

Turning the Tide



**The campaign to save Vhali,
the Whale Shark (*Rhincodon typus*) in Gujarat**





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in Gujarat

Rupa Gandhi Chaudhary, Dhires Joshi, Aniruddha Mookerjee,
Vivek Talwar and Vivek Menon





Wildlife Trust of India (WTI), is a non-profit conservation organisation, committed to help conserve nature, especially endangered species and threatened habitats, in partnership with communities and governments. Its principal concerns are crisis management and the provision of quick, efficient aid to those areas that require it the most. In the longer term it hopes to achieve, through proactive reforms, an atmosphere conducive to conserving India's wildlife and its habitat.



The International Fund for Animal Welfare (IFAW) works to improve the welfare of wild and domestic animals through out the world by reducing commercial exploitation of animals, protecting wildlife habitats, and assisting animals in distress. IFAW seeks to motivate the public to prevent cruelty to animals and to promote animal welfare and conservation policies that advance the well-being of both animals and people.



Established in 1939. TATA Chemicals Limited (TCL), is India's leading manufacturer of inorganic chemicals, fertilizers and food additives. Part of the US\$ 22 billion Tata group, the company owns and operates the largest and most integrated inorganic chemicals complex in the country at Mithapur, Gujarat. The company's state-of-the-art fertiliser complex at Babrala, Uttar Pradesh, is known for its world-class energy efficiency standards, and has won several awards in the fields of environmental conservation, community development and safety. TCL'S phosphatic fertiliser complex at Haldia in West Bengal is currently the only manufacturing unit for DAP/NPK complexes in West Bengal. The acquisition of an equal partnership in Indo Maroc Phosphore S.A. (imacid) along with Chambal Fertilisers and the global phosphate major, OCP of Morocco recently, is the first step that TCL took towards Globalisation. In early 2006, TCL acquired the UK based Brunner Mond Group (BM). This acquisition makes TCL one of the most diversified companies with manufacturing facilities in 3 continents and markets across the world.

TATA Chemicals Society for Rural Development (TCSRSD) was established by TATA Chemicals in 1980

for the benefit of the rural population in an around the company's plants and township. Over the years it has initiated a number of development, welfare and relief activities. TATA Chemicals won the Green Governance Award 2005 for the Whale Shark Conservation Project. The award was given by Dr Manmohan Singh, Hon'ble Prime Minister of India on November 10, 2005 in New Delhi.



The Gujarat Forest Department is entrusted with the prime responsibility of protection, conservation and development of forests and wildlife of the state. They have extended support to the Whale Shark campaign even beyond the shores of the state.

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Homi R Khusrokhhan
Managing Director

Message

"Care for the communities around our sites and a concern for biodiversity and sustainability of our operations is an integral part of Tata Chemicals' value system. We are in the vicinity of a marine national park and the conservation of the marine environment is an important aspect of our approach to sustainability.

We have partnered and supported the Whale Shark Conservation program since its inception almost five years ago, not just by way of funding, but by the active participation of our employees who have been active volunteers in supporting this program. I am happy to say that after the successful completion of Phase 1 of the campaign, where reports show that more than 50 Whale Sharks caught in the nets have been released by fishermen along the Gujarat coast, we are now moving to the Phase 2 of the project.

Very little is known about the Whale Shark's habits, breeding, etc. and in the Phase 2, we aim at conducting scientific studies that would improve our knowledge of this gentle giant, which is the world's largest fish and its full life cycle. A Whale Shark study centre is planned to be set up at Mithapur.

What we are aiming to do is to ensure that people are made aware of the rich marine biodiversity of this region and that they are encouraged to look after it, as we managed to do with the Whale Shark."

A handwritten signature in black ink, appearing to read 'Homi R. Khusrokhhan'.

(Homi R. Khusrokhhan)

Managing Director

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MESSAGE

My first memory of whale sharks is when I was 10 years old, traveling from Mombasa to Bombay via Porbandar on a ship. My brother and I watched these huge spotted creatures swimming alongside our ship through almost the entire eight day journey.

40 years later while working on a film on oceans I followed the memory of these creatures to the Saurashtra coast of Gujarat with my team. We spoke to scores of people – fishermen, boatmen, villagers, authorities, scientists – to no avail. People scoffed at our questions – saying there were no such creatures on Indian shores. Finally a fibre-glass boat builder in Bhavnagar knew exactly what we were speaking of. He described it correctly and told us that he had heard that these creatures were sporadically caught and killed for their liver oil to waterproof boats. Thus began our three year search.

From 1996, we traveled each year to this coast to look for whale sharks. Found no trace of it. Then in 1998 we found our first one – as large as a trawler, lying cut open in the murky Veraval harbour waters. Two men were standing inside its stomach, cut open and severing its liver. This sealed our search – we knew we had to get to the bottom of this and bring to light the condition of these creatures. It was finally in 1999 while filming on the Saurashtra coast that my young colleague Rita Banerji came across a village in Mul-Dwarka with 4-5 beached whale sharks waiting to be cut up. I dropped all other projects and we followed up on this lead and came up with the film 'Shores of Silence – Whale Sharks in India'.

This film made against all odds, with no schedule, no funding, and no support has been one of the most fulfilling projects in our lives. Apart from winning awards – it became a critical tool to get the species enlisted as Schedule I in India's Wildlife (Protection) Act, 1972 and also triggered its protection under CITES Appendix II in Santiago, Chile in 2002.

It is indeed a deeply gratifying feeling to know that chasing up on my nostalgia led to this film which has generated such support for the fish and developed into a extraordinarily successful campaign. And that today, not only is the species treasured on this coast, but that nearly 80 whale sharks have been released by the same fishermen that once slaughtered them.

I wish that this conservation effort grows from strength to strength and whale sharks find a safe home in Indian waters always. It brings great peace to know that the huge creatures etched in my memory have been given a fresh lease of survival.


MIKE H. PANDEY
Riverbank Studios, New Delhi

PREFACE

The whale shark campaign is one of the stellar conservation stories that have come out of India in the past few years. To take a fish that was hunted and traded in the scores and was virtually unknown in the conservation community of India and in the short span of three years to transform it into a legally protected species whose hunting was a story of the past is remarkable. Equally remarkable is the fact that the fish has achieved an iconic status as Vhali, the loved one in Gujarat with thousands of schoolchildren painting it, celebrating its arrival with plays and street drama, and with six towns on the western coast of India declaring it their city's mascot. And to add to the glittering array of conservation successes, is the act that over two dozen fishermen have done in separate incidences, of cutting their fishing net, and freeing an accidentally snared whale shark into the ocean. Such has been the turnaround that the Gujarat government has declared a whale shark day, an official celebration of the arrival of the shark into Indian waters and also declared a compensation scheme for fishermen who dare to snip through the nets that is their sole livelihood with the intention of protecting the whale shark.

What is equally charming about this story is that this has been achieved with a unique partnership of a set of NGOs, the Wildlife trust of India and the International Fund for Animal Welfare, the Gujarat government through its Forest Department and the provider of resources, Tata Chemicals. This tripartite partnership then worked with local communities to achieve this nice story. It laid on the foundation of the Indian government's resolve to protect the fish, through its listing on the Wildlife Protection Act and its sponsorship of its CITES listing, by making real on ground, a paper protection given to the shark a few years ago. It also translated into reality the conservation saga that Mike Pandey had envisioned in his award winning documentary Shores of silence that visually captured the hunting for the first time or Fahmeeda Hanfee's research that produced a TRAFFIC report of the same.

Turning the Tide is a readable account of three years of this exciting conservation success. It is undoubtedly one of WTI's crowning jewels in 10 years in the service of nature.

Sujit Gupta
Vice Chairman
Wildlife Trust of India



FOREWORD



Pradeep Khanna, IFS
Principal Chief Conservator of Forests
Wildlife & Chief Wildlife Warden
Gujarat State
8th October 2008

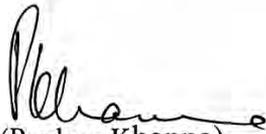
FOREWORD

Voluntary Whale Shark conservation by the fishing community is a story that has few parallels in India. In a span of four years, the perception of the fishing community changed from the Whale Shark - a prized catch to Whale Shark in net an accident. They volunteer information to facilitate its release. It is indeed a rare achievement in the conservation world and more particularly, with a marine species.

Whale Shark congregates in large numbers off the Saurashtra coast (part of State of Gujarat) during September to May every year. Alarmed at the massive hunting the Whale Shark suffered and based on inputs from researchers and wildlife photographers, the Government of India brought this species under Schedule-1 of the Wildlife (Protection) Act, 1972. This placed responsibility of protecting and conserving this unique species on Department of Forest of the Gujarat State. Protection measures were devised and implemented and at the same time, the department, sought to strengthen the conservation initiative by resorting to extension activities. The Wildlife Trust of India wholeheartedly joined in this initiative and used innovative ways of sensitizing the coastal communities, including bringing in the involvement of Shri Morari Bapu, a religious leader. The message favouring conservation, identifying Whale Shark with beloved daughter at parents place - Vhali made the difference. The commitment of the Coast guard, by agreeing to report on the sightings of Whale Shark was also laudable. The Government of Gujarat, in its turn, offered compensation to the fisherman for the loss of their nets if they were to be cut for the Whale Shark to be released. Though this could compensate the fishermen only partially, the enthusiasm generated was tremendous. Indeed the tide has turned.

I expect that these efforts at conservation would eventually lead to facilitation of Whale Shark tourism in future and economically benefit the community that has come forward to conserve the Whale Shark at cost of its earnings. This would be unique story of conservation paying for itself.

This publication details the story of participatory conservation of Whale Shark in Gujarat that would hopefully serve as a role model for marine conservationists all over the world.


(Pradeep Khanna)

ACKNOWLEDGEMENTS

The campaign to save the whale shark would not have been a success without the support and direction given by Shri Morari Babu and the collaborative efforts of the various state government departments, corporate houses, local administration in campaign areas and the fishing community.

Listed here in no particular order, are the organizations and individuals we would like to acknowledge:

The Forest Department of Gujarat for joining the campaign and taking it on to the policy makers.

Tata Chemicals Limited for the funds and manpower required to run the campaign for over three years and Gujarat Heavy Chemicals Limited for the first year of partial funding.

The Coast Guard for its whole-hearted participation in all campaign events.

The Fisheries Department for their support in rescues.

The GEER Foundation for their support in campaign events and activities.

The Nagarpalika presidents of Porbander, Diu, Okha, Dwarka and Veraval-Patan and the Mayor of Ahmedabad for adopting the whale shark at public events and for their pledge to protect the species.

The Boat owner's association of Porbander and Diu and the Kharwa Samaj of Gujarat and Diu for participating in the campaign.

Vivek Talwar, Alka Talwar and volunteers from Tata Chemicals Limited for being at the forefront in conducting all campaign activities.

Local NGOs such as the Vidyanagar Nature Club, Surat Nature Club, ANALA, CEE, and all others who participated but do not find mention here.

Suzy Quasnichka for sharing footage of whale sharks underwater and Brad Norman for visiting the coastal areas and Nirmala Joshi for scripting the street play and Manish Patadia and his troupe for directing and conducting the street play.

All the school that participated in the painting contests and artist Bulbul Sharma for selecting the best entries to produce the calendar

Our thanks also go out to our present and former colleagues from Wildlife Trust of India, Urvashi Dogra (Manager - Whale shark Campaign), Mandeepa Ahluwalia (Director - Marketing), John Kunjukunju (Executive Assistant), Sanjeeb Barua (Programme Officer), Pasang Lhamu Bhutia (Programme Officer), and Irina Ningthoujm for their constant support for the campaign.

A detailed list of people and organizations we wish to thank is given at the end in Appendix V. The authors seek sincere apologies if any individual or organization is inadvertently left out of this list.

Photo credit:

Aroon Studio/WTI: Front cover, Pg 46 (bottom) & Pg 47; Marinethemes/David Fleetham: Title page; Suzy Quasnichka: Contents Page; Mike Pandey: Pg 20 & 21; DN Ram: Pg 25 & 69; Mehul Shukla: Pg 28 & 29; Vijay Herma: Pg 30 (bottom), 33 (bottom), 38 & 42 (top); Goutam Chatterjee: Pg 10, 30 (top), 31, 32; Omni Vibes: Pg 34, 35, 36(top), 40 & 44 (top); Vidyanagar Nature Club: Pg 36 (bottom) & 37; Dinesh Goswami: Pg 39; Gujarat forest department: Pg 42 (bottom) & 43; Brad Norman/Ecocean: Pg 15, 44 (bottom), 46 (top) & 75; BNHS Photolibrary: Pg 45; Mrine Conservation Society/Neil Rosewarn: Pg 73; Malayalamanorama/E. Somanath: back cover.



EXECUTIVE SUMMARY

The whale shark is the world's largest fish that visits the coast of Gujarat each year after traversing thousands of miles along the coasts of Australia and South East Asia. Whale sharks did not enjoy a protected status and used to be killed in large numbers till 2001, a fact brought to light by "Shores of Silence" a documentary made by Mike Pandey on the plight of the Whale Shark that won the Green Oscar Award. WTI alongwith Mike Pandey subsequently lobbied with the MoEF for the whale shark to be brought under the Schedule I of the Wildlife (Protection) Act of India in 2001—the highest ever protection to a species. In the year 2002 due to the efforts by India and Philippines, the fish was included in Appendix II of the CITES (Convention on International Trade in Endangered Species). WTI led the NGOs lobby for this in Santiago, Chile.

A dipstick survey assigned by the Wildlife Trust of India to Taylor Nelson Sofres in 2004 and conducted in the coastal town of Veraval and inland city of Ahmedabad revealed that awareness levels among adults on poaching and the protected status to be as low as 19% in Veraval, the hub of the whale shark fisheries. The local fishing community also referred to the whale shark as "barrel" because of the widespread usage of plastic barrels in hunting it. A campaign to save the whale shark was thus launched in 2004 to build awareness on its protected status and illegal killings among the local fishing community in order to stop the killings and to urge the general public of Gujarat to protect it.

The Save the Whale Shark Campaign was launched as a multi-pronged campaign with support from two corporate houses in Gujarat that had manufacturing units on the coast. The campaign adopted a strategy of soliciting the support of a popular religious leader – Morari Bapu, who equated the fish to an incarnation of a Hindu deity and accorded it a status of a beloved daughter coming home. A life-sized inflatable model, a street play in the local language, theme-based painting competitions in schools, fetes with the whale shark conservation theme, an educational film and public events all worked together to take the campaign from an awareness campaign to a Pride campaign. A series of adoptions of the whale shark as the city mascot by municipal corporations saw the involvement of decision makers and government bodies. Awareness among the fishing community built up to a level where hunters turned protectors and instances were recorded where fishermen cut their fishing nets to release trapped whale

sharks. The forest department and Coast Guard, state government and the fisheries department were involved in latter day events and whale shark releases.

Milestones of the Whale Shark Campaign

- WTI and IFAWA (International Fund for Animal Welfare) launched the Whale Shark Campaign in January 2004 in collaboration with the Gujarat Forest Department, Tata Chemicals and Gujarat Heavy Chemicals Ltd. Well-known religious leader, Shri Morari Bapu gave support to the campaign.
- On May 23, 2004, Porbandar adopted the whale shark as their city mascot. Following this, Diu (September 22, 2004), Dwarka (October 21, 2004), Okha (October 21 2004), Ahmedabad (March 12, 2005) and Veraval-Patan (February 17, 2007) also adopted the whale shark as their mascot.
- On March 12, 2005, the Postal Department of Gujarat came out with a special cover on the whale shark.
- On November 10, 2005, Tata Chemicals Ltd won the Green Governance Award for the whale shark campaign, which was given away by the Hon'ble Prime Minister, Dr. Manmohan Singh.
- The life-sized inflatable of the Whale Shark was on display for nine days each year as part of the Vibrant Gujarat celebrations for three consecutive years (2004 to 2006). The Chief Minister of Gujarat and the leader of the opposition party of India visited the display pavilion and were briefed about the campaign.
- On December 25, 2006, for the first time Gujarat government announced compensation for fishermen whose nets were destroyed during releases of whale sharks trapped in their nets.
- On December 19, 2006, the Whale Shark became part of the Diu Liberation Day celebrations.
- As a fitting culmination of the campaign, fishermen started to release trapped whale sharks from their nets by cutting them. The department of fisheries and the forest department are now actively involved in rescues and releases of whale

sharks and 75 releases have been recorded till October 30, 2008.

- The effectiveness of the campaign was measured in subsequent dipstick surveys in the years 2005 and 2007. The final survey in 2007 revealed that awareness levels on the legal status of the whale shark had reached 69% among adults in Veraval from the 19% figures in 2005.

The campaign that evolved from an awareness to a pride campaign is now poised on the threshold of scientific conservation with the involvement of scientists and policy makers. This Conservation Action Report documents the campaign to save the whale shark from 2004 to 2007 and suggests the way ahead with the following recommendations:

Whale shark science: The success of the campaign as measured by the final survey has also raised the need to pursue whale shark science in India as very little is known of the migratory pattern, breeding habits and behaviour of whale sharks. It is important that satellite

tracking, photo identification and visual tagging are carried out on the whale sharks in India in order to answer some of these questions.

Whale shark campaign, phase II: The campaign has evolved to a Pride campaign in Gujarat. A specific day each year to conduct celebrations on the whale shark conservation theme would substantiate the place of pride for the species in Gujarat. Secondly, it is important to take the awareness campaign to other coastal areas of the country. This is verified by news reports of whale sharks being sighted, stranded, trapped or traded from coastal areas other than Gujarat.

Whale shark tourism: A flourishing whale shark tourism industry at Ningaloo Reef in Australia, at Belize and Honduras calls for a feasibility study in Indian waters as well to see if such an eco-tourism venture is possible in the future in the state of Gujarat or in neighboring areas. If this is feasible then it is further recommended that a pilot ecotourism project is carried out to work hand-in-hand with the whale shark campaign and the scientific projects.



Whale shark model at Porbandar during launch of the campaign in 2004

Introduction

1.1 The Gentle Giant

A giant in size but gentle by nature, the whale shark is the largest living fish in the world, is a warm, tropical water-dwelling plankton feeder and is a shark that bears live young. It is one of the most easily identifiable marine species if not by size, then by its distinctive colorations of pale spots and stripes against a blue to grey skin tone. The addition of the word whale only denotes its massive size and general appearance. It attains a maximum of 20 m (although on average males in Western Australia measured between 4-13 m and females between 4-8m (Norman and Morgan 2005) in total length and weighs up to 34 tonnes. Unlike normal sharks, the head is flattened and the wide mouth, positioned at the tip of the snout, stretches almost as wide as the body. The mouth contains as many as 300 tiny teeth, the function of which is unknown, since the whale shark is known to be a docile filter-feeder unlike other sharks.

The whale shark, *Rhincodon typus*, belongs to the family Rhincodontidae, in the order Orectolobiformes: The shark was also earlier known in scientific literature by the synonyms of *Micristodus punctatus* Gill, 1865 and *Rhinodon pentalineatus* Kishinouye, 1901. The spellings of its genus has varied over the years, and it has been variously spelled as *Rhinchodon* Smith; *Rineodon* Müller and Henle, 1838; *Rhineodon* Müller and Henle, 1838; *Rhinodon* and *Rhineodon typicus* Müller and Henle, 1839; *Rhiniodon* Swainson, 1839; *Rhinecodon* Agassiz, 1845 and *Rhinodon* Smith, 1849.

It is known throughout the world by different common names and a partial listing of these is given in Appendix I.

Very little is known about the biology and habits of the whale shark but a good synopsis of what is known is given in the proposal put forward

by India and Philippines to the CITES Conference of the Parties for listing in Appendix II in 2002. The proposal states "There is no detailed study of Whale Shark life history; estimates of age at maturity range from 9 to over 20 or 30 years, generation time from 24 to over 60 years, and longevity from 60 to over 100 years (*e.g.* Wintner in press). Even if the most conservative (lowest) estimates are taken, this is a very low-productivity, low-resilience species. Calculating life history parameters using Fishbase (www.fishbase.org) and the 20m long shark reported by Chen *et al.* (in press b) yields an estimate of 0.08/year intrinsic rate of population increase (*r*). Gestation period and interval between births are both unknown; only one litter of about 300 small near-term pups of 48-58 cm TL which grew rapidly in captivity has been reported (Joung *et al.* 1996, Leu *et al.* 1997). By analogy with the Nurse Shark *Ginglymostoma cirratum* (Castro 2000), the only other Orectolobid shark for which detailed reproductive data are available, pregnancy may last for less than a year, but birth is likely followed by a long resting period and litters born only every two years. This strategy might explain the small number of pregnant females observed. Initial rapid growth of pups (Leu *et al.*, 1997) would explain the scarcity of records of very small Whale Sharks. Growth would slow rapidly at maturity (Pauly in press). A Whale Shark about 20m long and 34t in weight (as reported landed in Taiwan by Chen *et al.* 1997 and in press b) could be over 100 years old".

The population estimates for this species are also not available although, the CITES proposal notes that "an 'Urgent Risk Assessment' project has been funded by the Australian government. To be completed by late 2002, this project will collate all available data on this species to model the population size (Norman pers com). Local estimates of population size are likely to be masked by the long-distance and long-term migrations which have been described by Eckert and Stewart (2001) and Eckert *et al.* (in press). Taylor (1994) used photo-identification

The Indian Government's Ministry of Environment and Forests granted full legal protection to whale sharks in Indian territorial waters by adding the species to Schedule I of the Wildlife (Protection) Act, 1972, under sub section (1) of section 61, on 28th May 2001

and mark-and-recapture techniques over a period of several years at Ningaloo Reef, Western Australia, to reach an estimate of a population of low 100s of sharks using this reef following coral spawning events. Further photographic evidence of more than 100 individual sharks visiting the Western Australian coastline has since been collected (Norman pers com). Heyman *et al.* (2001) estimated that a population of 22-25 sharks regularly visited Gladden Spit, a small area of the Belize Barrier Reef to feed on reef fish eggs during spawning events, although 47 sharks have been photographed visiting this site. The removal of low 10s or 100s of Whale Sharks by local or regional fisheries followed by reduced catches appears to confirm, therefore, that only relatively small populations of this huge migratory species take part in known seasonal feeding aggregations, suggesting that the global population may also be small”.

Whale sharks have a broad distribution in tropical and warm temperate seas, usually between 30°N and 35°S latitude. They are known to inhabit both deep and shallow coastal waters and the lagoons of coral atolls and reefs. The species is thought to prefer surface sea-water temperatures between 21 and 25°C with a high occurrence of plankton.

Generally, whale sharks are encountered singly but loose aggregations of over 100 animals have been seen, which suggests that schooling activity does occur. Whale sharks are known to aggregate off the coast of Australia by following warm oceanic currents to take advantage of the high zooplankton (microscopic animals) concentrations associated with large-scale coral spawning events occurring during at fixed times of the year.

Whale sharks have been reported from several parts of the tropical waters of the world and a complete list of range states of the species is given in Appendix II.

1.2 Globally protected fish

The World Conservation Union (IUCN) lists the whale shark as Vulnerable. It was earlier listed as Lower Risk-Conservation Dependent in 1994 and later upgraded to Vulnerable in 2000. The reason for listing as Vulnerable (A1b, d, A2d) in the IUCN Red List of Threatened Animals (Hilton-Taylor 2000 and <http://www.redlist.org/>) is given as follows: IUCN Criterion A, the basis for this assessment, refers to declining populations. Sub-criterion 1 indicates that population reductions have been observed, estimated, inferred, or suspected in the past, based on b) an index of abundance appropriate for the taxon [in this case declining landings or catch per unit effort] and d) actual levels of exploitation. Sub-criterion 2 indicates that a population decline is projected or suspected in the future, based on d) potential levels of exploitation (likely to occur if directed fisheries, driven at least in part by the demand for fins and meat in international trade, remain unmanaged, and as a result of by-catch). The Vulnerable assessment indicates that the estimated and projected scale of this population reduction is between 50% and 20% of the population over a ten-year or three-generation period, whichever is the longer. (In this case, the generation period for the Whale Shark is conservatively estimated as 24 years.)

The whale shark is protected in various countries under the following legislation:

Australia: Protected in Commonwealth waters under the *Environmental Protection Biodiversity Conservation Act 1999* (EPBC Act 1999) as a listed migratory species, under the *Great Barrier Reef Marine Park Act* in those Queensland waters where it is known to occur, in the state of Western Australia by an “indefinite closed season” under the *Fish Resources Management Act 1994* and *Wildlife Conservation Act 1950*. Although not seen in Tasmania, the species is under the *Tasmanian Fisheries Regulations 1996*.

Belize: Gladden Spit, on the Belize Barrier Reef (the feeding ground for whale sharks in spring) was declared a marine reserve on May 18 2000, Decree No.68 of 2000. Whale shark tour regulations have been drafted and tour guides trained in these regulations, even though they have not yet been gazetted.

Honduras: A government decree (Presidential Decree No. 321-900) conferred full protection on the whale shark on 28 October 1999.

India: Following concern over the unregulated and likely unsustainable nature of the Indian whale shark fishery, the Indian Central Government's



Ministry of Environment and Forests granted full legal protection to whale sharks in Indian territorial waters by adding the species to Schedule I of the Wildlife (Protection) Act, 1972, under sub section (1) of section 61, on 28th May 2001.

Maldives: Whale sharks have been fully protected in the Maldives since 1995 (Environment Law 4/93) in view of the declining population (attributed to the local fishery), important function in aggregating tuna schools, high value for ecotourism and the comparative low value of its fishery products.

Philippines: Fully protected since 1998 under Department of Agriculture Fishery.

Administrative Order No. 193, which prohibited “the taking or catching, selling, purchasing and possession, transporting and exporting of whale sharks and manta rays”. (As noted above, some illegal exploitation and export has continued and there are difficulties with enforcement on the islands’ extremely long coastline.)

South Africa: Full legal protection under consideration. Permits required for ecotourism or scientific interactions with whale sharks.

