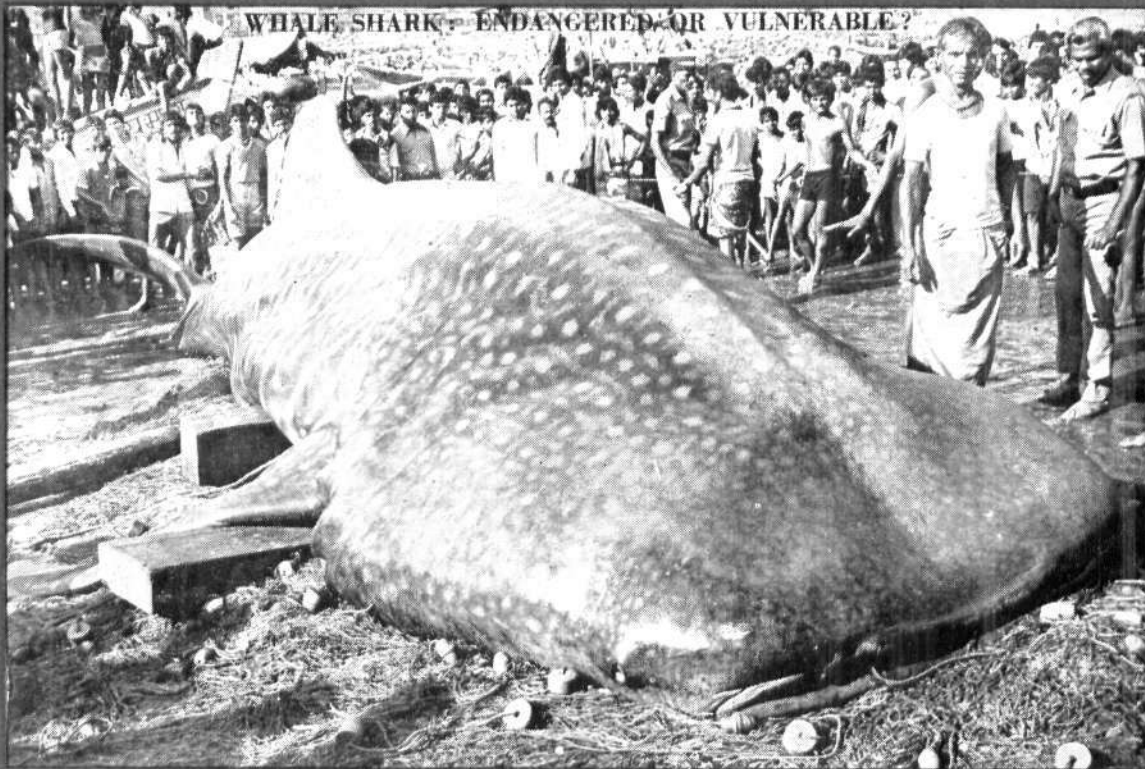




# MARINE FISHERIES INFORMATION SERVICE



No. 66  
JANUARY, FEBRUARY  
MARCH  
1986

*Technical and Extension Series*  
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE  
COCHIN, INDIA

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

**THE MARINE FISHERIES INFORMATION SERVICE:** Technical and Extension Series envisages the rapid dissemination of information on marine and brackish water fishery resources and allied data available with the National Marine Living Resources Data Centre (NMLRDC) and the Research Divisions of the Institute, results of proven researches for transfer of technology to the fish farmers and industry and of other relevant information needed for Research and Development efforts in the marine fisheries sector.

Abbreviation - *Mar. Fish. Infor. Serv. T & E Ser.*, No. 66: 1986

## ON THE CAPTURE OF WHALE SHARKS OFF DAKSHINA KANNADA COAST\*

Only stray individuals of the whale shark *Rhincodon typus* are caught occasionally along Dakshina Kannada coast. Previously they were caught in nylon gill nets. In recent years they are caught in purse seines which are extensively operated along this coast. The capture of six juvenile whale sharks in purse seines in a span of about two months between 8th November and 31st December, 1980 off Dakshina Kannada coast is reported here.

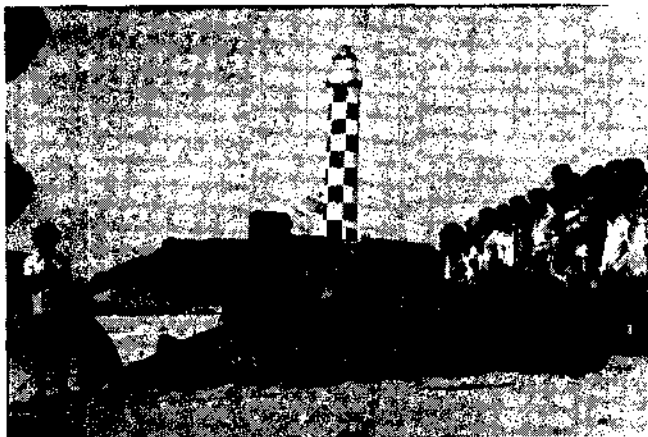


Fig. 1. A juvenile male *Rhincodon typus* 5.65 m in length caught in purse-seine 5 km off Kaup at a depth of 16 m on 20th December, 1980.

