., T. E. SIVAPRAKASAM, V. S. SOMVANSHI, M. E. JOHN, K. V. N. NAIR AND ANTONY JOSEPH 1988. An appraisal of the marine fishery resources of the Indian EEZ. *Bull. Fish. Surv. India*, **18** : 36 pp.

VIVEKANANDAN, E. AND M. S. ZALA 1994. Shark fishery of Veraval. *Indian J. Fish* (In press).