Taiwan: Common Commodity Codes assigned for seven Whale Shark products in order to monitor international trade in the Customs database. Taiwan could apply Article 11 of the *Foreign Trade Law* to

regulate imports and exports, if the Whale Shark is listed on CITES Appendix II (Chen 2002).

Thailand: Protected through a fishery ban under Section 32 (7) of the *Fishing Act* B.E. 2490 on 28 March 2000.

United States of America: Fully protected in Florida State waters (out to the three mile limit on the east coast, and nine miles on the Gulf coast) and in Atlantic and Gulf of Mexico federal waters (3-200 miles) under the US Fishery Management Plan, which prohibits directed commercial fishing and landing or sale. This prohibition recognizes the biological vulnerability (limited reproductive potential and slow surface movements) of the species and was enacted in order to prevent targeted fisheries from developing.

The whale shark is further protected under various international conventions through its being listed on Appendix II of the Bonn Convention for the Conservation of Migratory Species of Wild Animals in 1999. The species is also included in the United Nations Convention on the Law of the Sea (UNCLOS) Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks as a highly migratory species.

1.3 The whale shark in India

Little was known about whale shark occurrences off the Indian coastline till the early 1990s (Appendix 1). P Pravin reported a total of 1974 whale sharks recorded in

Table-1 Chronological occurrence of whale sharks from Dec. 2002 to May 2007 in various states of India

Date	TOWN	Reported by
Kerala		
27/12/02	Vizhinjam	The Hindu news paper
21/06/05	Vizhinjam	www.manoramaonline.com
17/07/05	Kovalam/Kasimedu	New India Press Web
05/08/05	Pallithura nr thumba	Malayala Manorama
01/02/06	Parappanangadi	Madhyamum News Paper
15/11/06	Kollam	The Hindu news paper
06/02/07	Kasargode	Dr Easa, WTI / Newspaper
Feb-07	Calicut	Sabu WTI
Feb-07 20/03/07	Vizhinjam	Sabu WTI News paper cutting in Malayalam

Date	TOWN	Reported by
Karnataka		
09/02/07	Karwar	New India press
Maharashtra		
24/04/05	Mumbai	Deccan Herald News Paper
WB and Bangladesh		
10/04/03	Digha	Times of India News Paper
19/05/05	Calcutta	Reuters
06/01/06	Chittagong	www.mcass.sc/SAGREN/sagren_v2_4_art4.htm
Andhra Pradesh		
27/04/04	Visakhapatnam	The Hindu news paper
Tamil Nadu		
15/10/04	Chennai	The Hindu news paper
07/04/05	Samiarpettai	The Hindu news paper
Orissa		
27/03/05	Orissa	Wildlife Society of Orissa
Gujarat		
01/10/04	Dwarka	Tushar Chamadia fisherman
01/10/04	Daman	Fisheries dept Daman
17/04/05	Veraval	Tushar Chamadia fisherman
16/12/05	Sutrapada	Forest Dept/Fisheries Dept
Jan-Feb 2006	Veraval	Gafur Sulaiman Vesalia Fisherman (parbat mewada)
23/02/06	Veraval	Ibbrahim Jana Radi (parbat mewada)
12/03/06	Sutrapada	Forest Dept/ News Paper
09/04/06	Veraval	Alibhai Ismail Fisherman (parbat mewada)
April 2006	Veraval	Javed Fisherman (parbat mewada)
April 2006	Veraval	Hussain Arab Vaselia (parbat mewada)
19/02/07	Sutrapada	Forest department
28/02/07	veraval	Forest department
07/03/07	veraval	Forest department
20/03/07	Dhamlej	Mohamed Sayali (dinesh Goswami)
25/03/07	Diu	Naresh Parbat the fisherman mobile No 9898931759
26/03/07	Dhamlej	Hamja Mohamad
06/04/07	Veraval	Veljibhai Somabhai fisherman Forest dept
12/04/07	Veraval	Naran Raghavji Vandar Boat owner
16/04/07	Veraval	Boat owner Kanji Mulji Vandar forest dept
26/04/07	Sutrapada	Forest dept

Date	TOWN	Reported by
07/05/07	Somnath	Boat owner Mahesh Harilal Kotia, The tandel was Velji Hadmath Anjini forest dept
22/05/07	Somnath	Boat owner Veluben Narayanbhai Khoraba forest dept
23/05/07	Veraval	Forest dept
23/05/07	South of Muldwarka	Boat owner Bhimjibhai Kanjibhai Solanki Dinesh Goswami and Forest dept
24/05/07	Veraval	Forest dept
29/05/07	Sutrapada	Forest dept



A whale shark floating on the surface



Whale shark food - Mysid & Copepods

very few natural predators). Populations rapidly decline due to unregulated over-exploitation and, as described for other depleted shark populations, may remain low for many decades into the future. The main threat to whale shark populations is, therefore, from fishing operations – targeted and incidental or by-catch in other fisheries. Other threats are vessel collisions and, potentially, harassment by unregulated shark watching or diving operations (Norman 1999).

Targeted whale shark fisheries for fins and meat have taken place in several locations, including India, Pakistan, the Maldives, China, Taiwan (Province of China), Japan, Philippines, Indonesia, Malaysia and Senegal (Compagno in prep, Wolfson and Notarbartolo 1981, Rose 1996, FAO 1999, Joung *et al.* 1996, Silas 1986, Shark Research Institute 1999) using harpoons or gaffs, fish traps and set nets. Whale sharks are usually taken by target harpoon or gaff fisheries while swimming or feeding on the surface. The most recent Indian (Hanfee 2001) and Philippines fisheries (Alava *et al.* 1997, Alava *et al.* in

Most of the whale shark landings in Gujarat were by directed fishing, whereas the landings were incidental in the rest of the states

press) were driven by demand for meat in Taiwan and Hong Kong. Legal protection in state waters may not be sufficient to protect stocks unless backed by regulation of the international trade demand which now drives illegal fisheries and export.

Whale sharks are caught as a by catch in fish traps and set nets in many locations. It has been documented for some time that small-scale harpoon fisheries had traditionally existed in Pakistan and India for many years (Compagno in prep, Hanfee 2001) and that the species was harpooned in order for oil to be extracted from the liver (Rao 1986, Silas 1986, Prater 1941, Vivekanandan & Zala 1994).

In the Philippines, whale sharks caught in fish traps were originally released but captures were, for a brief period, killed for export when meat increased steeply in value (Compagno in prep) and before legal protection was implemented. Newman *et al.* (in press) report on by catch in a trap fishery for tuna in Indonesia, where 18 whale sharks were captured during 11 months off Sulawesi. Collisions appear to be a relatively frequent occurrence (*e.g.* Budker 1971) – missing sections of fin and large areas of scarring are often observed on the head and dorsal surfaces, although scarring heals very rapidly (Taylor 1994,

Norman 1999). Whale sharks are of growing importance for ecotourism. If unregulated, this activity has the potential to disrupt feeding patterns and to drive whale sharks away from critical seasonal feeding grounds. Management guidelines have, therefore, been developed for whale shark encounters in Australia and the Philippines in order to minimize disturbance to these sharks from boats and swimmers.

The lack of detailed fisheries landings records and trade data at species level, and for specific shark products, presents a major obstacle to determining precisely which products and what quantity are utilized nationally by fishing nations, and which enter international trade. Limited information, however, can be obtained from literature and TRAFFIC reports on the International Shark Trade.

Liver oil: This was traditionally one of the most important products from whale shark fisheries, being used to waterproof artisanal wooden fishing boats in the Maldives (Anderson and Ahmed 1993), India (Hanfee 2001, Rao 1986) and other countries where traditional vessels are used (Compagno 1984). Taiwan and the Philippines either discard or use the liver for liver-oil extraction (Chen *et al.* 1996, Alava *et al.* in press).

Meat: Flesh of whale sharks was traditionally utilized locally in fresh, dried and salted form, and traded locally for food. In the Philippines, meat was classified into white and dark, sold fresh at PhP 8-10/kg (USD 0.16-0.2/kg) or dried at PhP10-100/kg (USD 0.2-20/kg) in 1997 (Alava *et al.* in press), increasing to PhP 800,000 (USD 16,000) for meat and body parts of one individual in 1998 (Pazzibugan 1998). Meat was recently sold at Rs 40-70/kg in India (Hanfee 2001). The Taiwanese whale shark fishery produces large quantities of fresh and frozen flesh for local markets, particularly in Taipei and coastal whale shark fishing harbors. The volume of whale shark meat sold through the Taipei wholesale le fish market increased from February 1998 to August 2001 (Chen 2002), with wholesale prices falling from TWD 231.8/kg (USD 6.93/kg) to TWD 71.4/kg (USD 2.03/kg) over this period. Chen *et al.* (1996 and in press) reported that meat retailed at TWD 70-180 (USD 2.56-6.59) per kg in 1995 (compared with USD 1.83-2.93/kg for shortfin mako, the next most highly valued shark flesh). Mean retail prices fell by 20% from 1998 to 2001, to around TWD 400/kg (USD 11.70/kg, Chen 2002), still the highest price paid for shark meat in Taiwan. The meat is presumably also popular in China.

Fins: Fins were sold in the Philippines at PhP400-500/kg (USD8-10/kg) or PhP1, 700/set

(USD 34/set); dry (Alava *et al.* in press). In Taiwan the fins are not considered to be of high quality (Chen 2002). Single very large whale shark fins were reported on sale in China for USD 15,000 each in 1999.

Cartilage, skin, stomach and intestines: There is no record of local utilization of cartilage in whale shark fishing countries. It is either exported or discarded at sea. Chen *et al.* (1996 and in press), Hanfee (2001) and Alava *et al.* (in press) report that most other parts of landed whale sharks are used for food or medicinal purposes, either fresh, dried or salted (*e.g.* intestines), or sun-dried (skin, gills) in Taiwan, India and the Philippines. In the Philippines, dried gills were sold at PhP20-40/kg (USD 0.2-0.4/kg), skins at PhP10-15/kg (USD 0.2-0.3/kg) fresh or PhP50/kg (USD 1/kg) or PhP2,000/individual (USD 40/individual) dried. Whole head was often sold whole at PhP750-800 (USD 15-16) fresh, or PhP50-80/kg (USD 1-1.2/kg), dry. The jaws, traditionally thrown away, were later sold as trophies and curios at PhP1,000-8,000 (USD 20-60) per set (Alava *et al.* in press). In Taiwan, whale shark skin, gills and gill arches were smoked and served in a restaurant in May 2002 (Alava pers comm.).

Four whale shark products probably enter international trade: liver oil (low value and probably not traded widely), fins, meat and cartilage. Chen *et al.* (1996, in press) and Hanfee (2001) note that cartilage can be dried, processed and exported from Taiwan and India for use in health supplements. Meat appears to be the most important of these products. Virtually no customs data are available on quantities of shark fin, cartilage or oil imports and exports by individual species. Most countries which keep any records of trade in sharks separately from other fish combine all shark products into a single category (with the exception of Taiwan, where in March 2001 the Customs Authority established seven commodity codes for whale shark products). It is therefore very difficult to determine what volume of whale shark products enter international trade or the populations from which these products originate. The following information was obtained from literature and TRAFFIC surveys.

Fins: The fins have a very high value in some oriental markets, mainly because of their large size (they have been called 'Niou-Pyi Tian-Jeou fin' (bogus giant fin) in Hong Kong (Tian-Jeou is the name for higher quality and more valuable basking shark fins). In June 1998, a single 1 m high shark fin, considered likely to be from a whale or basking shark, was on sale in a restaurant just outside Chengdu, Sichuan, China, for 80,000 yuan (slightly less than USD 10,000). In 1999 a single large whale shark fin was on sale in Beijing, China for 138,000 yuan

A small number of fishermen in Gujarat, India, had been hunting the whale shark for its fins as well as its liver for some years. The increased demand for whale shark fins and meat in India arose in 1991

(USD 16,600). A set of three whale shark fins (dorsal and two pectorals) was photographed on sale in a Beijing restaurant in November 1999 for over USD 72,000 (Anon 1999). Hanfee (2001) reports that a small number of fishermen in Gujarat, India, had been hunting the whale shark for its fins as well as its liver for some years. The increased demand for whale shark fins and meat in India arose in 1991.

Meat: Whale shark meat is of high value in Taiwan (see section 3.1 above), where domestic landings are reported to meet less than 50% of local demand (Chen 2002). This high value now appears to be driving international trade, and hence the increased commercial fishing of this species. Certainly, the whale shark fishery in the Philippines (before legal protection of whale sharks here) developed from a localized artisanal subsistence fishery to a large scale fishery supplying meat for export to Hong Kong, Singapore and Taiwan from Cebu and Manila, and to Japan from Davao (Alava *et al.* in press, Reyes 1998, Luib 1998). Illegal exports of poached whale shark meat appear to be continuing (see below). The Indian fishery (Hanfee 2001) was also stimulated by the high prices being paid for whale shark meat in Taiwanese markets. Recent surveys in Taiwan suggest that, although total Taiwanese landings of whale sharks (formerly 250-300 sharks/year) have fallen, market size remains unchanged. This indicates increased levels of imports (TRAFFIC East Asia in lit.). Taiwan Customs records from March to November 2001 reveal no imports of Whale Shark meat, but record a single export of 2 t of whale shark meat to Spain.

Whale sharks received strict protection in the Philippines in March 1998. In spite of the nation-wide legal protection, Taiwanese buyers continued to induce fisher folk (*i.e.*, the Bicol, central Luzon, Palawan, central and eastern Visayas regions) to hunt for whale sharks (Alava 2002). In Albay, whale sharks were either chopped up at sea and boxed to Paranaque (Manila) awaiting export at the Ninoy Aquino International Airport (Naia) or partially finned and trapped in fish cages or tied by the caudal fin to coconut trees in beaches awaiting inspection by Taiwanese fish brokers in September 1998 and March 1999 (Princesa, 1999). Whale sharks were also dynamite-blasted in Pangasinan (Padron and Hidalgo 2001, Fuertes 2001).

On 15 January 1998, 64 boxes with cargo listed as *lapu-lapu* (grouper) slipped through the Mactan-Cebu International Airport and loaded on a plane bound for Taiwan. Taiwanese authorities informed BFAR personnel in Cebu days later that the shipment contained whale shark meat instead of grouper. On 8 April 1999, the Visayas-based Presidential Anti-Organized Crime Task Force intercepted a ton of whale shark meat loaded in a 20-foot container also bound for Taiwan (Gallardo 1999). On 17 December 1998, Philippine authorities at the Ninoy Aquino International Airport (Naia) confiscated a shipment of 812 kg of whale shark meat in 23 boxes being air-freighted to Taiwan (consigned to the Tai Lieng Chuan Co. Ltd. in Taipei and documented as 'dogfish'). A further 1,992 kg of whale shark meat in 46 boxes of 'fresh fish' was intercepted at Naia on 12 January 2000, about to be air freighted to Hong Kong and consigned to the Harvest Live (Seafood) Freight Co. (No cum 1998 and 2000).

The recent rapidly increasing value of whale shark products in international trade (particularly meat and fins) has turned some incidental and traditional subsistence fisheries into targeted fisheries supplying the international market. In the Philippines, the traditional communal fishery practices were disrupted and gave way to an inequitable unsustainable commercial enterprise benefiting a few individuals. Historically non-whale shark fishery sites were started resulting in increased fishing effort but decreased catch. Foreign fish trading companies and their local counterparts induced small fisherfolk to commit environmentally unsound practices prior to the legal protection of whale sharks and perpetrate illegal activities when the legal protection was set in place. Not only did this encourage the harvesting of incidentally captured animals that might otherwise be released alive, but it also continued to encourage new, unsustainable whale shark fisheries in previously unexploited areas as declining fisheries in countries like the Philippines and India were closed down.

1.5 Blood on the Beach: Documentation of the killing

The first focus on whale shark conservation in India happened through the dual modes of a scientific report and a documentary film. A report by TRAFFIC India in 2001 documented a total of 600 whale shark landings between March 1999 and May 2004. The data collected as a result of this survey also revealed that a large number of catches (145) in December were off Veraval, a fishing town on the coast of the western Indian

Demand in Taiwan stimulated a huge increase in effort and landings in the Veraval (Gujarat, India) fishery in the 1990s, when the value of landed Whale Sharks increased steeply, particularly after Whale Shark meat began to be utilized in 1994. Prices were particularly high from 1997 onwards

state of Gujarat. This catch was from a school of 300 to 500 whale sharks at a distance of 10-15 km from the coastline. Landings increased significantly in the late 1990s, with 279 whale sharks taken during the main January and May whale shark season in 1999. Despite continued high market demand and a possible increase in fishing activity the following year, the whale shark fishery appeared able to take only 160 whale sharks during the following season, January to May 2000. An additional 145 sharks were taken offshore (10-15km) in December 1999, well outside the normal seasonal fishery.

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Data collected showed that prior to 1991, only the liver of the whale shark was used locally to extract oil for waterproofing boats. The interest in hunting whale sharks escalated after 1991 when its fins began to fetch a price of INR 8000 to 9000 (US\$ 352-396) in the international market. Over the decade, the value of a whale shark shot up and in 1998 when it was hunted for its meat, skin, fins, cartilage and liver it cost INR 100,000 (US\$ 2500). In the year 2000, a set of whale shark fins alone fetched a price of INR 30000 (US\$ 1100). In the same year, a total of 40 whale sharks were killed on a single day on 15th September 2000. The state of Gujarat, the birthplace of the champion of non-violence, Mahatma Gandhi became a killing field for a fish that was harmless to humans, propelled by a demand overseas for its fins and meat.

Following this report, a documentary film *Shores of Silence* produced by Mike Pandey filmed the process of hunting whale sharks off the coast of Gujarat to feed the fisheries in Veraval that catered to the export market. The film for the first time showed the process of hunting the shark, it documented flood on the beach.



An exhausted whale shark towed to the shore

The fishermen take up positions on vantage points such as the top of masts of the fishing vessel to look for whale sharks. One end of the pole is tied to a single hook with a fishing line of 15–20 m in length. Fibre reinforced plastic or wooden dugout canoes with out-board motors are also engaged for whale shark fishing in a few places like Rupen, Okha, Sutrapada and Dhamlej on the Saurashtra coast. The fishing is carried out with a bamboo pole of 5–6 m long. The fishermen approach the shark with their canoes and the shark is hooked in the jaw using the long pole with hook. They steam the boat towards the sharks from the hind and throw a hook towards the mouth of the shark. Once hooked, the boat is immediately taken forward at a great speed to exhaust the fish. Two large PVC barrels of 200 l capacity each are used for buoyancy. The shark dives deep down along with the hook, pole, fishing line and the PVC barrels. Soon the barrels float, forcing the shark to the surface and then to dive down once again. This continues till the shark is totally exhausted. Owing to its huge size the whale shark is not hauled up onto the boat but towed alongside the vessel to the shore. The fins are often cut while the shark is still alive in shallow waters. Its liver is extracted and placed in barrels in the sun to yield oil that is used locally for waterproofing boats. The whale shark became to be locally known as “barrel” owing to this method of hunting.

Hunting was also known from other parts of Asia as is documented well by India in its proposal to list the shark in Appendix II of the CITES in 2002. In China “A fishing gear called *Angshagou* (a spear to harpoon large sharks and set of hooks for lowering under the speared shark to bring it to the boat) was commonly used to capture large whale, basking and blue sharks in the 1960s. Two whale sharks were landed in 1995, but fishermen reported that this and other large species are now seldom caught (Parry-Jones 1996)”. In the Maldives “Anderson and Ahmed (1993) note that fishermen were taking 20-30 Whale Sharks a year throughout the Maldives, using the liver oil to treat their boats. Local fishermen reported that numbers had declined significantly; a single atoll used to take 30 a year in the late 1970s/early 1980s. There has been no monitoring for possible population recovery since this fishery was closed in 1995”. In the Philippines, “an artisanal subsistence harpoon or gaff fishery for Whale Sharks was initially pursued by a small number of former whaling villages in the Bohol Sea (Alava *et al.* 1997, Alava *et al.* 1993; Barut and Zartiga in press).

Very small numbers of Whale Sharks were taken for subsistence and a small amount of local trade. A subsequent increase in demand for whale shark meat in Taiwan stimulated the development of a targeted fishery for the species. Alava *et al.* (in press) describe the fishery from 1990 to 1997, during which period some 450-799 sharks were

taken, averaging between 56-100 sharks per site per year in four of the primary fishing sites. This fishery peaked in 1993 when about 180 sharks were landed then declined at an average of 27% per year in the following years. The catch per boat (the closest equivalent to catch per unit effort) in two of the traditional whale shark fishing villages in the Bohol Sea also declined steeply: from 4.4 to 1.7 sharks per boat in Pamilacan Island, Baclayon of Bohol province, and from 10 to 3.8 sharks per boat in Guiwanon, Talisayan of Misamis Oriental province. New Whale Shark fisheries were opened up in five other provinces in Visayas and Mindanao in order to meet demand for export to Taiwan, with catch averaging at 13 sharks per site in at least 11 sites in 1997. The Philippine government introduced legal protection for the species throughout Philippines waters in 1998 after poaching occurred in a locally proclaimed whale shark sanctuary and ecotourism site in Donsol, Sorsogon.

This protection has been hampered by continued demand for whale shark meat for export, which has resulted in poaching to supply Taiwanese and Hong Kong markets. A significant decline in Donsol whale shark sighting rate, from 8 to 1-2 sharks per trip, was noted in 1998 and 1999, respectively (Groves 1999)".

In Taiwan meanwhile, the proposal noted that "demand for 'Tofu shark' has increased significantly in Taiwan (Province of China) during the past two decades. Chen *et al* (1996) report that

a whale shark meat wholesaler estimated in 1995 that about 250 whale sharks were landed annually in Taiwan, close to their own estimate of 272 (158 as by catch in set nets, 114 by harpoon). They expressed concern, however, that landings were declining, noting with Joung *et al.* (1996) anecdotal reports that captures south of Penghu (off the west coast) had declined significantly during the 1980s. Billfish harpoon fishermen from Hengchun Harbour fishing south of Penghu had reportedly landed some 50 -60 whale sharks each spring in the mid-1980s, but landings had declined over the next decade until only about ten sharks were caught annually. Fewer than ten were caught in this area in 1994 and 1995. The most recent survey of the whole Taiwanese fishery (Joung *per com*), aided by the introduction of a government whale shark harvest reporting system, identified total catches of just 89 whale sharks throughout 2001 (38 by set nets, 36 in the billfish harpoon fishery and 15 by other methods). Chen 2002 reports that 94 Whale Sharks weighing about 104 t were caught in Taiwan during the 12 months from March 2001 to March 2002. It appears that the catch has declined by 60-70% in the seven years since surveyed by Chen *et al.* (1996)". It was also reported that in Thailand, "whale sharks appear to have declined in Thailand; seasonal sightings by one dive boat operation fell from 45-60/year to just two in 1999 (Shark Research Institute 1999). There are not known to be whale shark fisheries in Thailand, but this migratory population could be depleted by fisheries elsewhere".



Hunted whale shark dragged ashore

1.6 Protected fish: The first fish to be protected by Indian law

The month of May 2001 finally saw the whale shark as the first fish to be placed under Schedule I of the Wildlife (Protection) Act, 1972. This status provided the highest ever protection to the species, equal to that accorded to the tiger in India.

The notification and protected status of the whale shark was however received with mixed feelings among the stakeholders and hunting continued despite the ban. The Coast Guard found patrolling the 1600 km coastline of Gujarat a tough task, fisheries in Veraval continued to process whale shark meat for export, though not as openly as before. A change in attitude among fishermen and awareness on the law was necessary to make the ban effective.

The fishery closed in May 2001 when the Ministry of Environment and Forests legally protected the species in Indian territorial waters.

1.7 CITES and the fish

Following the successful placement of the whale shark in the Indian protected species list, the focus turned international. In 2000, there was a proposal to list the whale shark under CITES but it was not a coordinated move and was more of an addendum to a proposal to list the basking shark by the UK. The proposal could not muster enough votes in that meeting in Gigiri in Kenya. However, following the Indian listing, India was very confident that it would get the requisite votes and therefore put a stronger proposal, co-proposed by the Philippines to list the species in Appendix II of the convention. The Wildlife Trust of India, IFAW and several other international marine conservation organizations such as Pro wildlife and the Shark Conservation Trust came to the fore and helped India draft the proposal by providing it with research data. Finally the Indian government put up the proposal to the 12th conference of the Parties in Santiago Chile in 2002.

After providing all the baseline information, the proposal asked the convention to list the species in Appendix II under the following criteria: "This proposal for the listing of the whale shark on Appendix II of CITES is based on the following assessment of the species' biological status, using CITES Appendix II listing criterion B(i) (namely 'It is known, inferred or projected that the harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by: exceeding, over an extended period, the level that can be continued in perpetuity). It also meets Criteria Ci & ii in Annex I, namely that 'a decline has been either

observed as ongoing or as having occurred in the past, and is inferred and projected on the basis of levels or patterns of exploitation'. The species has been subjected to unsustainable fisheries in several parts of the world, including the Philippines, Taiwan, Maldives, and India. The data from these fisheries presented in the preceding pages indicate that catches (in some cases expressed as per unit effort) have fallen significantly over relatively short periods. For example, catches at various sites in Taiwan are variously reported to have declined by 30-90% from 1960s to 1980s; 50-80% from the mid 1980s to 1990s; and around 70% during the four years from 1997 to 2001. In the Philippines, catches declined at an average of 27% each year during the short-lived fishery in the mid 1990s. Two years of seasonal fishery data from Gujarat in India (1999 and 2000) appeared to indicate a 40% decline in landings, although the time series of data is so short that these results are inconclusive.

There are apparent declines in numbers of seasonal sightings in areas without fisheries, which may be due to unsustainable fisheries affecting migratory populations elsewhere in their range.

At least some of the main products of some of these fisheries (and in the case of the Philippines and India, virtually all of them) have entered international trade. Illegal exports of meat have been seized in the Philippines.

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In recent years new whale shark fisheries and export markets have arisen purely as a result of the high value of, and demand for, meat and fins in international markets".