The size, sex, area and date of capture of the whale sharks are given below. (Also please see Table 1).

1. One juvenile of 6.4 m in total length, caught off Hejmadi, at a depth of 27 m on 8th November, 1980. (The sex was unknown as the fish was disposed off).



Fig. 2. The male *R. typus* caught off Kaup being hauled to the beach by fishermen using ropes.

\*Prepared by K. Satyanarayana Rao, Tuticorin Research Centre of CMFRI, Tuticorin.

2. A male of 6.71 m in total length, caught 9 km off Yermal, at a depth of 16 m, on 8th November 1980.
3. A male of 4.88 m in total length, caught 6.4 km off Mooloor, at a depth of 16 m, on 8th November, 1980.



Fig. 3. The anterior portion of the male *Rhincodon typus* 6.71 m in length caught 9 km off Yermal in purse-seine at a depth of 16 m on 8th November, 1980.

4. A male of 5.65 m in total length, caught 5 km off Kaup, at a depth of 16 m, on 8th November, 1980.
5. A female of 7.92 m in total length, caught 9 km off Malpe, at a depth of 16 m, on 27th December, 1980.

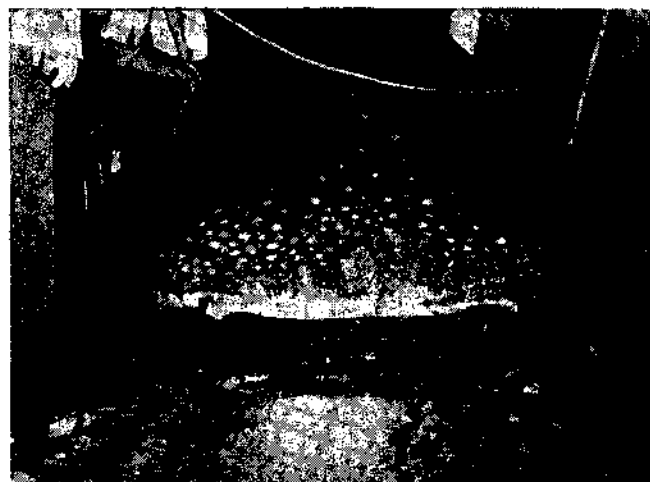


Fig. 4. Front view of head of the female *R. typus* caught off Malpe showing broad mouth on being hauled ashore.

**Table 1.** Data on six whale sharks *Rhincodon typus* caught along Dakshina Kannada coast

Particulars   Sl. No. of whale sharks→	1	2	3	4	5	6
1. Date of capture	8th Nov. '80	8th Dec. '80	8th Dec. '80	8th Dec. '80	27th Dec. '80	31st Dec. '80*
2. Locality and depth	15 km off Hejmadi at depth of 27 m	9 km off Yermal at depth of 16 m	6.4 km off Mooloor at depth of 16 m	5 km off Kaup at depth of 16 m	9 km off Malpe at depth of 16 m	12 km off Malpe at depth of 22 m
3. If captured, time and method of capture	Captured at 12 hrs in purse seine	Captured at 16 hrs in purse seine	Captured at 12 hrs in purse seine	Captured at 11 hrs in purse seine	Captured at 12 hrs in purse seine, landed at 16 hrs	Captured at 12 hrs in purse seine, landed at 17 hrs
4. If stranded, time	Not stranded	Not stranded	Not stranded	Not stranded	Not stranded	Not stranded
5. If stranded, injured or infected	—	—	—	—	—	—
6. If washed ashore, dead, injured or infected	—	—	—	—	—	—
7. If sight record, location	—	—	—	—	—	—
8. Fishing vessel which caught the whale shark and size of vessel	Purse seiner (43' vessel)	<i>Yermal Fisheries</i> (Purse seiner 43' vessel)	<i>Mooloor Fisheries</i> (Purse seiner 43' vessel)	<i>Maha-lakshmi</i> (Purse seiner 43' vessel)	<i>Prithi Enterprises</i> (Purse seiner 43' vessel)	<i>Rajeswari</i> (Purse seiner 43' vessel)
9. Owner of the fishing vessel	—	Shri K. Suvarna	30 ex-rampan fishermen	Shri Krishnappa, Kotian and 19 others	10 men of fishermen community (Not ex-rampan fishermen)	—