Furthermore, the proposal stressed that under the assessment of the whale shark under FAO's recommended criteria for CITES listing it merited listing as "The UN Food and Agriculture Organization (FAO) has carefully considered extinction risk for marine fishes, particularly in the context of CITES listings proposals. FAO (2000) notes that large, long lived, late-maturing species,



with both high and low fecundity (particularly the latter), that are vulnerable to exploitation are at relatively high risk of extinction from exploitation. Productivity, or ability to sustain exploitation, is the single most important consideration when assessing population status and vulnerability to fisheries. Generation time is a useful surrogate for productivity. The most vulnerable species are those with an intrinsic rate of population increase (r) of <0.14 and a generation time of >10 years (FAO 2001). Population status data presented in section 2.3 above ($r = 0.08$, generation time = 24 to >60 years) indicate that this species falls into FAO's lowest productivity category. It could, therefore, qualify for consideration for Appendix I listing under FAO's recommended guidelines if its population declined to 20% of the historic baseline (for very vulnerable species a lesser decline to 30% might be appropriate).

Furthermore, FAO recommended that consideration for Appendix II listing would be appropriate if populations had been reduced to some 5-10% above the Appendix I extent of decline guideline, and that historical extent of decline and recent rate of decline be considered together when considering whether species qualified for consideration for an Appendix II listing. It is, of course, very difficult to assess population size in relation to an historic baseline. FAO (2001) presents quantitative guidelines (reproduced below) for recent -rates-of-decline which, if met or exceeded, would lead to consideration for CITES listing. This species clearly qualifies for listing consideration on the basis of the population declines (using declining CPUE, landings and other data presented in section 2.4 as surrogates for population estimates) described in the preceding pages".

WTI and IFAW then successfully conducted policy advocacy amongst CITES parties to support this proposal. Copies of the film *Shores of Silence* were distributed through the NGO channels and also screened on the sidelines of the CoP. The CITES parties supported by the strong data in the proposal and convinced by the advocacy work, voted strongly for the proposal and the whale shark according to the CITES notification put in Appendix II with the clause that it "*Enters into effect 18 months after the end of the 12th meeting of the Conference of the Parties, i.e. on 15 May 2004* (see Appendix IV).

The international part of the policy work was now won as well and the focus shifted once more to India.

1.8 The need for the campaign and the dipstick survey

In WTI parlance, a campaign is defined as a full-

fledged communication process, which is geared to meet the objectives of a specific conservation plan. A campaign could be an exhaustive and large one requiring considerable resources and time, and covering a vast area. It could also be a localized, area-specific small campaign. The methods to implement the campaign activities are determined by the requirements of each specific campaign goal.

The goal of the awareness for conservation division is to conduct conservation campaigns, among specific target groups, that change perceptions, impart awareness and educate. In this specific case, the aim was to build a sense of pride in communities (Gujaratis) about species (whale shark) and natural habitats (Gulf of Kacch and associated marine habitats) through awareness programmes and mass media. WTI campaigns also differ significantly from general public awareness drives conducted by many other agencies, in being measurable. It was therefore critical that before a campaign is launched a critical baseline is at hand that can be measured over time such that the efficacy of the campaign can be determined. It was also important that the survey be conducted by an unbiased, professional group that was good at such assessment.

A dipstick survey was, thus, assigned to Taylor Nelson Sofres (TNS), to assess the attitudes and perceptions of the fishing community, policy makers and the general public on whale shark fishing and the ban. The research was commissioned as a pre-campaign study, to establish baseline measures, which could be tracked in future, after the campaign has been run, to understand the effectiveness of the campaign.

The primary objectives of this research were:

- a) To measure awareness levels among the people of Gujarat, about the Whale Shark.
- b) To understand attitudes and perceptions regarding the practice of capturing the whale shark and trade in its meat, liver oil and other body parts.
- c) To gain insights into possible motivators which would elicit support from people towards championing the cause of the Whale Shark.

1.8.1 Methodology

This study was conducted in two modules:

- Quantitative module
- Qualitative module

The main quantitative module was carried out through the medium of face-to-face interviews using

a structured questionnaire. This was conducted among the citizens in Gujarat.

A small qualitative module was conducted simultaneously among fishermen in the coastal region through the medium of personalised in-depth interviews.

The qualitative method of inquiry was chosen for interviewing the fishermen given the sensitivity of the issue, in the light of the ban on whale shark fishing. This method is particularly helpful when a deeper understanding of the issues at hand is sought and individualised and personalised responses are needed to come through. These interviews were conducted by a team of experienced people, trained in the techniques of qualitative interviewing.

1.8.2 Target group

The following segments were represented:

Citizens

The common people of Gujarat that is the citizens, which include children above the age of 8 yrs, young adults, and adults.

Thus more specifically, males as well as females belonging to SEC A/B/C households were included in the study. The citizens were further divided into the following sub groups:

- Children (School Level) : 8-14 years
- Young Adults (+2 and College) : 15-24 years
- Adults : 25-55 years

Fishermen

Those who are involved at each level in the fishing process, such as catching the fish, drying, cutting, cleaning, packing and weighing the fish.

Thus this segment sought to cover all echelons of the fishing community:

- Trawler/ Boat Owners
- Fishermen who catch fish
- Labourers who cut/clean fish

1.8.3 Coverage

Centres

One urban centre and one coastal centre were to be chosen as centres for the study. The rationale behind the same being that the campaign would first need to gather popular opinion in the urban cities to permeate elsewhere in Gujarat. While the coastal city would need to be visited to gain a first hand understanding of the processes of killing and trade of the whale shark.

Ahmedabad the commercial capital and the largest city in Gujarat, commonly referred to as the Manchester of the East, was chosen as the urban centre for the study.

Veraval, an intermediate level seaport in Gujarat situated at the coast of the open Arabian Sea and known to attract whale sharks in the past was chosen as the coastal centre.

1.8.4 Sampling

The sampling procedure followed within each centre is as follows:

- a) The electoral rolls were used as the sampling frame.
- b) After removing predominantly SEC D and SECE areas, starting points were chosen, from the electoral rolls using Systematic Random Sampling.
- c) In each starting point consecutive households were contacted using the Right hand rule of field movement.

1.8.5 Results of pre-campaign survey

The survey was conducted in 2003 at Ahmedabad, an inland urban centre, and Veraval, an intermediate fishing port. Veraval was chosen to check awareness levels among fishermen operating from this port primarily because of the presence of fisheries processing whale shark meat. Ahmedabad was chosen as an inland centre because of its status as a representative of urban centres of Gujarat and the presence of decision makers who could affect policies as well as opinion leaders from media, business and industry.

The survey established baseline measures of the local peoples' knowledge of whale sharks, which could then be tracked changes along a three year education campaign to measure the campaign's effectiveness. Specifically, this survey monitored the participants' knowledge of:

- the presence of whale shark in the waters off the coast of Gujarat, general awareness, non-aided and picture aided awareness
- the harmlessness of the species to humans,
- the legal protection to the species, and
- the occurrence of illegal hunting

The initial survey established a benchmark on attitudes and awareness levels on the whale shark in Gujarat (Appendix 2). The benchmark survey revealed that 75% of adults and 62% of children were aware of the whale shark but 47% of the adults surveyed and



74% of the children surveyed perceived it to be a dangerous creature. Interestingly, there was a confusion regarding the status of the whale shark. While most people could not figure out whether it was a whale or a shark, those who claimed to be knowledgeable of its status mostly perceived it as whale. Moreover, only 20% adults and 7% children were aware of its presence in the waters off the Gujarat coast. What was alarming was that only 19% of the adults surveyed knew that it was a legally protected species.

Although most of the fishermen were aware of the ban, there was an overall feeling of opposition and anger. A majority of the fishermen were against the ban as they felt that it would have a direct impact on their business. They feared that the whale sharks would eat up all the small fish in the ocean leaving the fishermen with no catch. They also felt that the ban was unnecessary as killing a few whale sharks would not make any difference.

The initial survey revealed that citizens of Gujarat state had limited knowledge of fundamental aspects of the whale shark, calling for a vigorous campaign to:

- educate the citizens about the world's largest fish found off their shores,

- educate the citizens of the protected status of the whale shark,
- bring about awareness that this species is exploited through fishery, and
- Generate pride in the whale shark.

The campaign to save the whale shark was thus conceptualized with a goal to make the whale shark into a species protected and preserved by the state of Gujarat and popularized through building pride in the species, thus bringing about a complete end to the whale shark trade in Gujarat and ensuring the long term survival of the species.

The campaign objective was to build state level pride (as is felt for the Lion in the state), around a charismatic target species namely the whale shark, such that Gujarat starts getting identified with the whale shark and the fishermen of Gujarat are enthused to protect it instead of killing it.

The campaign was targeted at the people of Gujarat (the general community), including the fishermen who were, at one time involved in the illegal whale shark fishing and trade. The whale shark campaign that was launched as a Save the Whale Shark campaign on awareness and education, evolved into a Pride campaign that focused on generating pride in the species which resulted in fishermen turning protectors of the whale shark.



Whale shark awareness campaign rally at Veraval

Save the Whale Shark Campaign

2.1 The strategy: A conservation champion to the fore

The success of any campaign lies in the effectiveness of its message. In this case, targeting diametrically opposite sections of society—the fishing community along the coastal areas of Gujarat and citizens in urban inland areas warranted the usage of a combination of varied media to carry the message. The message itself was multi-pronged; aimed at generating pride among the inland urban centers, and building awareness on the protected status of the shark and ban on hunting among coastal fishing communities. Since the campaign was restricted to the state of Gujarat, a campaign message advocated by a charismatic leader of Gujarat was perceived to be most effective campaign tool.

Launching the campaign as an Ambassador for the cause, Morari Bapu, whose discourses (kathas) are attended by hundreds of thousands of people, said: “This marvel of nature and a gift of God, should be the pride of Gujarat”

A pre-campaign visit to the Gujarat coastline was made by Sujit Gupta, Vice-Chairman of WTI and Vivek Menon, Executive Director in 2003. One of the immediate things that struck them was that the whale shark coastline was also one that lay between two major Hindu pilgrimage sites- Dwarka and Somnath. While thinking about the possibilities of linking whale shark tourism with these pilgrimage sites, yet another interesting idea came to mind. In Hindu mythology, Lord Vishnu comes to earth as a salvation to mankind in 10 different ‘avatars’ or incarnations. The first of these is by assuming the form of a giant fish, dark blue in appearance, much like the whale shark. This, the matsya avatar, is the stuff of Hindu lore but it was strategised that this story could be a powerful conservation tool.

All apprehensions about involving a Hindu religious leader to campaign along the coastal areas thought to have a largely Muslim population were laid to rest when it was confirmed through surveys and interviews that the majority of the fishing community comprised Kolis and Kharwas who were non-Muslims. Thus began the involvement of the saint, teacher, preacher and social reformer Shri Morari Bapu, who in his own inimitable style championed the cause of conservation of the world’s biggest fish. Morari Bapu, with over 600 kathas (nine-day sermons) to his credit on Lord Rama, Krishna and the Scriptures evoked great media interest and made people sit up and take notice when he talked about saving the world’s biggest fish.

2.2 Corporate champions: Resources for the campaign

The campaign to save the whale shark was the first ever aimed at the conservation of a fish in the country. It was also a first project of its kind that found support from two corporate houses in Gujarat, Tata Chemicals Ltd (TCL) and Gujarat Heavy Chemicals Ltd. (GHCL). While GHCL supported the campaign conditionally for two years in a



Collaterals used for the whale shark awareness campaign

How do you treat guests that come to your shores to breed?

Kill them?

Whale Sharks are migratory, yet totally harmless creatures and are protected under the Wildlife Act. Despite this, hundreds of Whale Sharks were being killed on the shores of Gujarat for their fins. Help us stop this. Now.

SAVE THE WHALE SHARK

Wildlife Trust of India
IFAW
TATA CHEMICALS LIMITED

જેરો તમારે કિનારે ઊભરવા માટે આવ્યા છે. તેવા મહેમાનો સાથે કેયું વર્તન કરશો ?

તેમોને મારી નાખશો ?

બચાવો હેલ શાર્ક

Wildlife Trust of India
IFAW
TATA CHEMICALS LIMITED

VHALI, THE WHALE SHARK PRIDE OF GUJARAT

Its Friends of Vhal...

The world's largest fish visits the coast of Gujarat every year.

FRIENDS OF VHALI

Whale Sharks travel thousands of kilometers every year from the off shores to visit the coast of Gujarat. The presence of this rare and elusive creature should be a matter of great pride and joy for Gujaratis, but a complete lack of awareness about the fish has never made this possible. Local fishermen have traditionally hunted this more giant for all to understand their needs. Today, for better alternatives are available, but the fish is now killed for its meat, which is not locally eaten, but exported. Once it's over this, meat, skin and cartilage is removed, the Whale Sharks are left to bleed to death. Preliminary studies conducted in the past revealed that fishermen were killing hundreds of animals every season.

Today, poaching of the fish is illegal as it is on Schedule I of the Wildlife Protection Act, 1972.

What can you do to help save the Whale Shark?

The Whale Shark plays a very vital role in India's marine ecosystem. Wildlife Trust of India is launching a campaign to spread awareness about these animals in an effort to conserve them.

You can help by spreading awareness about this visitor to your shores. Teach your children about this fish and instill a sense of pride in them. Write to the Chief Wildlife Warden of Gujarat to show your concern for the Whale Shark and urge him to make every effort to put an end to the Whale Shark trade.

To know more about these sharks you could visit us at www.wti.org.in or email us at info@wti.org.in

Wildlife Trust of India
IFAW
TATA CHEMICALS LIMITED

વહાલી, વ્હેલ શાર્ક ગુજરાતનું ગૌરવ

આને વહાલી દો.....

પુસ્તકોની મારી નાખવાને લે તેવું ગુજરાત સંસ્કૃતિમાં સહન કરી શકો છો.

વહાલી શાર્ક પુસ્તકોની મારી નાખવાને લે તેવું ગુજરાત સંસ્કૃતિમાં સહન કરી શકો છો. વહાલી શાર્ક પુસ્તકોની મારી નાખવાને લે તેવું ગુજરાત સંસ્કૃતિમાં સહન કરી શકો છો. વહાલી શાર્ક પુસ્તકોની મારી નાખવાને લે તેવું ગુજરાત સંસ્કૃતિમાં સહન કરી શકો છો.

વહાલીના મિત્રો

વહાલી શાર્ક પુસ્તકોની મારી નાખવાને લે તેવું ગુજરાત સંસ્કૃતિમાં સહન કરી શકો છો. વહાલી શાર્ક પુસ્તકોની મારી નાખવાને લે તેવું ગુજરાત સંસ્કૃતિમાં સહન કરી શકો છો.

Wildlife Trust of India
IFAW
TATA CHEMICALS LIMITED

January PRIDE OF GUJARAT 2007 SAVE SHARK

VHALI SAVE THE WHALE SHARK

FRIENDS OF VHALI

Wildlife Trust of India
IFAW
TATA CHEMICALS LIMITED
GHCL LIMITED

VHALI, THE WHALE SHARK PRIDE OF GUJARAT

વહાલી, વ્હેલ શાર્ક ગુજરાતનું ગૌરવ

Wildlife Trust of India
IFAW
TATA CHEMICALS LIMITED



Shri Morari Bapu addressing the audience at the press conference to launch save the whale shark campaign in Ahmedabad, 2004

row by way of fixed funds, TCL got completely involved by providing manpower, money and logistical support to conduct the campaign activities in Gujarat right from the campaign strategy to conservation science. This unique corporate-NGO partnership strengthened its bonds through the hands-on work on community and environmental projects that TCL conducted around Mithapur where TCL's soda ash plant is located.

2.3 *Katha* in a press conference

The campaign was launched on 20th January, 2004 by the religious leader Shri Morari Bapu at a press conference in Ahmedabad. This was a first-ever wildlife campaign where a religious leader and two corporate houses joined hands with the Wildlife Trust of India, International Fund for Animal Welfare (IFAW) and the Forest Department to spread awareness on this little known species and campaign for its conservation.

Launching the campaign as an Ambassador for the cause, Morari Bapu, whose discourses (*kathas*) are attended by hundreds of thousands of people, said: "This marvel of nature and a gift of God, should be the pride of Gujarat." The ambassadorship was conferred by the Chief Wildlife Warden (CWLW) of Gujarat, Mr. Pradeep Khanna, who said that the Forest Department, the two corporates, IFAW and the Wildlife Trust of India were together laying the foundation for instilling moral and ethical values in conservation that promised to turn into a movement one day. The CWLW observed that our culture,

traditions and beliefs promote the right to life for all living beings. Instilling the sense of conservation in the people on the basis of religious beliefs was a better and a more permanent way of protecting our natural heritage than policing.

Morari Bapu, addressing the press conference, equated the whale shark to a daughter coming home to give birth to her child and that instead of killing her, the people of Gujarat ought to protect the whale shark. Emphasizing the belief permeated down the ages that a guest is God (*Atithi devo bhavah*) and championing the cause of non-violence (*Ahimsa paramo dharma*), Morari Bapu said that we have always believed in non-violence and honoring our guests has been a tradition down the ages. This message needed to permeate to the people who made a living out of killing this animal. This *katha* of the daughter coming home formed the basis of the treatment of the campaign. The press conference was widely covered by the print and electronic media.

To take the campaign to the masses, it was necessary to connect to the target audience at the local level, which was the fishing community in coastal towns and fishing settlements. A series of painting competitions was devised on the theme of Save the Whale Shark, which was conducted after disseminating information in schools on the species and the need for its protection. A street play in Gujarati was scripted with the message of Morari Bapu forming the basic storyline of the play. The central character of the play was Vhali (meaning a



Shri Morari Bapu launching the campaign posters with the state Addl. PCCF & CWW Pradeep Khanna (extreme right), WTI Trustee Sujit Gupta (extreme left) and WTI Director Aniruddha Mookerjee

loved one), the daughter of a fisherman who returns to her father's home for childbirth. When the fisherman sets out to hunt a whale shark for easy money, things start going wrong with Vhali, his daughter. At the same time, there is news of an arrest made of a fisherman hunting a protected species. The doctor who treats Vhali explains the protected status of the whale shark and Vhali extracts a vow from her father that he would never hunt a whale shark again but instead protect the fish as his own daughter, Vhali.

The play was launched on International Theatre Day at Mithapur, Gujarat on March 27. The performers traveled along the coast of Gujarat and staged 16 performances in 12 towns. The group performed the play in major fishing harbors and ports, such as Beyt Dwarka, Somnath, Veraval, and Okha. The series of performances culminated at Diu on April 2, 2004. The play attracted large crowds comprising fishermen and their families. The Coast Guard too showed their appreciation and offered all possible co-operation to protect the whale shark, while the Divisional Forest Officer of Sassan Gir requested a special performance of the street play at the Gir lion sanctuary, the pride of Gujarat. The first ripples of the campaign had begun to have its desired reach but it was imperative to convey the size and

magnificence of the fish to the populace for them to take pride in the species; here, the idea of a life-sized model took shape.

2.4 Vhali surfaces

An inflatable model that looked exactly like a whale shark in form, feature, colour, shape and size was ordered to be fabricated at a factory in Hyderabad. Many photographs of whale sharks under water, a clay prototype and some drawings followed by a visit by WTI Campaigns manager to the factory resulted in the production of the first-ever life-sized inflatable model of a whale shark.

The 40ft whale shark inflatable model was first introduced to the public at Mithapur. The model whale shark drew huge crowds within no time of switching on the air blowers to inflate it. Curious people who felt and touched it wanted to know more about the species. They were filled with awe when told that the whale shark was indeed so huge and could grow even larger than 40 ft. The street play conducted with the inflatable as the backdrop proved even more effective in conveying the message of conservation and continued to draw large crowds at Mithapur.



The first street play with the life-sized whale shark inflatable model enacted at Mithapur



The coastal community at Rupen gather to see the whale shark inflatable model

The street play drew mixed responses at Rupen, a fishing village on the coast that was earlier listed in the TRAFFIC report on whale shark fisheries. The head of the fisheries department felt that the message conveyed by the street play may not have been in the interest of the fishermen as it would affect their livelihood. The play however continued in a picture-perfect setting with the Arabian Sea in the background. A

representative of the community had some interesting comments to make and pertinent questions to ask. He said that the ban had affected the fishing community because the whale shark used to bring them a lot of money. He wanted to know why the fish was banned from killing and if the whale shark was being wiped out then how many were still surviving. He mentioned that the whale shark damages their fishing nets and boats.

Further, he wanted to know why the government was not offering compensation to those affected by the ban.

The inflatable model proved to be an effective campaign tool and after the success of the round of street play along the coast with the inflatable, the need was felt to provide a brand value to the

campaign by naming the inflatable. Hence Vhali, meaning a loved one began taking shape – the whale shark was envisaged to endear herself to the populace in Gujarat and gradually be known by this name, thereby phasing out the usage of the term “barrel” that reminded one of the method of hunting a whale shark.



Banjara dancers kick up a beat at the first major public event in Porbandar on 23rd May 2004



The mayor of Porbandar adopts the whale shark as the city mascot at the public event on 23rd May 2004. Also present are the Collector of Porbandar, PCCF, DG Coast Guard and leaders of the fishing community and boatmen's union



People pledging their support for protection of whale shark

2.5 Porbandar pioneers

On 23rd May 2004, the city of Porbandar formally adopted the whale shark as the city mascot. Vhali, the inflatable whale shark was first introduced to teeming crowds on Chowpatty beach, Porbandar at a public event organized on 23rd May, 2004. This event was attended by all stake holders that included the Deputy Director General of Coast Guard, Prabhakar Paleri; Principal Chief Conservator of Forests, Government of Gujarat, M.L. Sharma; Collector Porbandar, Sheela Benjamin and Vice President Tata Chemicals, Ismail Momin. Set up on a colorfully bedecked cart, pulled by a camel, Vhali, the whale shark moved beside the sea led by a group of banjara dancers, who were dancing to an infectious rhythm of drums and flutes in a riot of green and magenta traditional garb. As hundreds of children ran along waving specially designed Vhali flags and cheering, the huge inflatable was wheeled in near the dais. Then as little girls from the fishing community stood with brass plates full of *gulal* (colored powder) and rose petals, each stake-holder led by Premjibhai Khudai, the president of the *Kharwa Samaj* (the local fishing community), and Jeevanbhai Jungi, the president of the Boat Owners' Association, showered petals on Vhali as a sign of respect and welcome. Thousands of people present at the event stood up with arms raised and took an oath to protect the whale shark and welcome it to the shores of Gujarat as one would welcome a loved guest. Vhali was formally adopted as the city mascot

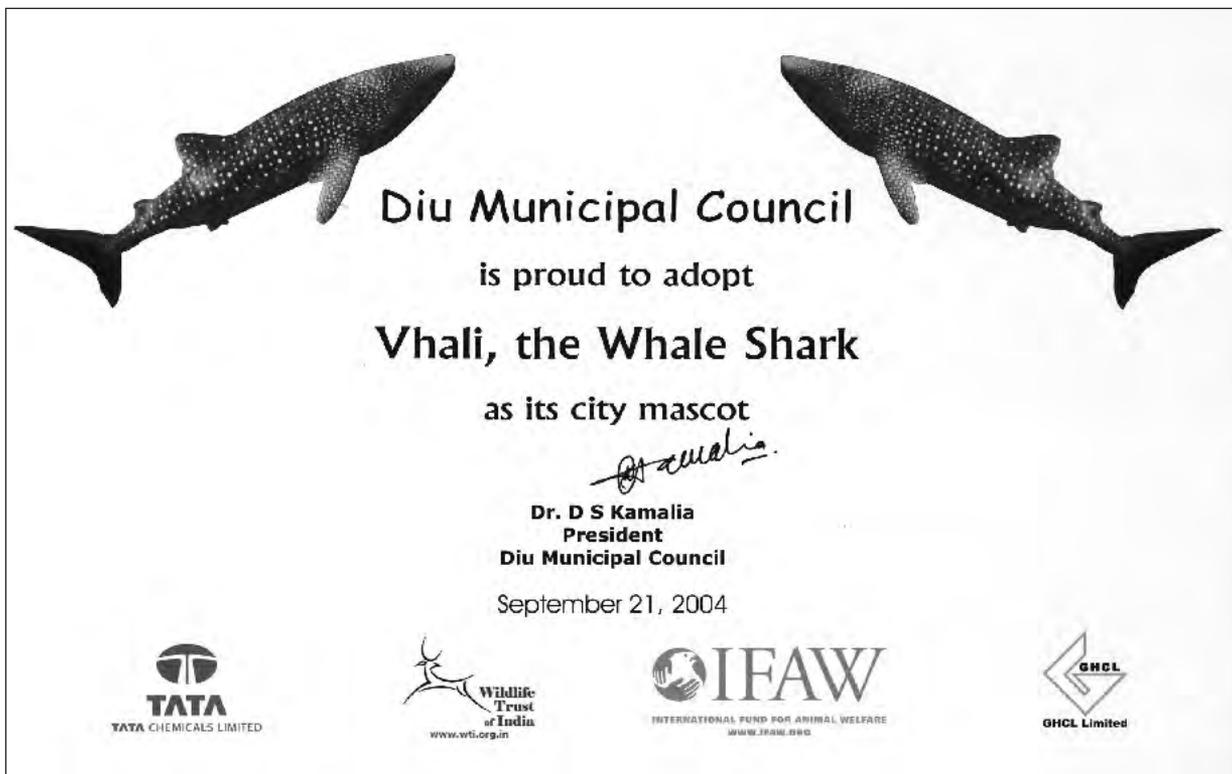
by the Porbandar Nagarpalika, a fitting start to a campaign that would see more towns in Gujarat adopting the whale shark as a loved one. In the months to come, Diu, Veraval, Dwarka, Okha and Ahmedabad would follow suit.

The ceremony was followed by a street play enacted by Manish Patadia's theatre group from Ahmedabad, which held the swelling crowd spellbound. From Porbandar, the campaign moved down the coast towards the Sutrapada installation of GHCL, stopping at the four fishing hubs of Madhavpur, Veraval, Mangrol, Diu each day, re-enacting the same sequence.

At the special request of GHCL at Sutrapada, two plays were enacted— one at their colony and the other for their executives. This special play which was well attended helped the employees understand the whale shark campaign and the involvement of GHCL in the campaign.

2.6 Vhali evokes enthusiasm

On 22nd September 2004, the president of the Diu Municipal Council adopted the whale shark as the city mascot at a public ceremony, where a thousand school children pledged to protect the fish and welcome it to their shores. Dr Kamaliya, the president of the Diu Municipal Council publicly signed the certificate adopting the whale shark as the mascot of Diu. Commandant A.N. Chaudhari of the Coast Guard



The adoption certificate: Porbadar, Diu, Dwarka, Okha, Ahemdabad and Veraval-Patan adopted the whale shark as the city mascot



Street play with the whale shark inflatable model at Dalda

led the 1000 students and the officials present in a pledge to protect the whale shark and welcome the fish as a loved guest to the shores of Gujarat.

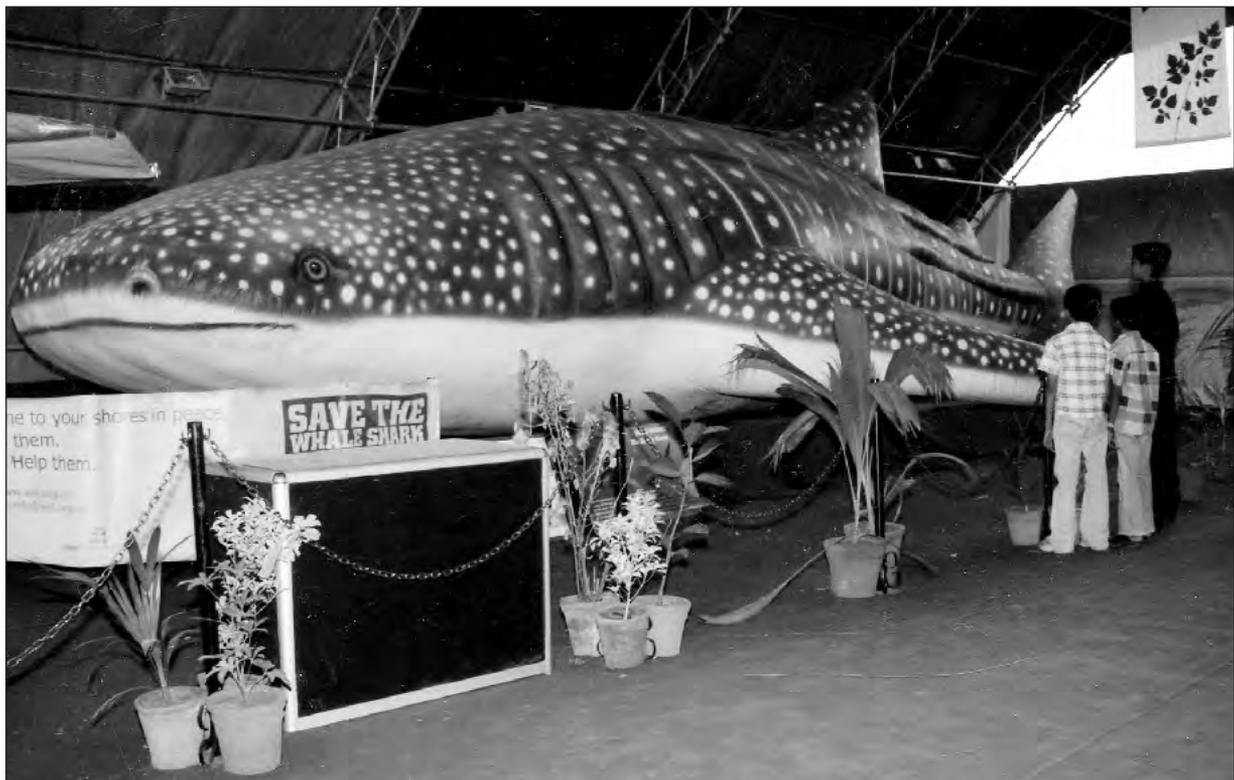
Some popular games, such as darts, snakes and ladders and jigsaw puzzles were imaginatively redesigned by the Centre of Environment Education (CEE) to incorporate the theme of whale shark conservation. After the games, the children were shown a short film on the whale shark. As part of the campaign, drawing competitions were conducted in various schools all over Gujarat. The display of the drawings on the whale shark from different schools was put up and viewed by the children. After this exposure to the whale shark, the children were free to express their feelings on a canvas which made up a sonata painting. A sonata painting is a work of art produced by the combined effort of individuals; this one on the whale shark, was on a 5ft x6ft cloth. Among those present at the event were Ramnikbhai Bambniya, Mamlatdar; J.J. Solanki, City Survey Officer; M.N. Vanesa, District Education Officer; Ramjibhai Chauhan, Principal of the host school and Lakshmanbhai Solanki, President of the Fishermen's Association. The campaign had hit the bull's eye in sensitizing children and inviting pro-active participation of policy makers and stake holders. The whale shark began to be popularly recognized by the name Vhali the whale shark and the concept of Vhali melas kicked off with the fun fair at Diu.

The whale shark was adopted as the city mascot by two more towns, Dwarka and Okha. A public event held on the 21st of October 2004 in the presence of Morari Bapu saw Vhali's adoption come through before a 2500-strong crowd. The street play was performed on stage, which touched an emotional chord among all present. Officials from the municipal corporation Dwarka, the *gram panchayat* of Okha, Commandant of the Coast Guard, representatives from the Marine National Park and TCL were present at this event on the Sunset grounds behind the Circuit House in Dwarka. The active participation of stake holders and the presence of policy makers continued to drive the campaign activities to greater heights.

2.7 Adding colour to Vibrant Gujarat

While the street play, Vhali *melas* in schools and the inflatable made its rounds along coastal Gujarat, there was a need to sensitize the citizens inland as well as to solicit the participation of policy makers at the state level. It was time for Vhali to move inland, especially to the place that was included in the first dipstick survey on attitudes and awareness levels, Ahmedabad, the former capital of the state of Gujarat.

The whale shark inflatable was showcased for nine days at Vibrant Gujarat, the festival of Navratri at the University grounds in Ahmedabad in October 2004. The nine-day event with a focus on eco-tourism



The whale shark inflatable model on display at the Vibrant Gujarat pavilion for nine days



was inaugurated on the evening of the 14th by the President, Dr APJ Abdul Kalam. Political leaders, ministers, MoEF officials and forest department officials visited the exhibition and were fascinated by the sheer size of the inflatable model. This event was an excellent opportunity to introduce the campaign inland, all earlier exposures having been in coastal towns and cities. The Chief Minister of Gujarat, Narendra Modi was personally briefed about the campaign. The leader of the ruling party in the state of Gujarat, L K Advani also showed interest in the model and was briefed on the campaign. This was the first exposure of the whale shark campaign to political leaders at the State and National level.



The Chief Minister of Gujarat, Narendra Modi at the Vibrant Gujarat pavilion evinces interest in the whale shark campaign

The following year, Vhali the whale shark stood proudly at the entrance to the eco-tourism pavilion at Vibrant Gujarat. Wildlife Trust of India (WTI) had participated in the celebrations welcoming the efforts of the state government to remodel the state into a favorite eco-tourism destination of the country. WTI's campaign to save the Whale Shark, Pride of Gujarat, which was extensively carried out in the coastal areas for protection of this species found prominence in the discussions on eco-tourism and the pavilions that drew crowds out of curiosity. As part of the vibrant Gujarat celebrations, a seminar on adventure and eco tourism potential in the state was organized on 7th

October 2005 at the town hall in Gandhinagar. It was attended by various officials from the Gujarat Forest Department, Tourism Department, member secretaries, Director General, Gujarat Sports Authority, and Director GEER Foundation. Dr M K Ranjitsinh, Chairman of Wildlife Trust of India was the Chairperson in the meeting. In 2006, the whale shark took centre stage again at the eco-tourism theme pavilion at the Vibrant Gujarat event for nine days. Over three hundred thousand people visited the



Children taking notes on the whale shark at Samvaad, a gathering of rural schools; the whale shark campaign reached inland

pavilion where campaign collaterals were distributed. Around the same time, a team of senior directors from WTI met the forest minister in Gujarat, who agreed to have celebrations on the whale shark theme each year in targeted towns by rotation.

In December 2004, the campaign reached the rural populace from villages inland. Vhali the whale shark drew people like a magnet at 'Samvaad', an event organized by the Center for Environmental Education (CEE) at Koba near Gandhinagar, the capital of the western state of Gujarat. The event was attended by representatives of 271 villages from all over Gujarat comprising school teachers, community leaders, village headmen, enterprising workers from the small sector and school children. The instantaneous reaction of Mangubhai, a villager who expected the inflatable being pumped with air would fly like a helicopter, indicated the level of awareness that needed to be addressed over the three day event. 'Samvaad', which means dialogue, opened a dialogue with the community and Vhali the whale shark won the hearts of all present there. Some schools even invited the campaign manager to their towns and villages to talk about the world's biggest fish found near the shores of their homeland. Thus was born the concept of sending Vhali to school.

2.8 Vhali goes to school

The whale shark inflatable was first displayed at Sahajanand Primary School during the science

exhibition of the school. The function was attended by 17 schools of Visnagar district. Over 5000 students attended accompanied by their parents. Over 400 leaflets and 150 flags were distributed.



Vhali goes to school. Students of St Xavier's school Ahmedabad touch and feel the inflatable

The whale shark inflatable was next displayed at Tajendraprasadji Education and Research Foundation Ahmedabad, during the science exhibition of the school on 23rd December. The function was attended by about 1000 students along with their parents from the Gujarati and English medium schools. Feedback from the school was encouraging.

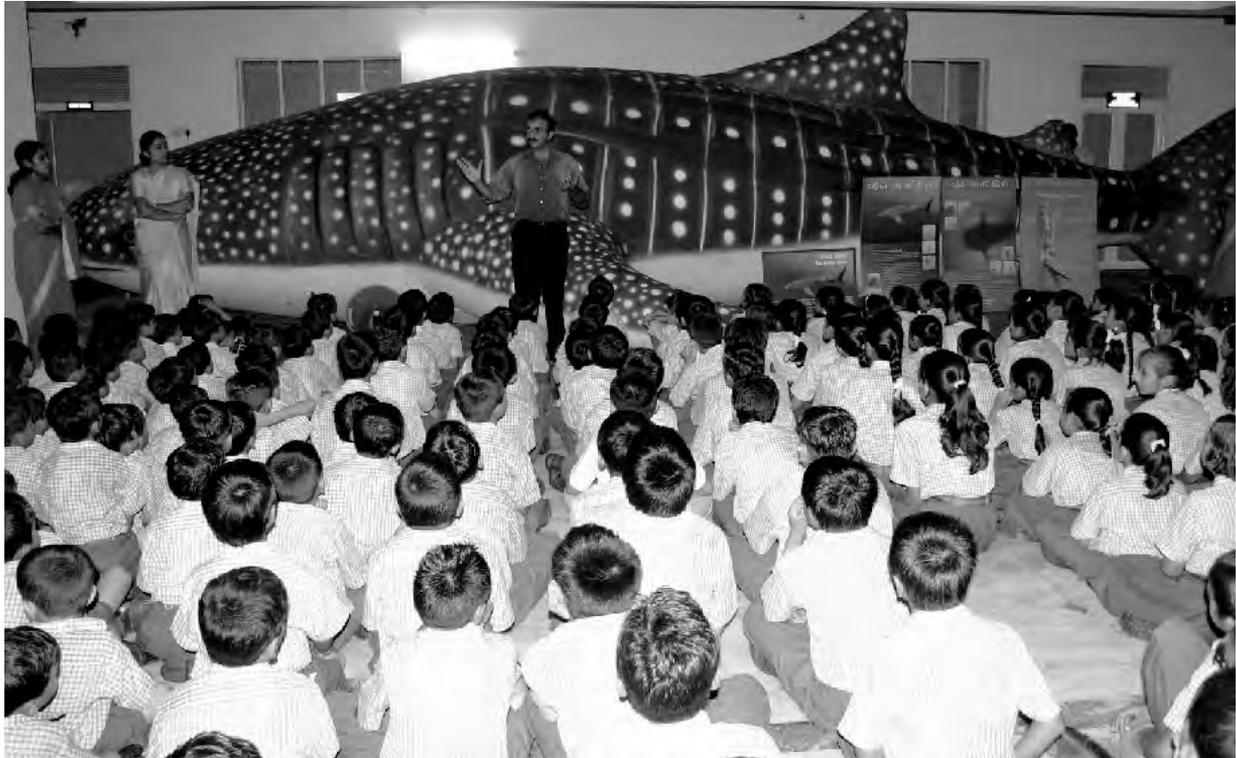


School children in front of Vhali

“One of the topics was about sea animals and that was the heading under which we exhibited the large whale shark for the student’s parents and visitors to see, observe and ponder on the subject of the importance of saving and protecting whale sharks. The exhibition was very fruitful for the curious parents and students asked many questions regarding the whale sharks like their size, colour, types, their food and the challenges and problems they face today. The life-sized model of the whale shark was indeed an amazing display and many of them were wonderstruck. The

students understood the need of our saving the whale sharks and promised to spread the message to all their friends taking part in the whale shark campaign. We the staff and students are indeed thankful to the Wildlife Trust of India for the pains they are taking for bringing about awareness and understanding to the people.”

The 40ft inflatable whale shark on the basketball court of a school in Ahmedabad evoked enough curiosity among the students to file onto the



Vhali goes to school; schools in the Anand and Vidyanagar district

courts and touch and feel the fish. The occasion was a three-day festival organized by the Ratan Tata Trust to introduce school children to a multi-faceted approach to education as a joyful learning experience. The aim behind the display of the whale shark here was to highlight wildlife concerns in India by creating an atmosphere of debate and discussion among the school children and at the same time generating public opinion on the imminent danger to the whale shark. The whale shark exhibit stole the thunder among the myriad puppet shows, plays, exhibition of activity material and story telling sessions. The mayor of Ahmedabad, Ms Aneesa Begum Mirza, who inaugurated this event was enthused enough to participate in another event a few months later and declare the whale shark as an adopted and loved one to Ahmedabad city. With their curiosity whetted, questions were thrown at the volunteers, who provided the necessary information through a dialogue and through leaflets in English and Gujarati to those who visited the display.

In a sensitization exercise that involved the school contact programme coupled with participatory activities, more than 15,000 school children in the milk capital of Gujarat were made aware of the world's biggest fish that visits the shores of their homeland. Braving pouring rain, Vhali, the life-sized whale shark inflatable was taken around 19 schools in the Anand district, made famous by the brand Amul,

by volunteers from the Vidyagar Nature Club, even as floods cut off access to the place in July 2005. It was but ironical that the biggest fish in the world was to be kept dry as water would have damaged the electricals that were responsible for inflating the model. Among public events, discourses by Shri Morari Bapu-the religious leader, activities by Coast Guard, children's activities and adoption of the fish as the city mascot by various towns, it was the children's campaign that proved to be most pro-active with the widest reach. By conducting painting competitions, quiz contests, games, talks and by displaying the life-sized inflatable model, the campaign made an impact on the next generation of impressionable minds, who were now sensitized to the conservation issue and who would be concerned citizens of tomorrow.

Questions ranging from the feeding habits of the whale shark to the weight of its pups were asked of the volunteers. Children even wanted to know the quantity of oil that a whale shark liver yields; such was their involvement in this exercise. The first exposure to school students in the urban schools resulted in students recognizing it as the world's biggest fish. The campaign to save the whale shark was thus evolving into a Pride of Gujarat campaign. The whale shark was slowly inching to occupy pride of place in the wildlife map of Gujarat along side the Asiatic Lion, Wild ass and Flamingoes of Kutchh.



School children participating in the whale shark painting competition in Anand(Mogri)



Campaign results start rolling in: Vhali, The Pride of Gujarat

The campaign to save the whale shark was a two-pronged affair, conducted along the coast, where whale shark fisheries existed and the mainland, where the general populace was targeted. The approach used in campaigning amongst the coastal communities was through a street play in the local language that effectively communicated the protected status of the fish and repercussions of hunting it. The storyline of the street play touched a common chord among the audience which related instantly to the arrival of the whale shark as the homecoming of a daughter.

The support and physical presence of the revered spiritual leader, Morari Bapu proved to be most effective in catalyzing media hits and in bringing the stakeholders; community, state government officials and enforcement agencies under a common umbrella, all working towards the cause of saving the whale shark

The campaign approach inland was one of providing information to the general public with the aim of building pride in the existence of the world's biggest fish off the shores of the state. The campaign methodology was devised so as to extract the maximum involvement of all the stakeholders at the local level. Above all, the support and physical presence of the revered spiritual leader, Morari Bapu proved to be most effective in catalyzing media hits and in bringing the stakeholders; community, state government officials and enforcement agencies under a common umbrella, all working towards the cause of saving the whale shark.

The series of street plays and adoptions of the whale shark as mascots at public events were documented on film. Some underwater footage shots of the whale shark was sourced from Suzy Quasnichka, a researcher on whale sharks. This was compiled into a short documentary titled *The Homecoming*



Fishermen releasing a trapped whale shark from their nets



The mayor of Ahmedabad, Aneesa Begum Mirza adopting the whale shark as the city mascot; also present are the then WTI Chairman Thomas Matthew (extreme right) and Vice-Chairman Sujit Gupta (Extreme left) with PCCF M L Sharma and DIG Rajshekhar of the Coast Guard

with an originally composed theme song on the whale shark and this was also effectively used as a campaign tool in the latter part of the campaign. The film, later dubbed in Gujarati served to be a cost-effective campaign tool as it was eagerly taken up by local cable operators to telecast to masses in the targeted coastal towns and villages.

3.1 *Vhali* comes home

In three years of conducting the campaign, *Vhali* the whale shark was recognized as a city mascot by six heads of municipalities. The first recognition happened in Porbandar on 23rd May 2004, when the head of the Porbandar Nagarplaika adopted the whale shark as the city mascot and joined a public pledge to protect it. Following this, Diu (22 September, 2004), Dwarka (21 October 2004), Okha (21 October 2004), and Ahmedabad (12 March, 2005) also adopted *Vhali* as their mascot. Finally, Veraval, once the hub of whale shark fisheries adopted the whale shark as its mascot on 19th February, 2007.

Ahmedabad was the first land-locked city to have recognized this marine species. The event in Ahmedabad was marked by the city Mayor, Mrs. Aneesa Begum Mirza who declared the whale shark as a city mascot in the presence of dignitaries, such as DIG Rajshekhar, Commander Coast Guard of the Gujarat Area, Mr. M L Sharma, the Principal Chief Conservator of Forests, Mr. Thomas Matthew, the Chairman of WTI, Mr. Sujit Gupta, the Vice-Chairman of WTI and Mr. Vivek Menon, the Executive Director. Among the distinguished guests present at this event were the Chief Wildlife Warden Mr. Pradeep Khanna and Mr. C L Pandey Director of GEER Foundation.

The public pledge to protect the whale shark was led by DIG Rajshekhar, who had traveled all the way from Porbandar to support the campaign while a special postal cover on the whale shark was released by the PCCF. Senior personnel from the Dept. of Posts and Telegraphs manned the philatelic counter to distribute the special cover.

A video recording of a message from Morari Bapu was aired, following which a short documentary film on the campaign was launched by Mr. Vivek Talwar of Tata Chemicals Ltd.



The event in Ahmedabad also saw the release of a special postal cover on the whale shark

“The Homecoming”, depicted the whale shark under water, with divers swimming in close proximity. The synchronized music with traditional drum beats from Gujarat in the background infused a festive mood. The catchy theme song served as an effective tool to induce a sense of pride in the world’s biggest fish visiting the shores of Gujarat and to dispel all fears about it being harmful to humans. The film also called for greater support and cooperation in the conservation efforts launched by WTI in the state of Gujarat. See table 2 for the list of places where the film was telecast. The film in English was later shown at the Conference of Parties of the Convention on Migratory Species meeting at Nairobi to a section of the international audience.

3.2 The First Release and then some

Within nine months of formally launching the campaign to save the whale shark, heartening news came in about fishermen turning protectors at the cost of cutting their fishing nets. A 40 ft whale shark was found entangled in the fishing nets of a trawler

Table 2: List of places where the film was telecast

Sl.No.	Coastal Towns	Sl.No.	Coastal Towns
1.	Okha	9	Surat
2.	Dwarka	10.	Mithapur
3.	Porbandar	11.	Khambhat
4.	Mangrol	12.	Daman
5.	Diu	13.	Veraval
6.	Gandhidham	14.	Vapi
7.	Kapadvanj	15.	Anand
8	Anjar		

off the coast of Dwarka on the morning of 30th of September, 2004. The news came in a day later that the captain of the boat had ordered his crew to cut the nets to release the fish. This was the first incident that proved the reach of the campaign because the trawler owner had seen the life-sized inflatable model and the street play when he was ashore and was thus aware of the protected status of the fish. The captain and his crew together with the boat owners were honored with certificates of appreciation given out by Morari Babu, in Dwarka on the 21st October before a 2500-strong crowd that was present at a



INTERVIEW: KAMLESH CHAMADIA

Excerpts of the interview with Kamlesh Chamadia.

Kamlesh Chamadia owns the trawler that sighted the first whale shark that was

released by cutting the nets. These are excerpts from his conversation with Rupa Gandhi, the then campaign co-ordinator.

How did you receive the information of the whale shark?

Our trawler is fitted with a wireless system. The crew communicated that there was a whale shark entangled in the gill nets early morning. They had cast the gill nets at 3 o'clock to be left overnight. My nets were 5 km long and extended to 10 fathoms in depth. We expected a good catch of shell fish and tuna when the nets are left overnight. The crew used a wireless to tell me about the entangled whale shark.

How did they know it was a whale shark?

All fishermen here know what a whale shark looks like. I had also recently seen the street

play and was aware of its protected status. I knew there is a law to protect it.

Did you know of the value of the whale shark?

I knew there were people poaching the whale shark but the government has banned hunting this fish so my first reaction was to release it. It is such a gentle fish that it remained still even when it was entangled in the nets; our crew had to climb over it to cut some parts of the nets to release it.

Did your work suffer after you lost those nets?

We had to cut off only a part of the nets. We knot together smaller sections of nets to make up the large 5 km gill nets and only those sections where the whale shark was entangled were cut by my crew. Those nets worth about Rs 20000/- were discarded and the remaining were reknotted to continue fishing.

Kamlesh Chamadia and his crew were later honoured by Shri Morari Babu at a public function in Dwarka for this pioneering gesture of cutting their nets to release the trapped fish.



Shri Morari Babu and the Coast Guard honoring Kamlesh Chamadia, whose crew released the first whale shark by cutting their nets

public ceremony where the towns of Dwarka and Okha adopted the whale shark as the city mascot.

In the three years that followed, more releases were reported and as awareness among the fishing community grew, a few of the releases were even documented on film. The forest department proved pro-active in the rescue operations whenever a whale shark was reported to be found entangled in fishing nets. A joint rescue and release operation was conducted by the Gujarat Forest Department and the Department of Fisheries with the expert assistance of local fishermen when a 35 ft whale shark was found entangled in gill nets by three

fishermen in a boat 15 nautical miles into the sea, on 16th December, 2005. A call made by the Sutrapada forest guard B. A. Mahida to the Range Forest



Fishermen cutting their nets to release the trapped whale shark off Sutrapada



Sutrapada and subsequent releases

The fishermen were aware of the protected status of this fish following the intensive awareness campaign conducted over the previous two years. They sent a message to mainland Sutrapada, which was taken by a local fisherman Ramesh Baria, who alerted J. K Rathod, Jalsevak of the fisheries department and B. A. Mahida, a forest guard. The Range Forest Officer, Babaria mobilized the department of fisheries and a rescue team set off in a fiberglass boat owned by a local fisherman Dilip Solanki. The fish, too large for three fishermen in a small boat to handle, was finally set free after the combined efforts of forty men toiling for two hours to cut the nets. This effort of the fishing community in seeking the help of the forest department is even more laudable since Sutrapada is located very close to Veraval, where whale shark fisheries flourished in the recent past. Babaria would have more such action in store when he would be called for yet another rescue operation in March, to release a 45 ft whale shark that was entangled in nets off Sutrapada. The fisherman, Parbatlala Fulbaria suffered a loss of nets worth Rs 40,000/- but the determination he showed in protecting the fish overrode his loss in livelihood.

Information from interview with Parbatlala Fulbaria and Jayantibhai Fulbaria:

Parbatlala was fishing opposite Sutrapada with nets about 25 fathoms deep. The nets were spread at about 5 PM to be left overnight for a catch of prawns and shell fish. At around midnight, the crew noticed a whale shark caught in the nets. A call was made to Ramesh Baria, a local fisherman and the head of the Kharwa Samaj at Sutrapada, who in turn contacted the forest department that triggered the rescue operation. Parbatlala claimed to suffer a loss of nets worth Rs 40,000/- and it was the fear of prosecution that motivated him to release the fish. The release made by Jayantibhai Fulbaria was under similar circumstances, when his call for help to the forest department mobilized yet another rescue operation. Both fishermen were later awarded a cheque of Rs 25,000/- each by Tata Chemicals Ltd.

Officer Babaria that day catalyzed a never-before rescue operation into action. See Box for details of the rescue operation.

See Table 3 for the complete list of releases that took place during the campaign.

With increasing incidents of fishermen cutting their nets to release whale sharks emerged the need for a compensation scheme to afford them a security and motivation to support the campaign ideology. See Section 3.5 for more on the compensation scheme.