Particulars	Sl. No. of whale sharks→	1	2	3	4	5	6
10. Merchant who purchased the whale shark	—		Shri Ahmed Saheb	Shri Ahmed Saheb	Shri S. Kasper of M/s. Anthonyappa & Co., Muttom	Smt. Radha Devi Karkera	Smt. Jalajakshmi Karkera
11. Price paid by the merchant	Rs. 300/- claimed but none purchased		Rs. 300/-	Rs. 250/-	Rs. 250/-	Rs. 200/-	Rs. 50/-
12. Amount incurred by the merchant for hauling and cutting of whale shark	—		Rs. 200/-	Rs. 150/-	Rs. 100/-	Rs. 200/-	Rs. 200/-
13. Quantity of salt used for curing (kg)	—		1,000	800	1,000	2,000	1,000
14. Sex	—		Male	Male	Male	Female	Male
15. Weight (approximate) (kg)	—		1,800	1,250	1,500	4,000	1,700
16. If female, any eggs present, if so number	—		—	—	—	ovary immature	—
17. Length, width and thickness of egg cases	—		—	—	—	—	—
18. Contents of stomach (at least sample to be preserved)	—		—	—	Data given in Table 2	Data given in Table 2	Could not be collected
19. Any stomach, intestinal or other internal parasites	—		Not present	Not present	Not present	Not present	—
20. Any gill parasites	—		Not present	Not present	Not present	Not present	—

Particulars	Sl. No. of whale sharks→	1	2	3	4	5	6
21. Any external parasites	—	—	Not present	Not present	Not present	Not present	—
22. Weight of fresh meat (kg)	—	—	1,200	800	1,000	2,600	1,300
23. Weight after drying (kg)	—	—	350	250	300	800	420
24. Weight of liver (kg)	—	—	140	80	100	240	80
25. Quantity of oil extracted (l)	—	—	58	Liver discarded as oil was not of good quality	49.5	72	54
26. Any other animals seen in association with whale shark	—	—	—	—	—	Got 2.5 tonnes of oil sardine with whale shark	—
<b>Morphometric data**</b>							
1. Total length	—	6400	6705	4880	5650	7920	5180
2. Standard length	—	—	5030 (75.0)	—	4220 (74.7)	5930 (74.9)	—
3. Length of head	—	—	1800 (26.8)	—	1455 (25.8)	1890 (23.9)	—
4. Girth of body	—	—	389 (58.0)	—	3640 (64.4)	4400 (55.6)	—
5. Width of mouth from angle to angle	—	—	840 (12.5)	—	780 (13.8)	1180 (14.9)	—
6. Diameter of eye	—	—	40 ( 0.6)	—	—	44 (0.6)	—
7. Interorbital distance	—	—	1300 (19.4)	—	—	145 (018.3)	—
8. Snout to eye	—	—	700 (10.4)	—	—	790 (10.0)	—

Particulars   Sl. No. of whale shark →	1	2	3	4	5	6
9. Snout to spiracle	—	800 (11.9)	—	—	890 (11.2)	—
10. Snout to 1st gill opening	—	1420 (21.2)	—	—	1700 (21.5)	—
11. Length of pelvic fin	—	420 ( 6.3)	350 (7.2)	340 ( 6.0)	380 ( 4.8)	—
12. Length of first dorsal fin	—	710 (10.6)	660 (13.5)	770 (13.6)	820 (10.4)	—
13. Length of second dorsal fin	—	250 (3.7)	200 ( 4.1)	310 ( 5.5)	380 ( 4.8)	—
14. Range of thickness of body wall	—	40-90 (0.6-1.3)			65-130 (0.8-1.6)	—
<i>Vertical height of:</i>	—	640 ( 9.6)	520 (10.7)	690 (12.2)	739 ( 9.3)	—
15. First dorsal fin						
16. Second dorsal fin	—	250 ( 3.7)	230 ( 4.7)	310 ( 5.5)	319 ( 4.0)	—
17. Anal fin	—	250 ( 3.7)	—	220 ( 3.9)	284 ( 3.6)	—
18. Length of caudal fin from caudal pit along upper margin	—	1400 (20.9)	1330 (27.3)	1415 (25.0)	1830 (23.1)	—
<i>Snout to:</i>						
19. First dorsal fin	—	3090 (46.1)	—	2620 (46.4)	3286 (41.5)	—
20. Second dorsal fin	—	—	—	3750 (66.4)	5160 (65.2)	—
21. Pectoral fin	—	1750 (26.1)	—	1070 (18.9)	1910 (24.1)	—
22. Pelvic fin	—	—	—	2930 (51.9)	3720 (47.0)	—
23. Anal fin	—	—	—	3845 (68.0)	5305 (67.0)	—
<i>Interspace between:</i>						
24. First and second dorsal fins	—	—	—	980 (17.3)	1857 (23.4)	—
25. Anal and caudal fins	—	—	—	—	823 (10.4)	—