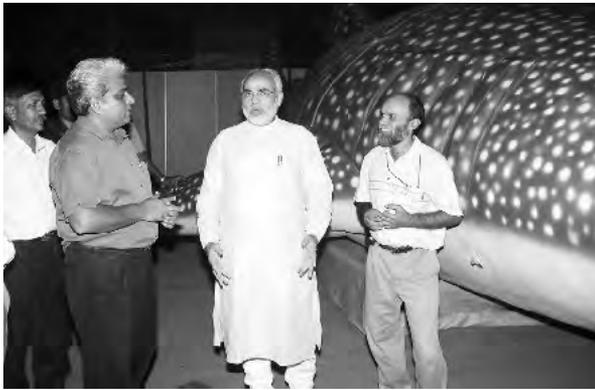


Fishing trawler owners examining their damaged nets. The government compensation scheme would prompt many more releases

3.3 National and Global recognition of the campaign

The whale shark inflatable model was displayed for three consecutive years at the Vibrant Gujarat event. The 40ft fish attracted the attention of policy makers, including the Chief Minister of Gujarat and the leader of the ruling party in the state. The Chief Minister evinced interest in a whale shark watching trip into the sea.

The campaign also won international acclaim at the Whale Shark Conservation Conference at Perth, Australia in May 2005, where experts noted that the approach deployed by WTI is a role model for other developing nations where traditional values are strong. A paper was presented at the conference by Mr. Vivek Talwar who explained the approach of the campaign that involved all stakeholders including former whale shark hunters, boatmen, coastal communities, the forest department, the Coast Guard, school children and conservation NGOs. Interaction with various people at the conference helped the Indian team understand the work being done on the whale shark around the world. This interaction was instrumental in developing a strategy for further work. The two-member team from WTI represented by Dhires Joshi



Chief Minister of Gujarat Narendra Modi with Director GEER Foundation and whale shark campaign manager Dhiresh Joshi at the Vibrant Gujarat pavilion for the third time in a row

(WTI) and Vivek Talwar (Tata Chemicals Ltd.) also experienced snorkeling with the whale sharks that is extremely popular in Australia (see box)

Subsequent to the conference in Perth, a visit made to the coastal towns of Gujarat by Brad Norman, a research specialist on whale shark identification and founder of ECOCEAN, resulted in giving a direction to the conservation campaign by identifying areas of scientific research (see Section 4).

Brad's visit and interaction with the fishermen resulted in some interviews after which all the fishermen interviewed agreed to be part of the research project and help in activities such as water sample collection etc. The coast guard also indicated that they

Snorkeling experience: Swimming with the whale sharks at Exmouth

There are a total of 15 dive operators in the Ningaloo reef all governed by the common code of conduct and monitored by CALM (Conservation And Land Management).

The boats carry a maximum of 20 participants who are guided by spotter planes. The spotter plane directs the ship to the whale shark via a wireless communication giving the GPS coordinates. On reaching the whale shark the team leader dives to locate the whale shark and on spotting the whale shark, a maximum of 10 snorkelers interact with the whale shark. After interacting with the whale shark, the team is picked up by the boat. Only after the first boat has completed the interaction, can the next boat approach the whale shark.

All boats are equipped with satellite navigation, GPS and radio communication. The efforts are well coordinated and safety procedures are followed strictly. The boat team has trained dive masters and an underwater video camera to record the experience for purchase.

would assist in the water and sample collection as they have trained staff and an accurate GPS. The coast guard has indicated that they would be able to allow a WTI person board their vessel on a regular basis for whale shark sighting.



Rolex awardee Brad Norman of ECOCEAN with Vivek Talwar of Tata Chemicals Ltd conversing with fishermen to scope for whale shark science

The campaign won the Green Governance Award for Tata Chemicals Ltd in November 2005. The award was given by Dr. Manmohan Singh, Hon. Prime Minister of India on 10 November, 2005 at a ceremony in Vigyan Bhavan, New Delhi. The Green Governance awards have been instituted by Bombay Natural History Society (BNHS) in order to provide impetus to sustainable development and to encourage environmental protection initiatives

The campaign had succeeded in creating an emotional bond between the coastal communities and the whale shark, through interpretation of Indian traditions and this was measured by the second dipstick survey conducted by TNS in 2005. Awareness and picture aided awareness, both increased by four and seven percent respectively. Overall awareness had increased by 10-12% among children. Responses from the fishing port of Veraval seemed to be hostile since awareness seemed to decline from 62% in 2004 to 59% in 2005. The survey results of 2005 also

indicated that most respondents still perceived the whale shark to be a whale and not a shark. However, the danger perception among children dropped from 74% in 2004 to 49% in 2005, indicating a somewhat successful dissemination of information using present methods. Awareness on legal protection doubled from 24% in 2004 to 42% in 2005 among all citizens, notably from 19% to 42% among adults. Awareness levels regarding coast guard activities were higher especially in Veraval which was followed by street plays and inflatable. Ahmedabad recorded a high recall on the inflatable after adequate exposure through schools and Vibrant Gujarat events.

The campaign won the Green Governance Award for Tata Chemicals Ltd in November 2005. The award was given by Dr. Manmohan Singh, Hon. Prime Minister of India on 10 November, 2005 at a ceremony in Vigyan Bhavan, New Delhi. The Green Governance awards have been instituted by Bombay Natural History Society (BNHS) in order to provide impetus to sustainable development and to encourage environmental protection initiatives. The purpose of the award is to recognize and appreciate an organization's efforts beyond meeting statutory compliance for protection and conservation of the environment. There were 28 participants in three categories: Conservation and



Prasad Menon, Managing Director of Tata Chemicals Ltd receiving the Green Governance award for the whale shark campaign from the Prime Minister Dr Manmohan Singh



Campaign manager Dhiresch Joshi showing a whale shark sticker on a fishing trawler to Brad Norman and and Vivek Talwar

restoration of habitat, conservation of flora and conservation of fauna. Tata Chemicals won the award in the category - Conservation of Fauna.

3.4 Rallying support

The whale shark, having come a long way from the launch of the campaign at the same city, became the Pride of Gujarat on the eve of the Gujarat Day celebrations at Porbandar in 2006. More than 5000 people in Porbandar came

together to support '*Vhali*' the whale shark as their pride symbol and pledged for its protection at a rally jointly organized by the Forest Department and the district collectorate in Porbandar on 28 April 2006. The rally was flagged off by Jaswant Singh Bhabore, the state minister for Environment and Forests. The rally saw the active participation of the District Collector Sheela Benjamin, who was also present at the first event in Porbandar, Rekhaben Lakhani, President of Nagarpalika and other dignitaries. The 45 feet long inflatable whale shark was mounted on two camel carts which led



***Vhali* visits Porbander. Rallying public support for the campaign that evolved into a Pride of Gujarat campaign**



Views of the rally at Porbandar; participating schools and public figures

Vhali, the whale shark, which was adopted as the city mascot by the Diu Municipal Council in 2004, at the behest of WTI, became a part of the two-day “Diu Liberation Day Celebration 2006”

the rally comprising 5000 participants in the heart of the city. Children from 50 schools, members of the Boat Owners Association, NGOs, coast guards, forest officials, volunteers of the Tata Chemicals, cultural groups, and other citizens participated in the rally. A colorful dance troupe from Mithapur also came to participate in the rally. Traditional attires, uniforms of school children, and cultural troupes offered a multicolored ambience to a repeat of the event held earlier, the only difference being in the level of awareness of the participants. This time, the whale shark was no longer an unknown fish but had endeared itself to young and old alike as Vhali, who was welcomed home as a loved one.

Vhali, the whale shark, which was adopted as the city mascot by the Diu Municipal Council in 2004, at the behest of WTI, became a part of the two-day “Diu Liberation Day Celebration 2006” held on December 19 and 20. On 20 December 2006, more than 1500 students along with their teachers came together to participate in the whale shark awareness rally from schools across Diu. The rally was flagged off by Narulla N Jiwani, President of the Diu Municipal Council from the Diu fort and was led by the NCC band. School children wearing sun visors waved whale shark flags, as people streamed out into the streets to witness the rally. There was a feeling of pride in the air and a sense of ownership among the people. A 45 feet long inflatable whale shark was displayed at the Diu Jetty in the middle of the town. Panels with information on the species were also displayed. The two day celebration was inaugurated by Mr. Vikas Anand, Collector of Diu at the sport complex. Mr.S.S Khanpal (Deputy Conservator of Forests), Mr.B.B Vaishaya (Deputy Collector), Mr.R.M Bamania (Mamlatadar), Mr. Jethwa (District Education officer) and Mr.Laxmanbhai Solanki (President, Fishermen’s Association) also attended the rally. The event was marked with cultural activities, competitions, games and photo exhibitions of the whale shark. This was the first time that a district administration had made conservation as the theme of its celebrations.

3.5 Protecting the protectors

In a span of 18 months of launching the campaign, reports of nine releases came in from various

quarters. See Table 3 for list of releases till October 30, 2008. With increasing awareness and support for the campaign, more instances came to be reported of whale sharks found caught in gill nets of fishing trawlers. Although the fishermen were motivated enough to cut the nets and suffer monetary loss incurred in releasing the trapped fish, the lure of easy cash in poaching could be a deterrent in whale shark conservation. A proposal for compensating the fishermen whose livelihood depended on their nets was forwarded by the Forest Department in May 2006 and accepted by the government in December the same year. The compensation scheme came into effect from Christmas Eve, during the period when the occurrence of whale sharks in these waters was high. A compensation of Rupees 25,000 was fixed for each fishing net that was damaged in attempts to save the whale shark. Officials believed that this scheme would boost the conservation efforts of the species in the state. As per the conditions, the fisherman applying for the compensation would have to inform the local forest officer immediately after the incident, who would collect evidence to support the claim. The damage would be decided by the local forest and fisheries head. Besides the compensation, a certificate of appreciation would also be provided to the fisherman. In several incidents in the past, fishermen played an important role - not only in passing information to

Although the fishermen were motivated enough to cut the nets and suffer monetary loss incurred in releasing the trapped fish, the lure of easy cash in poaching could be a deterrent in whale shark conservation. A proposal for compensating the fishermen whose livelihood depended on their nets was forwarded by the Forest Department in May 2006 and accepted by the government in December the same year

the forest officials but also actively involving themselves in the rescue operations of trapped whale sharks. “Earlier, some fishermen who used to hunt these fish down have now turned protectors.” Jivan Jungi, leader of the fishing association in Porbandar said. The compensation scheme was very well received by the fishermen and they supported the campaign with renewed enthusiasm, as demonstrated by the incident on 28 February 2007, when 40 nets had to be cut to release a trapped whale shark (pers comm. Forest officer P S Babaria).

Table 3 List of whale sharks rescued by the Forest Department off the Gujarat coast fishing ports as on October 2008

Sl. No.	Date	Fishing port	Sl. No.	Date	Fishing port
1	16/12/2005	Sutrapada	38	12/04/2008	Veraval
2	03/12/2006	Sutrapada	39	12/04/2008	Veraval
3	19/02/2007	Sutrapada	40	13/04/2008	Veraval
4	28/02/2007	Veraval	41	19/04/2008	Veraval
5	06/04/2007	Veraval	42	19/04/2008	Veraval
6	12/04/2007	Veraval	43	22/04/2008	Veraval
7	16/04/2007	Veraval	44	22/04/2008	Veraval
8	26/04/2007	Sutrapada	46	06/05/2008	Veraval
9	07/05/2008	Veraval	47	07/05/2008	Veraval
10	22/05/2007	Veraval	48	08/05/2008	Veraval
11	23/05/2007	Veraval	49	09/05/2008	Veraval
12	24/05/2007	Veraval	50	23/05/2008	Dhamlej
13	29/05/2007	Sutrapada	51	29/05/2008	Veraval
14	31/05/2007	Veraval	52	01/06/2008	Veraval
15	07/09/2007	Veraval	53	02/06/2008	Veraval
16	07/10/2007	Sutrapada	54	02/06/2008	Veraval
17	08/10/2007	Veraval	55	04/06/2008	Veraval
18	08/10/2007	Veraval	56	20/08/2008	Sutrapada
19	09/10/2007	Veraval	57	04/09/2008	Sutrapada
20	10/10/2007	Veraval	58	07/09/2008	Sutrapada
21	10/10/2007	Veraval	59	08/09/2008	Sutrapada
22	10/10/2007	Veraval	60	08/09/2008	Sutrapada
23	12/10/2007	Veraval	61	24/09/2008	Sutrapada
24	13/10/2007	Veraval	62	24/09/2008	Sutrapada
25	14/10/2007	Dhamlej	63	26/09/2008	Sutrapada
26	17/10/2007	Veraval	64	26/09/2008	Sutrapada
27	17/10/2007	Veraval	65	27/09/2008	Sutrapada
28	17/10/2007	Veraval	66	27/09/2008	Sutrapada
29	31/10/2007	Veraval	67	01/10/2008	Sutrapada
30	13/11/2007	Veraval	68	01/10/2008	Madhvad
31	14/11/2007	Veraval	69	04/10/2008	Sutrapada
32	23/12/2007	Veraval	70	04/10/2008	Sutrapada
33	23/12/2007	Veraval	71	08/10/2008	Dhamlej
34	17/01/2008	Sutrapada	72	08/10/2008	Dhamlej
35	23/01/2008	Sutrapada	73	12/10/2008	Dhamlej
36	25/01/2008	Sutrapada	74	14/10/2008	Sutrapada
37	11/04/2008	Veraval	75	25/10/2008	Sutrapada

The incident occurred 50 nautical miles off the coast of Veraval, when Laljibhai Dhanjibhai saw a whale shark entangled in his nets. Officials were quickly informed and the fish was released after a combined operation by 30 people that lasted three hours. About 80 to 100 nets are used by each fisherman every time they go out to fish. Dozens of nets are required to be cut to release the fish, which is a major socio-economic issue. The compensation scheme injected a fresh fervour to such rescues that seemed to be increasingly reported to the forest department.

3.6 Veraval commemorates Vhali

Five thousand people comprising members of the fishing community of kharvas, school children, representatives of NGOs and government officials thronged to pledge protection to the whale shark at Veraval on 17th February 2007. The kharvas constitute the largest fishing community in Gujarat - spread across all major coastal towns and ports. At this event organized by the Gujarat Forest Department where Morari Bapu was the guest of honor, Kiranben Bhimjiani, the President of Veraval Nagarpalika (Local administration) adopted the whale shark as the mascot of Veraval. Two forest guards, two fishermen and three school children were honoured for their contribution for conservation of the whale

The compensation scheme was very well received by the fishermen and they supported the campaign with renewed enthusiasm, as demonstrated by the incident on 28 February 2007, when 40 nets had to be cut to release a trapped whale shark

shark. Besides the Kharva community, Principal Secretary of MoEF, P. N. Roy Chaudhary, CCF and Chief Wildlife Warden, Pradeep Khanna, Dr. M. K. Ranjitsinh, Chairman of WTI, and politicians took part in the event.

The State Forest Minister, Mangubhai Patel announced the "Kartak Amas" (the new moon day of the first month in the Hindu calendar) as the official date for the Whale Shark Day, to be celebrated every year in Gujarat.

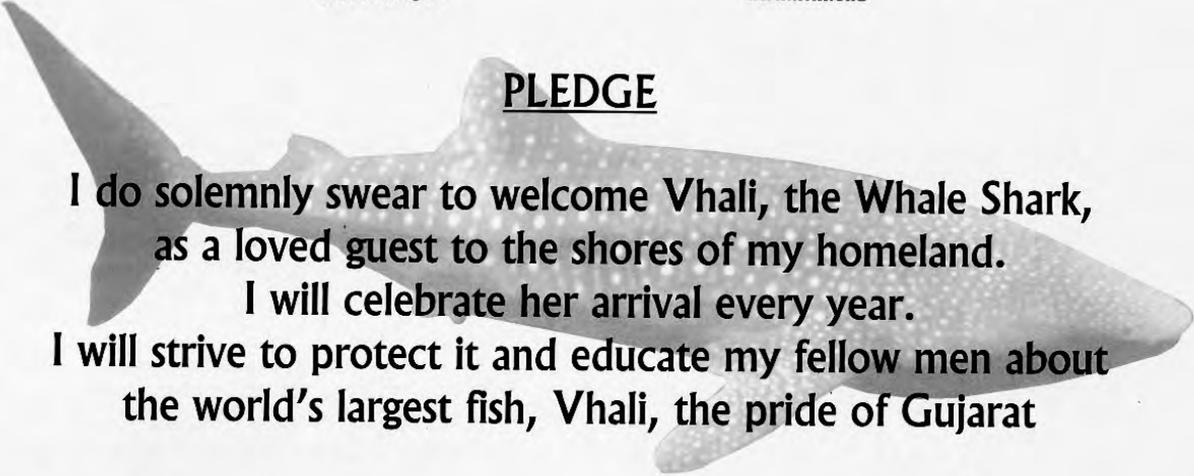
Two days after the Veraval event, yet another whale shark was freed from fishing nets 50 nautical miles off Sutrapada, 20 km south of Veraval in a joint operation that lasted three hours. Sixteen fishing nets had to be cut in the process but this time the compensation scheme for fishermen was in place.



Wildlife Trust of India
www.wti.org.in



IFAW
INTERNATIONAL FUND FOR ANIMAL WELFARE
WWW.IFAW.ORG



PLEDGE

I do solemnly swear to welcome Vhali, the Whale Shark, as a loved guest to the shores of my homeland.

I will celebrate her arrival every year.

I will strive to protect it and educate my fellow men about the world's largest fish, Vhali, the pride of Gujarat



TATA
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March 12, 2005



GHCL
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The specially designed pledge to support the campaign is used at all public events

3.7 Measuring the success

The success of a campaign can be validated in measurable parameters as was done over two years through the TNS survey. A third survey was carried out in 2007 by TNS to gauge the effectiveness of the campaign and to ascertain the need for continuing campaign activities in certain areas of Gujarat.

The findings of the study are presented hereafter, in the following format:

A. Citizens' capsule

- A1. Awareness of the whale shark and related issues
- A2. Knowledge and perceptions about the Whale Shark and issues
- A3. Inclination towards causes related to endangered species
- A4. Inclination towards the cause of Whale Shark – In particular
- A5. Future efforts towards conservation
- A6. Suggestion in terms of activities

B Fishermen's capsule

- B1. Understanding the Veraval Fisherman
- B2. Knowledge about the Whale Shark
- B3. Attitude towards the Whale Shark
- B4. Knowledge about Whale Shark Fishing
- B5. Knowledge about the Trade
- B6. Awareness about the Ban and attitude towards the same

A. Citizen's capsule

A1. Awareness of the whale shark and related issues

One of the main objectives of the survey was to measure the levels of awareness about the whale shark as a species as well as the issues related to its killing and trade. In this section we will gauge the

existing levels of awareness about the species over the three intervening years and the issues concerning it.

A1.1 Awareness about the species per se

The whale shark being a very particular species of shark, spontaneous mention of the same would have been difficult to capture. Hence awareness of the same was captured at an aided level. Firstly, respondents were asked whether they had heard of the whale shark. This we will refer to in this document as 'Aided awareness'. Next, the respondents were shown pictures of the whale shark, and awareness was checked again. This will be referred to as 'Picture aided awareness'.

Looking at the overall picture, at an all respondent level, the stated awareness levels at an aided level are high per se and these increase on picture aiding. As compared to 2004 & 2005, awareness levels have increased

It would be useful to examine further and see if this level of awareness is similar across different categories of respondents and across centres.

The Aided awareness level for the Whale Shark is higher in Veraval, but no difference at picture aided awareness. The awareness levels have increased in 2007 as compared to 2004 and 2005 in both the centers.



An adult whale shark

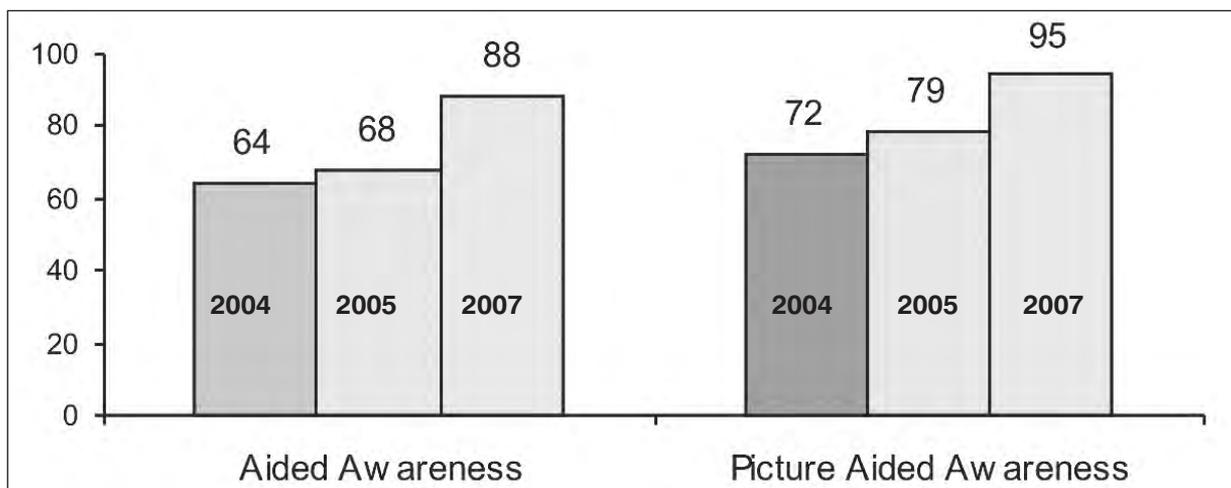


Fig. 2 Awareness – all citizens

Table 4 Awareness – across centres

Awareness Citizens	Year 2004			Year 2005			Year 2007		
	All Citizens	Ahmedabad	Veraval	All Citizens	Ahmedabad	Veraval	All Citizens	Ahmedabad	Veraval
<i>Base (All Citizens)</i>	425	250	175	426	250	176	370	212	158
Aided awareness	64	65	62	68	74	59	88	85	92
Picture aided awareness	72	76	67	79	86	69	95	94	96

No differences by SEC's

Adults as a category seem more aware of the species than the children at aided level, possibly because of their greater interaction with a peer group and a tendency to be better informed on such issues on account of discussions regarding the same. But at Picture aided level, no difference is noted by age groups

Table 5 Awareness – across socio – economic classifications

Awareness (%)	Year 2004			Year 2005			Year 2007		
	All Citizens	Ahmedabad	Veraval	All Citizens	Ahmedabad	Veraval	All Citizens	Ahmedabad	Veraval
<i>Base (All Citizens)</i>	425	250	175	426	250	176	370	212	158
Aided awareness	64	65	62	68	74	59	88	85	92
Picture aided awareness	72	76	67	79	86	69	95	94	96

Table 6 Awareness – across categories of respondents

Awareness (%)	Year 2004				2005				Year 2007			
	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults
<i>Base (All Citizens)</i>	425	125	124	176	426	127	127	172	370	115	117	138
Aided awareness	64	52	72	66	68	63	76	65	88	79	90	94
Picture aided awareness	72	62	80	73	79	76	87	75	95	94	94	96

A 1.2 Sources of Awareness

After observing the awareness levels for the species, which have become quite high, it becomes imperative to examine the source of this awareness.

Respondents were asked about the source from which they had come to know about the Whale Shark. Awareness of the species mainly comes from documentaries and programmes watched on TV.

Young adults are also coming to know about the whale shark from discussions in peer circles. As compared to 2004 and 2005, role of newspapers and books has increased in creating awareness about whale shark

Table 7 Source of awareness

(%)

Source of Awareness	Year 2004				Year 2005				Year 2007			
	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults
<i>Base (All Aware)</i>	245	58	83	104	336	96	111	129	352	109	110	133
Documentaries/ Programmes on TV	88	91	87	88	87	91	90	82	84	84	86	84
Discussions with friends/ relatives	17	12	19	17	9	3	13	9	26	14	31	32
Articles in newspapers	11	12	8	13	7	10	4	6	38	22	37	51
Books	7	12	6	5	14	17	19	9	15	18	16	11
Programmes/ campaigns in school/ college/ institute	6	3	7	7	5	2	7	5	17	4	25	20

A1.3 TV Channels watched normally

Since television is the primary source of awareness, it would be useful to examine the pattern of television viewing followed by the respondents. Respondents were asked about which TV channels they watch normally.

Discovery is among the Top 5 channels watched by the respondents. Hence it seems that the respondents are watching documentaries and programmes related to wildlife on these channels, which are educating them about creatures such as the whale shark.

A2. Knowledge and perceptions about the Whale Shark and issues

Since the stated awareness for the whale shark is high, it became important to check the knowledge of those who claim awareness have about the Whale shark. This section deals with the same.

A2.1 Spontaneous mentions about the whale shark

After checking awareness for the species it was imperative to check the extent of knowledge about the Whale Shark issue among those aware. Those respondents who claimed awareness of the whale shark were asked about what they had heard or knew about the same. Spontaneous responses were captured here.

Majority of the respondents have made extremely general comments about the whale shark, which would hold true for any whale or shark or any big fish. Few respondents also mentioned that whale shark are killed for oil or meat.

A2.2 Perceptions on the dangerousness of the whale shark

Here we questioned the respondents about whether they felt that the Whale Shark was dangerous or not. The question asked was:

“Q. Many people we spoke to said that the Whale Shark is dangerous to human beings as it is known to attack human beings while many others have said that it is not dangerous as it does not attack human beings. Can you tell me your opinion on the same?”

Table 8 TV channels watched

(%)

TV Channels	Year 2004				Year 2005				Year 2007			
	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults
<i>Base (All Citizens)</i>	425	125	124	176	426	127	127	172	370	115	117	138
Star Plus	59	54	63	59	56	54	60	54	45	39	49	47
Discovery	48	44	51	48	27	31	33	19	33	31	40	28
DD1	38	38	35	39	26	26	21	30	34	34	27	41
Zee TV	26	23	30	26	12	7	18	10	14	11	11	20
National Geographic	25	20	28	27	12	13	15	8	22	22	21	23
Cable Operated Channel	24	23	27	23	7	9	9	5	4	4	4	4
Aaj Tak	23	12	26	28	13	8	16	16	25	7	34	31
DD 2 - Metro	20	20	19	22	5	5	6	6	18	18	13	21
Sony Set Max	16	13	21	16	9	9	14	5	11	4	16	11
Sony Entertainment	16	14	23	13	11	11	15	9	9	5	16	7
Zee Cinema	12	10	18	10	15	23	14	9	23	18	33	19
Cartoon Network	11	33	4	1	13	41	2	1	17	44	7	2
Zee News	11	5	15	13	6	5	9	5	10	1	9	17

Table 9 – Spontaneous mentions about the whale shark

Spontaneous mentions	Year 2007			
	All	Children	Young Adults	Adults
<i>Base (All Aware)</i>	352	109	110	133
It is biggest fish of the world	56	56	57	55
Whale shark is long in length / fat/heavy	15	16	15	14
It is heavy in weight	12	10	14	13
It live in ocean / deep sea	11	18	6	9
Kill whale fish & take out oil for massage & it is used to make medicine	11	6	13	12
They are dangerous	9	10	12	7
Their eat small fish	6	6	5	7

This year lesser number of respondents believes that the whale shark is dangerous. However, more children presume that it is dangerous, possibly because of its name.

On examining these perceptions across centres it has been observed that in 2004 citizens in the coastal towns are better informed than their more urban counterparts. But in 2007, there is not much difference between the perception of citizens of Ahmedabad and Veraval

Table 10 – Perceptions about the whale shark - dangerous

Is it dangerous	Year 2004				2005				Year 2007			
	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults
<i>Base (All Aware)</i>	245	58	83	104	336	96	111	129	352	109	110	133
Dangerous to humans	53	74	45	47	45	48	44	44	34	50	33	20
Not dangerous to humans	47	26	55	53	52	47	55	52	66	50	67	80

Table 11– Perceptions about the whale shark – across centres

Is it dangerous	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Year 2004</i>								
<i>Base (All Aware)</i>	157	88	41	17	52	31	64	40
Dangerous to humans	64	32	80	59	56	26	61	25
Not dangerous to humans	36	68	20	41	44	74	39	75

Table 12– Perceptions about the whale shark – across centres

Is it dangerous	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Year 2005</i>								
<i>Base (All Aware)</i>	215	121	63	33	71	40	81	48
Dangerous to humans	49	39	51	42	48	38	48	38
Not dangerous to humans	48	58	44	52	51	63	48	58

Table 13– Perceptions about the whale shark – across centres

Is it dangerous	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Year 2007</i>								
<i>Base (All Aware)</i>	200	152	64	45	61	49	75	58
Dangerous to humans	35	32	52	48	30	37	24	16
Not dangerous to humans	65	68	48	52	70	63	76	84

A 2.3 Whereabouts of the whale shark

Here, we asked the respondents regarding their perceptions as to where do they think the Whale Shark is found. The question asked was:

“Q. Many people mentioned that the Whale Shark is found in India, some have even said that it has been seen on the coasts of Gujarat, while many others said that it is not found in India and is found only on foreign coasts. Please tell me what do you think about the same?”

All citizens staying on the coastal area say that the Whale Shark is found in India. People staying in Ahmedabad generally feel that it is not found in India.

Table 14 – Perceptions about the whale shark – whereabouts

	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Base (All Aware)2004</i>	157	88	41	17	52	31	64	40
Found in India	36	23	44	24	25	16	41	28
Found in Gujarat	18	61	7	65	23	68	20	55
Not found in India	45	16	49	12	52	16	38	18

Table 15 – Perceptions about the whale shark – whereabouts

	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Base (All Aware)2005</i>	215	121	63	33	71	40	81	48
Found in India	40	31	33	36	39	35	44	23
Found in Gujarat	20	47	14	39	24	40	20	58
Not found in India	36	20	48	18	34	23	28	19

Table 16– Perceptions about the whale shark – whereabouts

	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Base (All Aware)2007</i>	200	152	64	45	61	49	75	58
Found in India	24	16	23	18	18	22	29	10
Found in Gujarat	22	80	20	78	25	78	21	85
Not found in India	54	3	55	4	57	0	49	5

A 2.4 Legal status of the whale shark

Thereafter the respondents were questioned about their knowledge and perceptions about the legal status of the whale shark. The question asked was:

“Q. Many people said that it has a protected status and that it is illegal to kill or trade in its body parts in India. Many others said that it is not protected as yet and right now it is not illegal to kill or trade in its parts. Please tell me your opinion?”

Awareness on legal protection of Whale/shark has increased in Veraval as compared to 2005. Majority of the citizens in Ahmedabad feel that the Whale Shark is not yet protected legally whereas in Veraval majority seems to be aware of the fact that whale shark are legally protected. This holds across all categories of respondents.

Table 17- Perceptions about the whale shark – legal status

Protected	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>2004</i>								
<i>Base (All Aware)</i>	157	88	41	17	52	31	64	40
Protected legally	24	30	24	41	29	26	19	28
Not protected legally	76	70	76	59	71	74	81	72

Table 18- Perceptions about the whale shark – legal status

Protected	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>2005</i>								
<i>Base (All Aware)</i>	215	121	63	33	71	40	81	48
Protected legally	36	46	30	52	41	45	37	44
Not protected legally	57	50	64	46	54	53	56	52

Table 19 – Perceptions about the whale shark – legal status

Protected	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Base (All Aware)</i>	200	152	64	45	61	49	75	58
Protected legally	21	71	24	81	26	65	13	69
Not protected legally	79	29	76	19	74	35	87	31

A2.5 Awareness about the practice of killing Whale Shark

The next step was to check their awareness regarding the killing of Whale Shark. The question asked was:

“Q. Many people have told us that the Whale Shark is killed when it comes to the coasts of Gujarat, by the local fishermen as its meat and body parts are sold for a high price. Before today, were you aware about such a practice?”

The majority of the citizens are unaware about this practice of killing the Whale Shark. However in comparison to 2005 awareness on poaching of whale shark has gone up, especially amongst the adults

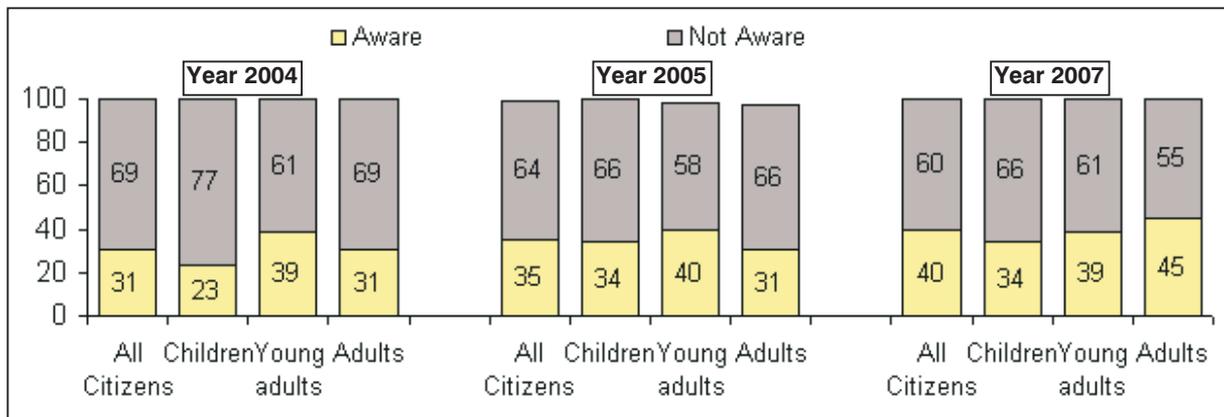


Fig. 3 Awareness about the practice of whale shark killing

A2.6 Spontaneous mention about killing of Whale Shark

All those who said that they were aware of the practice of killing the whale shark were questioned further regarding their knowledge about the practice.

Although few citizens are aware of the practice of killing the whale shark, those aware seem to be well informed about the issue. They are aware that the liver oil of the Whale Shark is used for medicines and the body parts are valuable for trade, these being the basic reasons behind its killings.

A3. Inclination towards causes related to endangered species

It is important to study next, the inclination or indifference that the citizens of Gujarat feel about causes such as these, in general. In this section, the inclination and interest of the respondents regarding causes such as these were understood. The respondents' previous participation in related activities was also captured in an effort to understand, their interest levels regarding the same and providing directions regarding their intention to participate in the future.

A3.1. Importance given to the endangered species issue

Here respondents were asked about the environmental issues that they think are of concern today. Different issues were put forward to the respondents and they were asked to rank them in the order of importance that they accorded to each.

Unlike 2005, this year animal species becoming endangered is the 2nd most important issue according to the citizens in the light of other burning issues.

Contrary to 2005, Non-coastal residents are giving more importance to the issue of endangered animal species than those residing in the coastal areas.

A3.2 Previous history of participation in such causes

Respondents were asked whether they had ever participated in any such efforts in the past. The question asked was:

Table 20 – Killing of the whale shark – spontaneous mentions

Spontaneous mentions	Year 2007			
	All	Children	Young Adults	Adults
<i>Base (All Aware of the practice of killing))</i>	145	39	45	61
Fishermen catch & kill & sell it	41	36	31	51
Whale fish are killed & used for taking out oil for massage & making medicine	23	26	31	16
Its sold in huge price	6	5	4	7
Its all body parts are costly	5	-	9	5

Table 21– Importance of the endangered species issue amidst other issues

Importance given	Year 2004				Year 2005				Year 2007			
	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults	All	Children	Young Adults	Adults
<i>Base (All Citizens)</i>	425	125	124	176	426	127	127	172	370	115	117	138
Air pollution	71	74	69	71	72	76	63	76	58	62	50	62
Water pollution	62	70	55	63	66	71	58	69	46	50	43	46
Deforestation	58	54	62	58	50	60	47	47	42	49	40	37
Specific animal species becoming endangered	38	35	40	39	48	37	58	48	54	60	54	50
Land pollution	32	34	34	30	23	26	20	24	36	30	38	41
Global warming	24	22	29	22	17	13	28	12	34	17	47	37
Water table going down	16	13	11	20	23	12	30	26	30	34	28	28

Table 22– Importance of the endangered species issue – across categories

Importance given	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Base (All Citizens) 2004</i>	250	175	75	50	74	50	101	75
Air pollution	71	72	73	76	69	68	70	72
Water pollution	66	57	72	66	65	40	63	61
Deforestation	63	51	63	40	68	54	59	56
Land pollution	33	31	35	32	32	36	32	27
Specific animal species becoming endangered	28	53	23	54	26	62	34	47
Global warming	26	21	27	14	27	32	26	17
Water table going down	16	15	13	12	12	10	21	20

“Q. Whether involved in any conservation efforts in the past and if yes what kind of efforts?”

Those who had participated previously were questioned further about the ways in which they had participated while those who had not participated were asked about the reasons behind their non-participation.

Participation in causes concerning endangered species has gone up to 15% from 2 % in 2005

Table 23– Importance of the endangered species issue – across categories

Importance given	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Base (All Citizens) 2004</i>	250	175	75	50	74	50	101	75
Air pollution	71	72	73	76	69	68	70	72
Water pollution	66	57	72	66	65	40	63	61
Deforestation	63	51	63	40	68	54	59	56
Land pollution	33	31	35	32	32	36	32	27
Specific animal species becoming endangered	28	53	23	54	26	62	34	47
Global warming	26	21	27	14	27	32	26	17
Water table going down	16	15	13	12	12	10	21	20



Table 24 – Importance of the endangered species issue – across categories

Importance given	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Base (All Citizens) 2005</i>	250	176	75	52	77	50	98	74
Air pollution	81	60	87	60	72	50	84	66
Water pollution	71	59	81	56	56	60	75	61
Deforestation	48	54	60	60	43	52	43	51
Land pollution	24	23	31	19	21	18	21	29
Specific animal species becoming endangered	40	58	20	62	52	66	46	51
Global warming	18	16	11	15	30	24	13	11
Water table going down	20	26	9	15	30	30	22	31

Table 25– Importance of the endangered species issue – across categories

Importance given	All Citizens		Children		Young Adults		Adults	
	Ahd	Ver	Ahd	Ver	Ahd	Ver	Ahd	Ver
<i>Base (All Citizens) 2007</i>	212	158	67	48	67	50	78	60
Air pollution	53	65	61	63	45	58	54	73
Water pollution	40	54	49	52	36	52	36	58
Deforestation	39	45	42	58	45	34	32	43
Land pollution	33	41	25	35	30	48	41	40
Specific animal species becoming endangered	71	32	75	40	67	36	72	22
Global warming	36	31	16	19	51	42	41	32
Water table going down	28	32	34	33	27	30	24	32

Table 26 Past involvement in such causes related to conservation efforts

	2004	2005	2007
Base	425	426	370
Involved	3	2	15
Not involved	97	98	85

A3.3 Activities involved in

Those few who had participated in such activities were asked about ways in which they had participated in the same. Some of the activities mentioned by the citizens were:-

- Dissuading people from killing/hunting the species
- Gave message to take care of environment / trees
- Took part in animal conservation oriented programmes
- Participated in street plays

A3.4 Deterrents to participation in such causes

All those who had not participated in any conservation efforts in the past were then asked about the reasons behind their lack of participation. The question asked was:

“Q. Various people have mentioned a variety of reasons for not having been able to participate in wildlife conservation in a significant manner. I have a list of reasons. According to you what is the most important reason for other people for not participating in such efforts? Which is next in importance...?”

This low involvement seems to be stemming from a lack of information and the lack of time. The positive aspect about these deterrents is that there does not seem to be a lack of empathy or cynicism regarding these causes.

Importance given	Year 2007
Base (All those not participated)	203
Time Constraints	66
Inadequate information about the way to participate	60
Lack of interest	37
Inadequate information about the threat to wildlife and related regulations	62
Feel that any effort made will not make a difference	36
Threat to wildlife not a matter of great concern	38

A4. Inclination towards the cause of the whale shark – In particular

In the earlier section, we had talked about the interest and inclination that the citizens of Gujarat have shown towards general causes regarding endangered species. In this section we will specifically be dealing with the cause of the Whale Shark in particular.

A4.1 Importance given to the cause of conserving the Whale Shark

Respondents were asked to express their level of agreement/ disagreement on a 5-point scale, with a battery of statements put forward to them. Some of these statements are indicative of the importance the respondent would be giving to the issue.

An overwhelming majority of the citizens felt that unless some action is taken, the killing of the Whale Shark will continue and it will become extinct. Therefore they are ready to support the cause but the means to lend help are not clear to them.

A5. Future efforts towards conservation

In this section respondents were asked about their future intentions towards supporting a cause such as this. This information has been collected through the means of different types of questions put forth to the respondents. We will discuss them one by one:

Table 28 – Importance given to conserving the whale shark

% Agree

Importance given	All Citizens	Children	Young Adults	Adults
<i>Base (All Citizens)</i>	370	115	117	138
Unless necessary steps are taken its killing will continue and the whale shark will become extinct	84	76	88	88
I would like to support the cause of the whale shark but don't know how?	75	70	81	75
Protecting whale shark is task of Govt, common people cannot make a difference regarding its killings.	67	64	75	61
After knowing that whale shark is protected under the law, I will not consume any product made using its body parts	63	58	70	60
I can make a difference by supporting the cause of the whale shark.	60	40	71	67

A5.1 Consumption of Whale Shark meat or body parts in the future

First of all respondents were asked about their eating habits and accordingly they were questioned about their future course of action, regarding the consumption of whale shark meat and body parts. Since, direct consumption is redundant in the case of vegetarians, they were asked about their intention to dissuade others from consuming the same, while the non – vegetarians were questioned on their own intentions to consume the same in future.

Predominantly vegetarians

“Q. What future course of action are you likely to take if you see people eating food/soup made from Whale Shark meat/fins etc?”

Majority of the people who were interviewed were vegetarians and most of them said that they would dissuade people from eating the meat of Whale Shark.

Predominantly Non-vegetarians

“Q. Presented with an opportunity would you eat food/ soup made of Whale Shark meat/ fins etc?”

The non-vegetarians do not make promises of abstinence, and behave in a different manner from the vegetarians. Majority say that they will still go ahead and eat the meat.

Table 29 No. Vegetarians and non-vegetarians with sample survey over the years

<i>Base</i>	2004 425	2005 426	2007 370
Predominant vegetarians	88	90	83
Predominant non vegetarians	12	10	17

Table 30 Future course of action - Predominantly Vegetarians

Most likely action	Year 2004	Year 2005	Year 2007
<i>Base (All vegetarians)</i>	<i>375</i>	<i>386</i>	<i>306</i>
Try to dissuade the person from eating it	81	75	63
Let the person eat it	16	22	22
Report the source to responsible authorities	3	3	15

Table 31 Most Likely action- Predominantly non-vegetarian

Most likely action	Year 2004	Year 2005	Year 2007
Base (All non vegetarians)	50	40	64
Go ahead and eat it	60	77	84
Refuse to eat it	40	23	16

A5.2 Purchase intention of cosmetics/ medicines made from body parts of Whale Shark

Furthermore it was necessary to gauge the respondent's views on their purchase intention if the products made from body parts were available in the market

Majority of the people said that they would not buy any cosmetics/ medicines even if they were available in the market. But this percentage had dropped down when compared to 2005

A5.3 Willingness to participate in the future efforts

Here all respondents were asked about their willingness to participate in conservation efforts in the future. Their responses were taken on a three-point scale. The question asked was:

Q. How willing are you to participate in efforts towards conservation of Whale Shark in the future?

Majority were willing to participate in whale shark conservation related activities



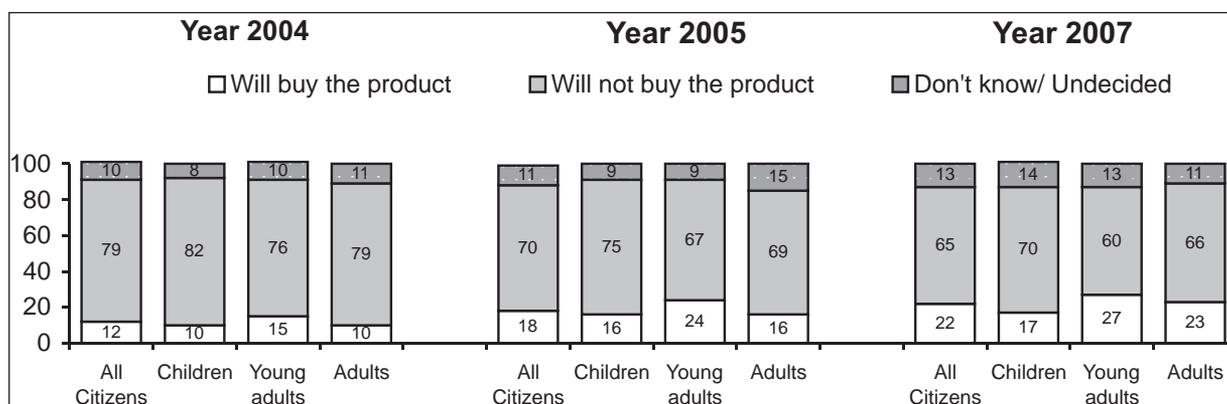


Fig. 4 Purchase Intentions

Table 32 – Attitude towards conservation of whale shark

	Year 2007			Willingness to participate	Children
	All	Young Adults	Adults		
Base (All Adults)	255	117	138	Base (Children)	115
Not at all willing	13	15	12	Do not want to participate	23
Somewhat willing	33	25	41	Want to participate	69
Extremely willing	50	40		Don't know/Refused	8
Don't know/Refused	9	10	7		

“Q. Reasons why not interested in participating in efforts towards conservation of Whale Shark in the future?”

All the segments say that lack of information and time constraint are the main reason for not participating in conservation related efforts.

Table 33 Deterrents to participation

Deterrents	All Citizens	Ahmedabad	Veraval	Children	Young Adults	Adults
Base (All not willing)	92	42	50	36	29	27
Doesn't know about it	29	45	16	22	38	30
Don't have time for protection	24	17	30	11	28	37
Not interested	14	21	8	14	14	15
Because it is dangerous fish	4	-	8	3	7	4
Don't like to take care	2	5	-	6	-	-

A6. Suggestion in terms of activities

A6.1 Activities suggested towards conservation

In the end respondents were asked about the various activities which they could think of, through the means of which they could extend support. The question asked was:

“Q. Ways in which you would like to help in efforts towards conservation of Whale Shark in the future?”

Majority said that we should stop people from killing Whale shark. But clarity in terms of various means to be adopted to prevent killing of whale shark are not known to majority.

Table 34– Activities Suggested

Activities	All Citizens	Children	Young Adults	Adults
<i>Base (All Citizens)</i>	278	79	88	111
Stop people to kill whale shark	29	27	28	31
Create awareness about this issue	20	15	26	18
Give message to take care of environment / trees	19	14	23	21
Get help from govt for its protection	12	5	15	14
Should organize programs for them	8	4	8	10
Should make rules and execute them strictly	8	3	10	9
Should built some big organization / committee to take care of them	7	6	3	11

B. Fishermen Capsule

B1. Understanding the Veraval fisherman

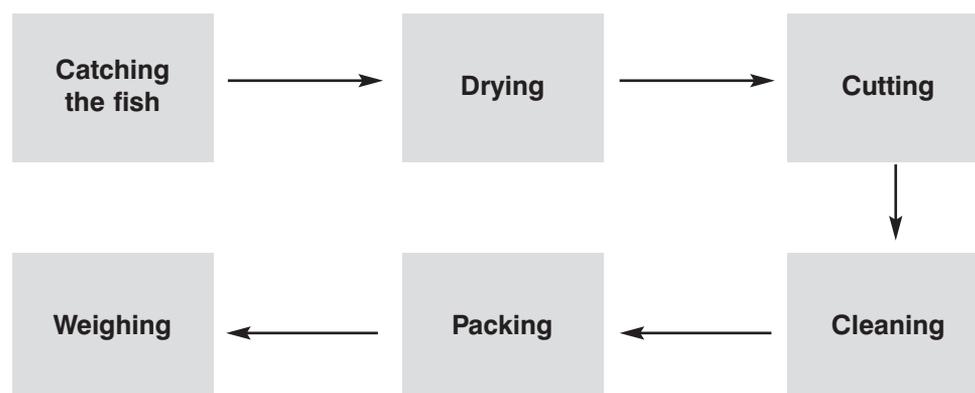
B1.1 Background - A glimpse of Veraval

Veraval, a small village near Gujarat, has some industries like the cement and the rayon industry, although a majority of the population is dependent on fishing as their main business or source of income.

This business is the worst hit during the monsoons since it becomes almost impossible to go out fishing in the rains. The monsoons are therefore, a difficult season for the fishermen and they have trouble getting two square meals a day. At this time of the year, while some of them depend on farming, the rest have to sit idle.

The majority of the catch comprises small fishes such as the gadera, sherma, paplet, bagga, surmai, corn fish, rani etc. However fish like surmai, vaan, zinga comprise seasonal catch.

The work cycle of these fishermen typically includes the following activities:



The richer fishermen get all the above processes done themselves, but the smaller fishermen just catch the fish and sell it to the larger merchants. These merchants then process the fish and sell them in the market.

“We have to spend on the diesel beforehand...then after the boat comes back (after 4-5 days).”

B1.2 Fishing practices

The fishermen go to the sea with their own diesel/ kerosene, water and food. Radio is the source of entertainment on the boat

The captain of the boat is called the “Tandal”. He takes about 6-8 other fishermen called “Khalsis” with him. If any decision is made regarding which fish

“The number and quality of fish caught depends on the way the Tandal guides the Khalsis. His instructions and experience are responsible for all the fish caught.”

to be caught, it by Tandal else whichever fish comes in the net is caught

B2. Knowledge about the Whale Shark

B2.1 Awareness about the Whale Shark

It has been found out that a majority of the people have personally seen or heard about the Whale Shark by the commonly used names like Barrel, Bare, Matasaya raja (King of fish)

“5-7 years back they were 100 in number”
“I haven’t seen bigger fish than Barel in Indian sea”
“its king of matasaya... ‘Matasaya Raja’...”
“its called Malariya, Kushiya in our local language”

It has been reported that the Whale Shark is generally seen in the months of March, April and May. It is found in deep sea, 2-3 km from the coast. It eats small fish but it is not seen as danger to the fishing business.

B3. Attitude towards the Whale Shark

B3.1 Whale Sharks adding to existing problems

The fishermen stated that the Whale Sharks were responsible for their decreasing business, as they were depleting the existing stock of fish in the ocean.

“Small fish which are left in the ocean to increase the population of the fish...the whale shark eats them up...once it opens its mouth, it eats 50 - 100 kgs of fish...if they eat these fish what will we get?...the whale shark should be killed because if their numbers increase then after sometime there will be no fish left for us.”

In addition to this, the Whale Sharks also damage the expensive nets and the boats of the fishermen. Since the fish is big, if it gets hooked then it pull the fishermen in the sea.

“If the whale shark comes into our nets ...it completely destroys them beyond repair... the lost could vary from Rs. 10,000 – Rs. 20,000”

B3.2 Is the Whale Shark dangerous

Whale shark are not considered dangerous animal unless harassed or caught in the net. They are perceived to be a shy animal, which maintains a distance from humans.

“Doesn’t harm human unless trapped in net”
“It can cut the net if trapped”
“its deaf can’t see boat approaching”
“Barrel is blind and so can not be harmful”

B3.3 Attitude towards its killing

After ban on whale shark killing, nobody wants to bear the brunt of the penalty and punishment

A few Veraval fishermen feel that the shark should be killed, not because it is harmful, but because of financial considerations.

“There is fine of one hundred thousand rupees and punishment for 10-15 years so we never kill it”
“Ever since its banned ...4-5 years back....we have stopped killing it”

B3.4 Effect on the Marine Eco-system

A majority of the fishermen are not aware of any threat to the marine eco-system, if there are no Whale Sharks in the future.

There is also no perceived threat to sea water and there is an indifferent attitude towards increase/decrease in number of whale shark in marine ecosystem

B4. Knowledge about Whale Shark fishing

B4.1 Hunting Whale Shark - The perceptions

Though nobody is currently into hunting/poaching of whale shark, there is however, no perceived need for special training or boat/trawler for the same, all one needs is experience, courage and skill to handle the fish once it's caught in the net.

On the contrary, when the whale is caught in the net, fishermen rescue the fish back to the sea, or if it comes to the sea shore, customs/ fisheries department is informed

B4.2 Knowledge about the trade

B4.3 The buyers of the Whale Shark

Fishermen and the boat owners are still aware about the end use of each body part of the whale shark but the laborers seem to have no idea about it, however the general perception is that body parts of

“...trader comes and takes the fish, we don't know what is done with it” (Labor)
“...they say its sent to foreign countries....we have no idea what's the use” (Labor)

whale shark are sent abroad.