Particulars   Sl. No. of whale sharks→	1	2	3	4	5	6
26. Origins of pectoral and pelvic fins	—	—	—	—	2190 (27.7)	—
27. Origins of pelvic and anal fins	—	—	—	—	1537 (19.4)	—
<i>Length of pectoral fin:</i>						
28. Along outer margin from anterior insertion	—	1100 (16.4)	920 (18.9)	1090 (19.3)	1190 (15.0)	—
29. From angle of inner base to tip	—	850 (12.7)	880 (18.0)	836 (14.8)	1020 (12.9)	—
<i>If male:</i>						
30. Length of clasper from inner base of pelvic fin	—	250 ( 3.7)	—	220 ( 3.9)	—	—
31. Length of pelvic fin along its inner edge	—	280 ( 4.2)	—	190 ( 3.4)	—	—

\* This particular whale shark was caught by 42½' purse seiner *Hemalatha* (owned by Shri Somappa Kotian and party) 12 km off Gangolli at a depth of 22 m on 29th December, 1980 at 16 hrs and brought to Malpe on the same day at 18 hrs. But it was released in the sea 12 km off Malpe where the depth was 22 m on 30th December as workers demanded Rs. 200/- to haul the shark ashore. The same whale shark was captured by *Rajeswari* on 31-12-1980.

\*\* Measurements in mm. Figures given in brackets are measurements expressed as percentage in total length.



6. A male of 5.18 m in total length, caught 12 km off Malpe, at a depth of 22m, on 31st December, 1980. There were no parasites on any of the sharks.

*Capture of whale sharks:* The fishermen reported that the whale shark swims slowly at or near the surface of water and follows shoals of fishes for feeding on them. On capture in the purse-seine, the fishermen put a noose around the caudal peduncle, tie a knot firmly around it and tow the shark to the shore using carrier boat. On reaching the coast, they haul the huge fish to the beach using ropes which are used for beaching mechanised boats. Only one purse seine in which a female was caught off Malpe on 27th December was partly damaged. The whale shark is usually docile. It makes lashing movements for about an hour on being hauled to the beach.

*Causes of occurrence of whale sharks in coastal waters:* In November–December, oil sardine, anchovies and mackerel are obtained in purse seines from the area. The whale sharks may enter the shallow coastal waters for feeding on shoals of these pelagic fishes. *Rhincodon typus* is normally a plankton feeder with the well developed gill apparatus for straining planktonic organisms like a sieve but they are also known to feed on fishes. The gut contents of whale sharks caught off Kaup on 20th December and off Malpe on 27th December consisted of *Stolephorus devisi*, *Kowala coval*, copepods and other zooplankters, phytoplankton and sand grains (Table 2).

The period October–March is one when zooplankton is abundant off Dakshina Kannada coast. It is



Fig. 5. The stomach and long, thick liver lobes of the female whale shark caught off Malpe as cut and exposed.



Fig. 6. The gills of *R. typus* caught off Malpe as cut and exposed.



Figs. 7 & 8. The flesh of *R. typus* caught off Kaup being cut for curing.

**Table 2.** Data on stomach contents of whale sharks landed at Kaup and Malpe

Particulars   Sl. No. of whale sharks →	4	5
Date of capture	20th December, 1980	27th December, 1980
Volume of fluid in stomach	24 litres	38 litres
Volume of stomach contents	355.2 ml	1128.4 ml
Percentage of different items of stomach contents:		
<i>Stolephorus devisi</i>	78.3	57.1
<i>Kowala coval</i>	—	25.3
Zooplankton (copepods and other zooplankters in advanced stage of digestion)	16.1	12.8
Phytoplankton (in advanced stage of digestion)	4.4	2.2
Sand grains	1.2	2.6

possible that the migration of whale sharks to coastal waters is influenced by this factor also.

*Utilization:* Meat ranging in weight from 0.8 tonne to 2.6 tonnes, the latter from the whale shark weighing 4.0 tonnes, was got from the sharks landed. The fish merchants paid Rs. 50/- to 250/- per whale shark (Table 1) and incurred additional expenditure for cutting the fish and curing. The meat which was white and soft was salted, kept for seven to eight days and then dried.

Water content of meat was very high being 68.8 to 70.8 per cent. Whale shark meat is not eaten locally. The cured meat was sent to Shimoga, Chickmagalur, Bangalore, Cannanore, Kottayam, Changanacherry, Alleppey and Ernakulam where there was demand. The cured meat fetched a price of Rs. 4/- per kg. The liver oil extracted by heating is used for giving a preservative coating to wooden boats. In addition, it is also used in the manufacture of shoe polish. The shoe polish manufacturing companies purchased the liver oil at a price of Rs. 20/- per tin of 16 litres.