Prior to ban, one whale shark use to fetch price as high as one hundred and twenty five thousand rupees however the profit was quite low after taking into stock all the expenses incurred like kerosene, damage to net and boat.

Further, the left over amount was divided among fishermen, boatmen and laborers, but

distribution of the money was not uniform with the larger chunk going to the boatmen

B4.4 Uses of Whale Shark body part

Earlier whale shark was killed and its body part is put to many uses. The main extraction is the liver oil from its body, which was used for water-proofing the boat. However the with the ban coming into effect other alternative have been put into use like:

Edible oils – cotton seed oil
Oil made from small fish like red fish

Its fins are used to make soup and thread can be used for sewing purposes

“The thread used for stitching in surgery is also made from the skin

The meat that is obtained from the body of the shark is generally exported to foreign countries.

The fins of the shark are dried and sold to merchants who then export them to foreign countries. Surgical threads are also made from the fins.

They are not ware of use of any other body part. Seems the rest of the body parts are sold as they are and they are sent abroad for end use

B5. Awareness about the ban and attitudes towards the same

B5.1 Knowledge about the ban and its effectiveness

It has been observed that most of the fishermen are aware of the ban on the killing of the Whale Shark. They know about the prohibition by the government on the hunting of Whale Sharks.

Most of them are aware that there is a penalty in case anyone is seen hunting/ killing the Whale Shark, along with an imprisonment for five to six years.

“Till three years ago, people used to catch the whale shark, now Govt. has banned it...there can be upto six years of imprisonment and a fine of one hundred thousand rupees if caught fishing the barrel”



Regarding the effectiveness of the Government ban on the hunting of Whale Sharks, it seems to be quite effective. At an individual level, the ban does instill a fear of punishment and penalty.

**“...catching whale shark is illegal”
(labor)**

**“...fine of one hundred thousand rupees
is discouraging” (Fisherman)**

**“ever since its banned ...4-5 years
back....we have stopped killing it”**

**Coast guard says its banned to kill the
shark...(Boat owner)**

**“Saw “posters/ slogans when killing was
bannednever saw any street plays**

Most not aware of any activities to conserve Whale Sharks. Boat owners and few fishermen aware of felicitation by Morari Bapu, but labors are unaware about it.

**“Morari Bapu had done a program, don’t
have exact idea”**

**“ He said that this fish is like God of sea
so we shouldn’t kill it’**

**“The person was given prize for saving
the fish”**

B 5.2 Effectiveness of Ad campaign

Few people are aware of the coast guard’s activities, but most of them have never heard of street plays and other activities currently.



Save the whale shark campaign rally at Veraval

Recommendations: The Way Ahead

4.1 Whale Shark Science

Despite undertaking such long distance migrations, tagging and photo-identification studies have demonstrated that individual sharks will return to the same feeding area in subsequent years

Very little is known about the whale shark in India. We know that the whale shark is highly migratory from a number of studies. For example, the proposal to list the species in CITES summarizes the migratory pattern of the sharks thus “Distribution records are characterized by highly seasonal appearances, with aggregations of whale sharks appearing for a few months in locations where their zooplankton food is abundant as a result of regular fish or invertebrate spawning events (Fowler 2000, Norman in press, Heyman *et al.* 2001). The species is certainly highly migratory, with satellite tracking of individuals demonstrating some very long-distance and long-term migrations, including a journey of over 2000km towards Asia off the Western Australian coastline in 2002 (Norman pers com), a 550 km journey completed within a few weeks (Graham and Roberts in prep), a 2,000km migration from the Mindanao Sea in the inner Philippines to 280km south of Vietnam in two months (Eckert *et al.* in press), and a 13,000km migration from the Gulf of California, Mexico, to near Tonga over 37 months (Eckert and Stewart 2001). There appears to be spatial and seasonal population segregation, with animals of similar size and largely the same sex often reported in the same area (Norman 1999), while other age classes and a predominance of the other sex are found elsewhere (Eckert and Stewart 2001, Graham and Roberts in prep). By analogy with other large migratory sharks, different age classes and sexes may undertake different migrations. Thus, juveniles may have different migration patterns from mature fish, and mature males and females may also have migration patterns of different lengths over different distances. For example, migrations of mature females of some species are linked to breeding cycles which take two years to complete (Hueter 1998). Tagging and DNA studies have demonstrated that male white sharks migrate across ocean basins, while females tend to remain in the coastal waters of the continent where they were born (Boustany *et al.* 2002, Pardini *et al.* 2001). Despite undertaking such long distance migrations, tagging and photo-identification studies have demonstrated that individual sharks will return to the same feeding area in subsequent years (Taylor 1994, Norman 1999, Graham *et al.* in prep.). This philopatry has been described for many species of sharks (*e.g.* Walker 1996) and anadromous bony fishes”. However, how the Indian population fits into this migratory pattern and if it indeed does conform to these general findings from other parts of the world is largely unstudied. The phenomenal success of the campaign in India has also raised the need to do specific science on the whale shark for it has raised more questions in the minds of the general public and the conservation community in India than answers are available. It is important that satellite tracking studies are carried out on the whale sharks in India in order to answer some of these questions.

In addition, photo identification is useful in determining whether any of these individuals have come from known populations. “Whale Shark photo-identification projects are underway in Australia (where over 100



individual sharks have been identified visiting Ningaloo Reef), Belize (47 sharks identified), the Philippines, Mexico (the Gulf of California) and USA (Gulf of Mexico). These projects enable naturally marked individuals to be re-identified and some have also produced estimates of local population numbers (ranging from dozens to low 100s). Visual tagging of Whale Sharks (which may be used in the same way as photo-identification to calculate population size and site fidelity, provided that tag loss is minimized) is underway in KwaZulu Natal (South Africa) and southern Mozambique, the Seychelles, Australia, Caribbean (Belize and Honduras); possibly also in Mexico and the Philippines. A wide range of biotelemetry techniques (including satellite, acoustic and archival tagging) is currently being applied to Whale Shark research in the Gulf of California, Philippines, Sabah (East Malaysia), Australia, KwaZulu Natal (South Africa) and Mozambique, Seychelles, Honduras, and Belize. These may be used to track whale shark migrations and determine to what extent migratory populations are shared by different range states”.

The third area of science that is important to pursue is to understand its seasonality and habitat preference. The CITES proposal once again succinctly puts this as “habitat availability is not considered to be a constraint for this species, unless associated with seasonal food concentrations (nursery and mating grounds have not been identified). Critical habitats presumably include coral reefs (which are extremely vulnerable to habitat damage and disturbance) where whale shark aggregations are associated with synchronous spawning of corals (Western Australia) and fishes (Belize). Whale sharks are reported also to appear at Christmas Island following land crab spawning events (Norman 1999), and to frequent shallow-water areas near estuaries and river mouths in northern Borneo and the Philippines (Alava *et al.* 1997, Alava *et al.* in press, Alava and Kirit 1994), sometimes during seasonal shrimp blooms. The latter habitats are highly vulnerable to pollution, development and other human activities. Few seasonal whale shark habitats have been surveyed to assess extent, status and threats to their existence, nor the environmental factors which are important to this species”.

Many of these scientific ideas discussed at the International whale shark conference in Perth, Australia from 9th to 12th May, 2005 and subsequent to the meeting, the areas identified for further work were:

1. Initiation of an informal information gathering of whale shark sightings by the fishermen.
2. Satellite tagging of the whale shark to study the

migration pattern along the coast of Gujarat.

3. Conducting DNA mapping of the whale shark which could help in the enforcement against whale shark hunting.
4. Establishing the photo ID methods for whale shark identification in India and training personnel in doing so.

Soon after this, WTI invited well known whale shark researcher Brad Norman of Ecocean, Australia to give advice on the formulation of some of these scientific measures. His visit gave much needed direction to the aspect of scientific research. The future strategy suggested by Brad was:

1. Reporting of sightings by fishermen
2. Regular water and plankton sample collection during seasons when the whale shark is absent in Indian waters
3. Collection of water and plankton sample around the whale shark.
4. Collection of whale shark skin samples
5. Satellite tagging of the whale shark

4.2 Whale Shark Campaign-Phase II

While the campaign in Gujarat has been a runaway success, two aspects need further work. Firstly, the whale shark day, “*Kartik Amas*”, the day of the new moon of the first month in the Hindu calendar which has been earmarked as the Whale Shark Day by the Gujarat government needs to be celebrated each year. Celebrations based on the theme of whale shark conservation on a specific day each year would accord a place of pride for the species in Gujarat. The calendar for celebrations for the next five years is as follows:

2007: 09th Dec	Sunday
2008: 27th Nov	Thursday
2009: 16th Nov	Monday
2010: 05th Dec	Sunday
2011: 25th Nov	Friday

It is also important to continue the use of the whale shark inflatable to increase awareness in coastal areas especially targetting those parameters which have shown low or no change in the attitude survey.

Secondly, it is important to take the awareness campaign to other coastal areas of the country. This is substantiated by news reports of whale sharks being stranded, trapped or traded from coastal areas other than Gujarat.

- On February 6, a whale shark was reportedly trapped off the coast of Kasargode in northern Kerala and was later sold.

- On February 9, a whale shark trapped in a net off the coast of Karwar in Karnataka was rescued and released.

Incidents of whale sharks being released where the campaign had reached indicate the effectiveness of the methods employed in generating awareness. It would thus be beneficial to adapt the campaign in other regional languages and conduct it in states other than Gujarat so that awareness on the status of the whale shark also reaches the rest of the Indian coastal states.

4.3 Eco-tourism

One of the most important strategies adopted around the world to make sustainable, the efforts on whale shark conservation, is the concept of ecotourism. Similar to the tiger in the forests, the whale shark dominates the seas and is an excellent flagship for showcasing marine conservation. People who dive with this massive creature or see it through glass-bottomed boats when the shark surfaces, rarely forget the magnificent sight. The CITES proposal encapsulates tourism efforts around the world, as follows: "recent ecotourism operations based on Whale Shark viewing are underway or commencing in Western Australia (Ningaloo Reef), KwaZulu Natal (South Africa), Mozambique, Philippines, Seychelles, Maldives, parts of the Caribbean, and Gulf of California (Mexico). Some of these operations already have a very high economic value. Ecotourism is a non-consumptive, sustainable use of this species which could potentially yield significant economic returns, particularly to developing range states with a high dependence on ecotourism income. This is, however, threatened by unsustainable fisheries underway in other parts of the range of shared whale shark populations. The longest-established ecotourism industry focused on whale sharks is based at Ningaloo Reef, Western Australia, where regulations control numbers of vessels and snorklers, contact time and approach distances in order to minimize disturbance to the sharks (Norman 1999). Some 1,000 people visited this site between March and June 1993 to see whale sharks. This increased to almost 3,000 in 1996 (Colman 1997), with the number of participants even greater in 2002 (Norman pers com). Newman et al. (in press) presented estimates of individual expenditure of AD 3,198 per person in 1995 associated with this activity and extrapolated this, based on 15% annual growth, to an industry worth around AD 12.8 million to the local and regional economy by 2000. They noted that overseas visitors comprised 65% of whale shark tour participants in 1996, and 76% in 1996.

A pilot whale shark ecotourism project in the Seychelles in 1996 investigated the potential for whale shark ecotourism in this state. Newman et al. (in press) calculated that this industry could be worth USD 3.95 to D 4.99 million per annum to the Seychelles, derived from a short season of just 14 weeks a year. The authors also calculated that whale shark tourism, based on live-aboard dive boats, could be worth a minimum of USD 3 million in the Phuket area of Thailand alone. Whale shark ecotourism is actively being promoted in the Philippines as a non-consumptive sustainable alternative to the former fishery there, with similar regulations to those established in Australia (Alava *et al.* in press, Yaptinchay 2000, Yaptinchay et al. 1998, Yaptinchay and Alava 2000). The activity stimulated community development seen through economic benefits, local pride, increased opportunities and capacities in terms of livelihood, employment, projects, and businesses. Whale shark interaction tourism in Donsol attracted over 1,700 people for the 1998-1999 seasons alone, with an estimated average revenue from tourists registration fees and boat rentals of about PhP 403,138 (USD 8,063) per year (Groves 1999; Alava 2002). This does not even include revenues from the transportation, food and housing sectors expected to provide a significant contribution to the local and national economy. At least four other sites outside Donsol have initiated whale shark ecotourism activities in their municipalities (*e.g.*, Talisayan in Mindanao, Leyte in Visayas, Pilar and Bacon in southern Luzon) (Alava pers com). An important whale shark ecotourism industry has been established in the Gulf of California, Mexico, using spotter planes to direct boats to whale sharks. A small, newly established whale shark tourism industry in Belize netted at least USD 165,000 from boat tour fees in 2001, but is worth in the region of USD 1.5 million if whole trip costs are included in the estimate (Graham pers. comm.). Honduras is presumably also benefiting from whale shark tourism, and there are likely to be significant economic benefits also for other Caribbean countries, east African states (including South Africa, Mozambique, Tanzania and Kenya), and several Red Sea and Indian Ocean range states where dive tourism occurs".

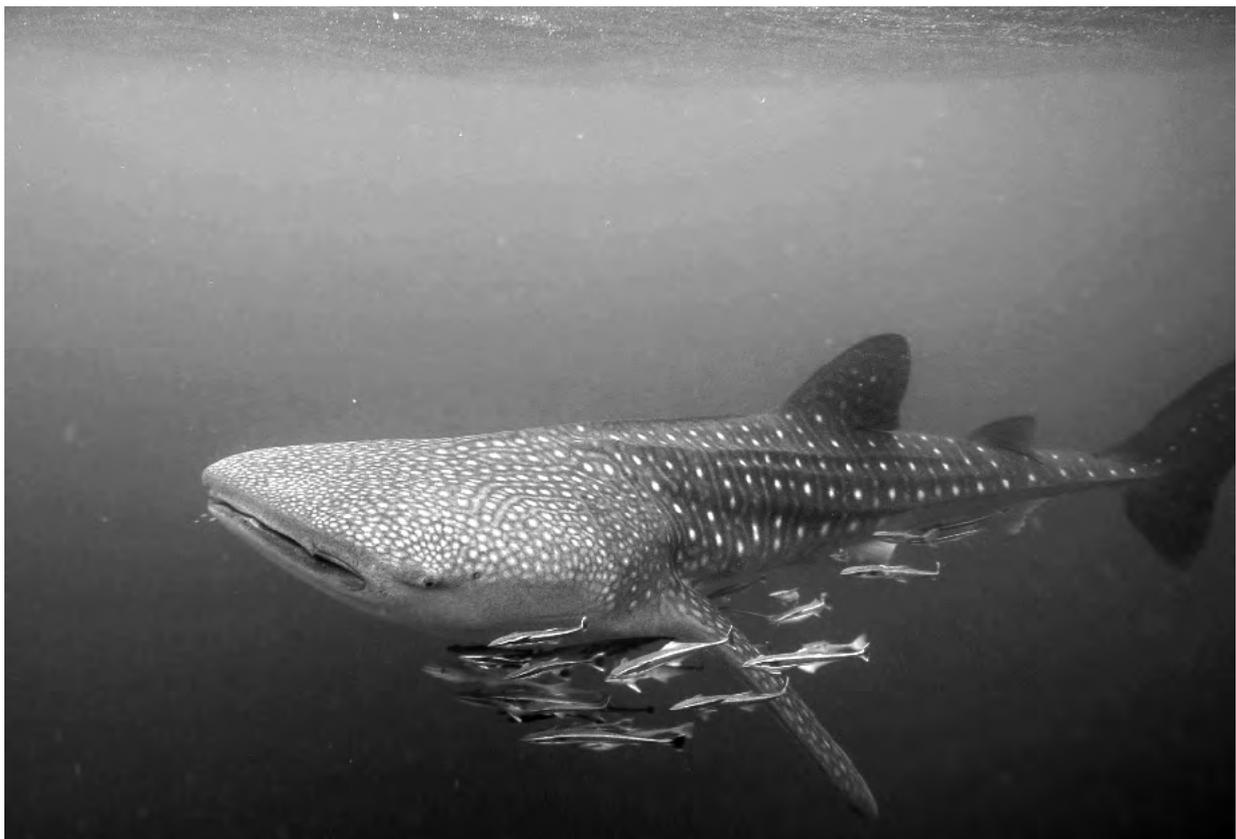
It is therefore recommended that a feasibility study is done in Indian waters as well to see if such an eco-tourism venture is possible in the future in the state of Gujarat or in neighboring areas. If this is feasible then it is further recommended that a pilot ecotourism project is carried out to work hand-in-hand with the whale shark campaign and the scientific projects to help conserve the largest, and arguably the most magnificent fish in the world.



APPENDIX I

Common names of the whale shark in different languages

- English: Whale shark
- Gela: bagea ni oka, bahiri
- French: chagrin , requin baleine
- Spanish: dámero, pez dama, tiburón ballena
- German: rauhhai, walhai
- Malay: vu paus
- Japanese: jinbeizame-ka, Ebisuzame, Ching sha k'o,
- Chinese: [tofu shark]
- Philippines:(several dialects): Butanding, balilan, iho-tiki, tawiki, tuki-tuki
- Russian: Kitovye akuly
- Polish: rekin wielorybi
- Portuguese: tubarão baleia
- Tamil: thimingal sura
- Swahili: vaame
- Afrikaans: walvishaai
- Khmer: vaak
- Gujarati: Vhali



A view of whale shark under water

APPENDIX II

Range states of the whale shark (*Rhincodon typus*)

Angola	Ghana	Peru
Antigua and Barbuda	Grenada	Philippines
Argentina	Guatemala	Portugal (Madeira, Azores, Macau)
Australia	Guinea	Qatar
Bahamas	Guinea Bissau	S. Tome and Principe
Bahrain	Guyana	Saudi Arabia
Bangladesh	Haiti	Senegal
Barbados	Honduras	Seychelles
Belau	India	Sierra Leone
Belize	Indonesia	Singapore
Benin	Iran	Solomon Islands
Brazil	Iraq	Somalia
Brunei Darussalam	Israel	South Africa
Cambodia	Ivory Coast	South Yemen
Cameroon	Jamaica	Spain (Canary Islands)
Cap Verd Republic	Japan	Sri Lanka
Chile	Jordan	St. Kitts-Nevis
China	Kenya	St. Lucia
Colombia	Kiribati	St. Vincent and the Grenadines
Comoros	Korea	Sudan
Congo	Kuwait	Surinam
Costa Rica	Liberia	Swaziland
Cote d'Ivoire	Madagascar	Tanzania
Cuba	Malaysia	Thailand
Democratic Republic of the Congo	Maldives	The Gambia
Djibouti	Marshall Islands	Togo
Dominica	Mauritania	Tokelau
Dominican Republic	Mauritius	Tonga
East Timor	Mexico	Trinidad and Tobago
Ecuador	Morocco	Tuvalu
Egypt	Mozambique	United Arab Emirates
El Salvador	Myanmar	United Kingdom (St. Helena, Ascension, Bermuda, Virgin Islands, Anguilla, Turks and Caicos, Monserrat and other Caribbean and Pacific possessions)
Equatorial Guinea	Namibia	United Republic of Tanzania
Eritrea	Nauru	Uruguay
Ethiopia	Netherlands (Netherlands Antilles, Curacaço and other Caribbean possessions)	USA
Federated States of Micronesia	New Zealand (including South Pacific possessions)	Vanuatu
Fiji	Nicaragua	Venezuela
France (New Caledonia, Reunion, French Polynesia and other South Pacific possessions; Clipperton Island; Guadaloupe, Martinique and other Caribbean possessions)	Nigeria	Vietnam
French Guiana	Northern Marianas Islands	Western Samoa
Gabon	Oman	Yemen
	Pakistan	
	Palau	
	Panama	
	Papua New Guinea	



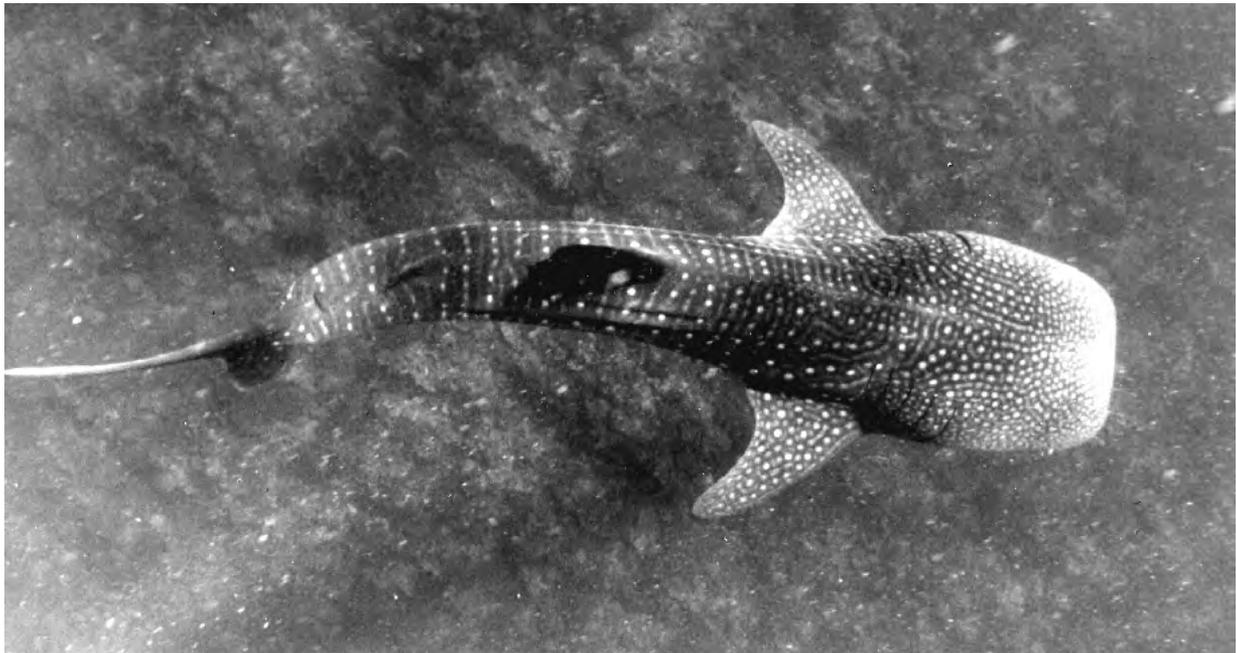
APPENDIX III

Identification of the whale shark

Body fusiform, moderately stout with prominent longitudinal ridges on its upper flanks. Head depressed, broad and flattened. Mouth traverse, nearly terminal; nostrils with a rudimentary barbell. Gill slits very large, modified internally into filtering screens. Teeth minute, about 300 rows in each jaw, each comprising a single, hooked cusp. Caudal peduncle with lateral keels and a distinct upper pre-caudal pit. First dorsal fin much larger than second dorsal fin; set posteriorly on body, its insertion over the pelvic-fin bases. Anal-fin origin under front of second dorsal-fin base; these fins about equal in size. Pectoral fins falcate; caudal fin semi-lunate (except in

small juveniles where upper lobe is considerably longer than lower lobe) with an indistinct terminal lobe. Total vertebrae [at least 153]*; pre-caudal [81]*.

The whale shark has a very distinctive spotted appearance, and is unlikely to be confused with any other species. The fins of the adults are extremely large, have concave trailing edges and are rounded at the tips. For this reason alone, they are very unlikely to be confused with those of any other species when detached from the body. The meat is also distinctive, as it has a unique soft spongy texture and the myomeres (muscle fibres) are of exceedingly large size.



Aerial view of whale shark

APPENDIX IV

Amendments to Appendices I and II of the Convention adopted by the Conference of the Parties at its 12th meeting, Santiago, Chile, 3 to 15 November 2002 (only changes to the Appendices are given here and not annotations, also no notes are included in this version as edited by the editors of the current volume)

1. In accordance with the provisions of Article XV of the Convention, the Conference of the Parties to the Convention, at its 12th meeting, held in Santiago, Chile, from 3 to 15 November 2002, considered the amendments to Appendices I and II proposed by the Parties.

2. The decisions taken by the Conference of the Parties are indicated in paragraph 3 below.

The annotations in that paragraph are to be interpreted as follows:

- a) The abbreviation 'spp.' is used to denote all species of a higher taxon.
- a) An asterisk (*) placed against the name of a species indicates that one or more geographically separate populations of that species are included in Appendix I and are excluded from Appendix II.
- c) 2 Designates all parts and derivatives, except:
 - i) seeds and pollen;
 - ii) seedling or tissue cultures obtained *in vitro*, in solid or liquid media, transported in sterile containers;
 - iii) cut flowers of artificially propagated plants; and
 - iv) chemical derivatives and finished pharmaceutical products.

3. The Conference of the Parties, at its 12th meeting, took the following decisions:

- a) The following taxa are **deleted from Appendix II** of the Convention:

F A U N A, CHORDATA, REPTILIA, SAURIA
Teiidae *Cnemidophorus hyperythrus*
F L O R A, PORTULACACEAE
Lewisia maguirei

- b) The following taxa are **transferred from Appendix I to Appendix II** of the Convention:

F A U N A
CHORDATA, MAMMALIA, ARTIODACTYLA
Camelidae *Vicugna vicugna*
AVES, RHEIFORMES
Rheidae *Rhea pennata pennata* (population of Chile)

F L O R A

CRASSULACEAE *Dudleya traskiae*
LILIACEAE *Aloe thorncroftii*

- c) The following taxa are **transferred from Appendix II to Appendix I** of the Convention:

F A U N A

CHORDATA, AVES, PSITTACIFORMES
Psittacidae *Amazona ochrocephala auropalliata*
Amazona ochrocephala belizensis
Amazona ochrocephala caribaea
Amazona ochrocephala oratrix
Amazona ochrocephala parvipes
Amazona ochrocephala tresmariae
Ara couloni
REPTILIA, TESTUDINATA
Testudinidae *Pyxis planicauda*

F L O R A

ARAUCARIACEAE *Araucaria araucana* (all populations not already in Appendix I)
CACTACEAE *Sclerocactus nyensis*
ORCHIDACEAE *Aerangis ellisii*

- d) The following taxa are **included in Appendix I** of the Convention:

F A U N A

CHORDATA, REPTILIA, SAURIA
Chamaeleonidae *Brookesia perarmata*

- e) The following taxa are **included in Appendix II** of the Convention:

F A U N A

CHORDATA, REPTILIA, TESTUDINATA
Platysternidae *Platysternon megacephalum*
Emydidae *Annamemys annamensis*
Heosemys depressa
Heosemys grandis
Heosemys leytensis
Heosemys spinosa
Hieremys annandalii
Kachuga spp. *
Leucocephalon yuwonoi
Mauremys mutica
Orlitia borneensis
Pyxidea mouhotii



Siebenrockiella crassicollis
Trionychidae *Chitra* spp.
Pelochelys spp.

SAURIA

Chamaeleonidae *Brookesia* spp. *

AMPHIBIA, ANURA

Microhylidae *Scaphiophryne gottlebei*

ELASMOBRANCHII, ORECTOLOBIFORMES

Rhincodontidae *Rhincodon typus*

LAMNIFORMES

Cetorhinidae *Cetorhinus maximus*

ACTINOPTERYGII, SYNGNATHIFORMES

Syngnathidae *Hippocampus* spp.

ARTHROPODA, INSECTA, LEPIDOPTERA

Papilionidae *Atrophaneura jophon*

Atrophaneura pandiyana

FLORA

MELIACEAE *Swietenia macrophylla* (neotropical
populations)

(including logs, sawn wood, veneer sheets and
plywood)

ZYGOPHYLLACEAE *Guaiacum* spp.

PALMAE *Beccariophoenix madagascariensis*

Lemurophoenix halleuxii

Marojejya darianii

Ravenea rivularis

Ravenea louvelii

Satranala decussilvae

Voanioala gerardii

APPENDIX V

Detailed list of people and organisations we wish to thank

Departments and organisations

The Gujarat forest department
The coast guard
Tata chemical Ltd
Gujarat Heavy Chemicals ltd
GEER foundation
Fisheries department Gujarat
DIU municipal council
The nagarpalika presidents Diu,
Porbandar, Okha, Dwarka,
Ahmedabad, Veraval
The fishermen association Veraval,
Mangrol, Diu, Porbandar
The boat owner association
Porbandar
The kharva samaj Gujarat
Ministry of Enviroment and
Forests

Individuals

Morari Bapu
Mike Pandey
Deepak Gohel
Pramod Kumar Sharma
Madhavi Joshi
Sohum Mukherjee
Madhu Menon
Dhaval Patel
Hemal Patel
Deepa Chandrashekar
Alkesh Machi
Prathmesh Patel
Dhaval Mehta
Vicky Bhatia
Jinesh Shah
Kanubhai Patel
Jayendra Shekdiwala
Parsana ACF
Sunil Adesara
Krishna Patel
Umesh Vyas Dy. Collector
Snehal Patel
Viral Prajapati
Daksesh Patel
Neerav Desai
Nisarg Patel
Jaimin Dave
Jayantibhai Shah
Raju Thakur
Nirmala Joshi
Rajan
Abhijit Ghatak
Bulbul Sharma
Devsibhai Ram
Dinesh Goswami

Parbat Mewada
Dr. Beena Kumari
Sukhar Anjane
Veljibhai Masani
Fahmeeda Hanfee

Tata Chemicals Ltd.

Prasad Menon
Vivek Talwar
Alka Talwar
Rishi Pathania
Kishore Vyas
Satish Trivedi
Chintan Gosalia
Bhavesh Raval
Mukesh Lakhani
Pankaj Varia
Nitin Johar
Swayam Mukerjee
Piyush Patel
Gurjyot Singh Bath

Schools that participated in the
drawing competition

Diu

Nirmala Mata High school
Govt. Higher secondary school
Govt. High school
Govt. High school (Girls)
Govt. Higher secondary school
Jawahar Navoday Vidyalaya
Govt. High school
Govt. High school (Boys)
Govt. High school (Girls)
Govt. High school

Porbandar

Navyug Vidyalaya
Bhavsini High School
M S Balubhai Kanya Vidyalaya
K B Joshi Kanya Vidyalaya
Birla Sagar Higher Secondary
School
Shree O N Modha Vidyalaya
St. Mary's High School
Sandipani Gurukul
Kendriya Vidyalaya
Swminarayan High School
Arya Kanya Vidyalaya
Navoday Vidyalaya
Municipal English Medium School
V J Madressa Boys High School
V J Madressa Girls High School
Suruchi English Medium School

Adarsh Nivasi Kumar Shala
D J N Ruparel High School
Sigma Madhayamik Shala
Cham Memorial English Medium
School

Mangrol

Shree Parmesh Vidyalaya
Kanya Vidya Mandir
Shree Trupti High School
Shree M M E W High School
Shree Vivekanand Vinay Mandir
Shree Sharda Gram Viviv Laksh
Vinay Mandir
Madhiamik Shala

Dwarka

Vivya Vihar High School
NDH High School
PVM Girls High School
Shree Hirabapa Madhyamik Shala

Okha

Kendriya Vidyalaya
Nagarpalika High School
VA English Medium School

Mithapur

Mithapur High School
Arambadu Primary School
Shree Saraswati Prathmik Shala
Shree Mithapur Nutan Bal
Shiksan Sang
Tata Rural

Veraval

Indian Rayon High School
MK High School
KK Mori High School
Ankur High School
MP Girls High School
Veraval High School
ID Chauhan High School
Shabana Girls High School
Maruti Madhiamik Shala

Bhavnagar

Nandkunverba Kshatriya Kanya
Vidyalaya
Sardar Patel High School
Daxinamurti Vinay Mandir
St. Mary's High School
Shree Vishudhanand Vidya Mandir



Surat

Umrigar High School
Delhi Public School
Kendriya Vidyalaya
Milvasar Prathmik Shala

Anand, Nadiad, Bhadran, Vallabh Vidyanagar

Anandalaya
Angel School
Bavis Gam Vidyalaya
Bramjyot School
CJ Patel High School
CVM Higher Secondary School
Dakshinamurti School
English Medium School
GJ Sharda Mandir
Gojo Sharda Mandir
Gyaneshwar Vidyalaya
Home Science High School
IB Patel English School
Kanya Vidyalaya
Khetiwadi School
Maki primary school
Ms Mistry Prathmik Shala
MV Patel High School
Pintos Primary School
SSVV High School
St Xaviers School
Swaminarayan Vidyapith
TB High School
The Excellent English Medium School

Kachchh district**Mandvi Kachchh**

Sheth Khimji Ramdas Kanya Vidyalaya

Gandhidham/Adipur

SV International School
MT. Carmel High School
Modern School
St. Xaviers High School
Excelcior Model School

Nakhatrana

Archana St. Xaviers High School

Kapadvanj

AC Sharda Mandir
MD Kishor Mandir
LM & SB Desai Sharda Mandir

Ahmedabad

Reubs High School
Om Shree Art Classes

Baroda

Tejas Vidyalaya

The Press persons**The Fishing Community**

Jivanbhai Jungi
Premjibhai Khudai
Laxmanbhai Solanki
Veljibhai Masani
Jitubhai Kuwada
Kamlesh Chamadia
Karsanbhai Chamadia
Tushar Chamadia

NGOs

Surat Nature Club
Vidyanagar Nature Club
ANALA
Sun Adventure
CEE
Prakruti Pariwar
Comet Media Foundation

Diu

Anita Dias
Sukhar Anjane Superintendent of the Fisheries Department
Narulla N Jiwani, President of the Diu Municipal Council
Vikas Anand, Collector of Diu
S.S Khandpal (Deputy Conservator of Forest),
B.B Vaishaya (Deputy Collector),
Mr.R.M Bamania (Mamlatadar),
Jethwa BK(District Education officer)
Laxmanbhai Solanki (President, Fisherman Association)
Khandpal GJ
Gaikwad KS
Dr. Ranbir Singh

Dixit SP

Gopalbhai Divecha

The Forest Department

Mangubhai Patel
Jashwant Sinh Bhabore
M L Sharma PCCF
Pradeep Khanna PCCF & CWLW
Bharat Pathak CF
Sharma MM CF
Mehta SK DCF
Kaila IM
Chadasania BT
Parbat Odedra
Babaria PS
Wagasia KR
Maida BA Forester
Chudasama MK
Bhalodia

The Fisheries Department

Dr. H.D Dave
Rathod JK Jal sevak
Solanki M G

The Adoption People

Aneesa Begum Mirza Mayor Ahmedabad
Dr. D S Kamalia President Diu Municipal council
Jeeviben Shiyal President Porbandar Nagarpalika
Suhbash Bhayani President Okha Gram Panchayat
Gulab Herma Presidet Dwarka Nagarpalika
Kiranben Bhimjiani President Veraval- Patan joint Nagarpalika

Street play artists

Manish Patadia
Imtiyaz Sheikh
Ratilal Mistry
Nilesh Mistry
Devang Raval
Kumbal Dave
Rajni Patel
Meena Prajapati
Deepika Patel

REFERENCES

- Alava, M.N.R. 2002. Conservation and management of whale shark in the Philippines. Paper presented during Shark Conference 2002: Sustainable Utilization and Conservation of Sharks. WildAid-National Taiwan Ocean University. May 13- 16, 2002.Taipei, Taiwan. (Abstract).
- Alava, M.N.R., and R. Kirit, R. 1994. Larger marine vertebrates (cetaceans, sea turtles and whale sharks) in Sogod Bay, southern Leyte. Resource and Ecological Assessment (REA) of Sogod Bay (Fisheries Component). 1993–1994.
- Alava, M.N.R., E.G.Himoya, R. Merto and M.L.L. Dolar. 1993. Resource utilisation of marine mammals in communities along Tanon Strait (central Visayas) and in Camiguin I. (Mindanao), Philippines. Terminal report submitted to the Haribon Foundation.
- Alava, M.N.R., A.A.Yapinchay, G. Acogido, M.L.L. Dolar, C.J. Wood and S. Leatherwood. 1997. Fishery and trade of whale shark (*Rhincodon typus*) in the Philippines. Paper presented during the 13th American Elasmobranch Society (AES) Annual Meeting, Seattle, WA, USA.
- Alava, M.N.R., A.A. Yapinchay, E.R.Z. Dolumbal, and R.B. Trono. In press. Fishery and trade of whale sharks and manta rays in the Bohol Sea, Philippines. In: Fowler S.L., Reid,T. and Dipper, F.A. (eds) in press. *Elasmobranch Biodiversity, Conservation and Management. Proc. Int. Seminar and Workshop in Sabah, Malaysia*. IUCN, Gland, Switzerland.
- Anderson R.C. and Z. Waheed. 1999. Management of shark fisheries in the Maldives. Pp. 367-401. In: R.Shotton (ed)*Case Studies of the Management of Elasmobranch Fisheries FAO Fisheries Technical Paper*, FAO, Rome, 378(1): 479pp.
- Anderson, R.C., and H. Ahmed. 1993. *Shark fisheries of the Maldives* Ministry of Fisheries and Agriculture, Maldives, and FAO, Rome. 73 pp.
- Anon. 1999. The Big Three go to CITES. *Shark Focus* No. 6, p. 11. Shark Trust, Plymouth, UK.
- Anon, 1998. Whale sharks: the biggest fish. *The Economist*, July 18th, 1998, p. 85.
- Anon, 2007. (2007). *Rhincodon typus* in Species Profile and Threats Database, Department of the Environment and Water Resources, Canberra. Available from: <http://www.environment.gov.au/sprat>.
- Barut, N., and J. Zartiga. In press. Shark fisheries in the Philippines. In: Fowler S.L., Reid, T. and Dipper, F.A. (eds) in press. *Elasmobranch Biodiversity, Conservation and Management. Proc. Int. Seminar and Workshop in Sabah, Malaysia*. IUCN, Gland, Switzerland.
- Bass, A.J. 1986. Rhincodontidae. p. 66. In M.M. Smith and P.C. Heemstra (eds.) *Smiths' sea fishes*. Springer-Verlag,Berlin.
- Bass, A.J., J.D. D'Aubrey and N. Kistnassmy. 1975. *Sharks of the east coast of southern Africa. IV. The families Odontaspidae, Scapanorhynchidae, Isuridae, Cetorhinidae, Alopiidae, Orectolobidae and Rhinodontidae*. Investigation Report No. 39, Oceanographic Research Institute, Durban.
- Beckley, L.E., G. Cliff, M.J. Smale and L.J.V. Compagno. 1997. Recent strandings and sightings of whale sharks in South Africa. *Environmental Biology of Fishes* 50: 343-348.
- Bigelow, H.B. and W.C. Schroeder. 1948. Fishes of the western North Atlantic: Sharks. *Mem. Sears Foundation* 1:(1):53 - 576.
- Bishop, J.M. and A.-R. Abdul-Ghaffar. 1993. Whale shark observations off Kuwait's coast in 1992. *J. Fish Biol.* 43:939-940.
- Boustany, A.M., S.F. Davis, P. Pyle, S.D. Anderson, B.J. Le Boeuf and B.A. Block. 2002. Expanded Niche for white sharks. *Nature*, 415.
- Bonfil, R. 1997. Status of shark resources in the Southern Gulf of Mexico and Caribbean: implications and management. *Fish. Res.* 29: 101 -117.
- Budker, P. 1971. The life of sharks. Columbia Univ. Press, New York.
- Camhi, M., S. Fowler, J. Musick, A. Brautigam and S.Fordham. 1998. *Sharks and their relatives*. Occasional paper of the IUCN Species Survival Commission No. 20. IUCN, Gland, Switzerland.
- Casey, J.G., S.M.H Connett, L.J.V. Compagno, J.D. Stevens, G. Oulton and S.F. Cook. 1992. The status of pelagic elasmobranchs: concerns and commentary. *Chondros* 3(4): 3–6.
- Castro, J.I. 2000. The biology of the nurse shark, *Ginglymostoma cirratum*, off the Florida east coast and the Bahama Islands. *Environmental Biology of Fishes* 58(1): 1-22.



- Chen, C.T., K.M. Liu, S.J. Joung and M.J. Phipps. 1996. *Shark Fisheries and Trade in Taiwan*. TRAFFIC East Asia-Taipei, Taipei, Taiwan. .
- Chen, C.T., K.W. Liu, and S.J. Joung. In press (a). Taiwan's shark fishery, an overview. In: Fowler S.L., Reid, T. and Dipper, F.A. (eds) in press. *Elasmobranch Biodiversity, Conservation and Management. Proc. Int. Seminar and Workshop in Sabah, Malaysia*. IUCN, Gland, Switzerland.
- Chen, C.T., K.W. Liu and S.J. Joung. In press (b). Preliminary report on Taiwan's whale shark fishery. In: Fowler S.L., Reid, T. and Dipper, F.A. (eds) in press. *Elasmobranch Biodiversity, Conservation and Management. Proc. Int. Seminar and Workshop in Sabah, Malaysia*. IUCN, Gland, Switzerland.
- Chen, V.Y. 2002. Whale shark utilization and management in Taiwan. Paper presented during the Shark Conference 2002: Sustainable Utilization and Conservation of Sharks. WildAid-National Taiwan Ocean University. May 13-16, 2002. Taipei, Taiwan.
- Clark, E. 1992. Whale sharks. *National Geographic* 182(6): 120-139. Clarke, E. and D.R. Nelson. Young whale sharks, *Rhincodon typus*, feeding on a copepod bloom near La Paz, Mexico. *Environmental Biology of Fishes*, 50, 63-73.
- Coleman, J. 1997. Whale shark interaction management with particular reference to Ningaloo Marine Park. Marine Conservation Branch. Dept. of Conservation and Land Management, Western Australia: pp. 63.
- Colman, J.G. 1997. A review of the biology and ecology of the whale shark. *Journal of Fish Biology* 51:1219-1234. Prop. 12.35 - p. 20 Compagno, L.J.V. 1978. Rhiniodontidae. In W. Fischer (ed.) *FAO species identification sheets for fishery purposes Western Central Atlantic (Fishing Area 31)*, Volume 5. FAO, Rome.
- Compagno, L.J.V. 1984. *FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date*. FAO Fish Synopsis 125, Vol. 4, Pt. 1, Hexanchiformes to Lamniformes. Rome, Italy.
- Compagno, L.J.V. 1998. Rhincodontidae. Whale sharks. p. 163. In K.E. Carpenter and V.H. Niem (eds.) *FAO identification guide for fishery purposes. The Living Marine Resources of the Western Central Pacific*. FAO, Rome.
- Compagno, L.J.V. In prep. *FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date*. Updated version of Compagno 1984.
- Eckert, S.A. and B.S. Stewart. 2001. Telemetry and satellite tracking of whale sharks, *Rhincodon typus*, in the Sea of Cortez, Mexico, and the north Pacific Ocean. *Environmental Biology of Fishes* 60: 299-308.
- Eckert, S.A., L.L. Dolar, G.L. Kooyman, W.F. Perrin, R.A. Rahman. In press. Movements of whale sharks (*Rhincodon typus*) in Southeast Asian waters as determined by satellite telemetry. *Journal of Zoology*.
- FAO Fisheries Department. 1994. *World review of highly migratory species and straddling stocks. FAO Fisheries Technical Paper*. No. 337. Rome, FAO. 70 pp.
- FAO Fisheries Department. 2000. An appraisal of the suitability of the CITES criteria for listing commercially exploited aquatic species. *FAO Fisheries Circular*. No. 954. Rome, FAO. 66pp.
- FAO Fisheries Department 2001. A background analysis and framework for evaluating the status of commercially exploited aquatic species in a CITES context. FI:SLC2/2001/2, Rome, FAO. 19pp.
- Formacion, S.P., J.M. Rongo and V. Sambilay. 1991. Extreme value theory applied to the statistical distribution of the largest lengths of fish. *Asian Fisheries Science*. 4: 123-135.
- Fowler, S.L. 2000. Whale Shark *Rhincodon typus*: Policy and research scoping document. Report to WWF, Wild Aid and the Shark Trust from the Nature Conservation Bureau. <http://www.naturebureau.co.uk/whaleshark>
- Froese, R. and D. Pauly. (Eds). 1998. Fish Base 98: *Concepts, design and data sources*. ICLARM, Manila. 293 pp. [distributed with two CD-ROMs]
- Fuertes, Y. 2001. "Butanding" threatened by dynamites. *Philippine Daily Inquirer*. May 30, 2001.
- Gallardo, F. 1999. Whale shark trade thrives in Cebu. *Philippine Daily Inquirer (Visayas)*. May 6, 1999.
- Gifford, A. 1994. Preliminary Whale Shark Tagging & Survey Program for the period December 1, 1993 to April 30, 1994: SRI-SA, unpublished.

- Gifford, A. 1995. Second Whale Shark Tagging & Survey Program for the period 3 December 1994 to 30 April 1995: SRI-SA, unpublished.
- Gifford, A. 1997. Report on the Third & Fourth Whale Shark Tagging and Survey Programs for the Period May 1, 1995 to April 30, 1997: SRI-SA, unpublished.
- Gifford, A. 1998. Report on the fifth whale shark tagging and survey program (May 1997-April 1998). Shark Research Institute (SA), Natal, Republic of South Africa, unpublished.
- Gifford, A. In preparation. Aerial Surveys of Whale Sharks (*Rhincodon typus*) off the East Coast of Southern Africa from 1993 to 1998. Shark Research Institute.
- Graham, R. and C. M. Roberts. In prep. Patterns of movement of whale sharks on the Mesoamerican Reef.
- Graham R. and C.M. Roberts. In prep. Whale shark population dynamics in Belize.
- Graham, R, W. Heyman and C. M. Roberts. In preparation. Site fidelity and patterns of movement of whale sharks on the Belize Barrier Reef.
- Grant, E.M. 1978. Guide to fishes. Department of Harbours and Marine, Brisbane. 768 pp.
- Groves, N. 1999. Whale shark interaction data 1998 & 1999. In: WWF-Philippines' Southern Luzon whale shark and other elasmobranch research and monitoring project: progress report (February-July 1999).
- Gudger, E.W. 1915. Natural history of the whale shark *Rhincodon typus* Smith. *Zoologica* 1(19): 349-389. New York, USA.
- Gunn, J.S., J.D. Stevens, T.L.O. Davis and B.M. Norman. 1999. Observations on the short-term movements and behaviour of whale sharks (*Rhincodon typus*) at Ningaloo Reef, Western Australia. *Mar. Biol.* 135: 553-559.
- Hanfee, F. 1997. *Trade in sharks and its products in India*. TRAFFIC India report, New Delhi: pp. 50.
- Hanfee, F. Gentle Giants of the Sea: India's Whale Shark Fishery, TRAFFIC India, 2000
- Hanfee, F. 2001. Trade in Whale shark and its products in the coastal state of Gujarat, India. Report to the Rufford Foundation from TRAFFIC India.
- Hueter, R.E. 1998. Philopatry, natal homing and localized stock depletion in sharks. *Shark News* 12: 1-2. IUCN Shark Specialist Group.
- Heyman, W., R. Graham, B. Kjerfve and R.E. Johannes. 2001. Whale sharks *Rhincodon typus* aggregate to feed on fish spawn in Belize. *Marine Ecology Progress Series* 215: 275-282.
- Hilton-Taylor, C. (Compiler) 2000. *2000 IUCN Red List of Threatened Species*. IUCN, Gland, Switzerland and Cambridge, UK. xviii+61 pp. (Book & CD) also on <http://www.redlist.org/>
- Iwasaki, Y. 1970. On the distribution and environment of the whale shark *Rhincodon typus* in skipjack fishing grounds in the western Pacific Ocean. *Journal of College of Marine Science and Technology* 4: 37-51. Tokai University.
- Johnson, R.H. 1978. *Sharks of tropical and temperate seas*. Papeete, Tahiti, Les Editions du Pacifique .
- Joung, S.J., C.T. Chen, C. Eugenie, S. Uchida and W.Y.P. Huang. 1996. The whale shark *Rhincodon typus* is a livebearer: 300 embryos found in one 'megamamma' supreme. *Environmental Biology of Fishes* 46: 219-223.
- Last, P.R. and J.D. Stevens. 1994. *Sharks and Rays of Australia*. CSIRO, Hobart, 513 pp.
- Luib, R. T. 1998. Taiwan nongovernmental group opposes ban on whale shark trade. *Business World*. April 17-18 1998 (Philippines).
- Newbound, D.R., C.N. Newbound and D. Groth. In prep. The potential for the commensal copepod, *Pandarus rhincodonicus* as a biological tag for whale shark migration using RFLP and DNA sequencing.
- Newman, H.E., J.G. Colman and A.J. Medcraft. In press. Whale shark tagging and ecotourism. In: Fowler S.L., Reid, T. and Dipper, F.A. (eds) in press. *Elasmobranch Biodiversity, Conservation and Management. Proc. Int. Seminar and Workshop in Sabah, Malaysia*. IUCN, Gland, Switzerland. Prop. 12.35 - p. 21
- Nocum, A. 1998. Slaughter continues: cargo of whale shark meat seized at airport. *Philippine Daily Inquirer*. Friday December 18, 1998.
- Nocum, A. 2000. Slaughter of whale sharks goes on: two tons of hot 'buntanding' meat seized at airport. *Inquirer Visayas*. Thursday January 13, 2000.



- Norman, B.M. 1999. Aspects of the biology and ecotourism industry of the whale shark *Rhincodon typus* in north-western Australia. MPhil. Thesis (Murdoch University, Western Australia)
- Norman, B.M. In prep. Photographic identification of the whale shark (*Rhincodon typus*) using scars and natural markings.
- Norman, B.M. In press. Whale shark *Rhincodon typus*. In: Fowler, S.L., M. Camhi, G. Burgess, S. Fordham and J. Musick. In press. *Sharks, rays and chimaeras: the status of the chondrichthyan fishes*. IUCN/SSG Shark Specialist Group. IUCN, Gland, Switzerland, and Cambridge, UK.
- Norman, B.M., D.R. Newbound and B. Knott. 2000. A new species of Pandaridae (Copepoda), from the whale shark *Rhincodon typus* (Smith). *Journal of Natural History* 34: 355-366.
- O'Sullivan, J.B. and T. Mitchell. 2000. A fatal attack on a whale shark *Rhincodon typus*, by killer whales *Orcinus orca* off Bahia de Los Angeles, Baja California. Abstract: American Elasmobranch Society Whale Shark Symposium, June 2000. La Paz, Mexico.
- Padron, H.G. and T.P. Hidalgo. 2001. Accomplishment report on whale shark monitoring along the shallow waters of Lingayen Gulf. Submitted to the Bureau of Fisheries and Aquatic Resources. May 28, 2001.
- Pank M., L. Natanson, N. Kohler, M. Stanhope and M. Shivji. In review. Rapid identification of pelagic shark tissues using genetic markers. In: *Sharks of the Open Ocean* (Book).
- Pank M., Stanhope, M., Natanson, L., Kohler, N. And Shivji, M. In review. Rapid and simultaneous identification of body parts from the morphologically similar sharks *Carcharhinus obscurus* and *Carcharhinus plumbeus* (Carcharhinidae) using multiplex PCR. *Marine Biotechnology*.
- Pardini A.T., C.S. Jones, L.R. Noble, B. Kreiser, H. Malcolm, B.D. Bruce, J.D. Stevens, G. Cliff, M.C. Scholl, M. Francis, C.A.J. Duffy, A.P. Martin. 2001. Sex-biased dispersal of great white sharks. *Nature* 412 (6843): 139-140.
- Parry-Jones, R. 1996. TRAFFIC report on shark fisheries and trade in the People's Republic of China. In: Phipps, M.J. 1996. TRAFFIC Report on shark fisheries and trade in the East Asian Region. The World Trade in Sharks: a compendium of TRAFFIC's Regional Studies. Volume 1. TRAFFIC Network.
- Pauly, D. 1978. A preliminary compilation of fish length growth parameters. *Berichte des Instituts für Meereskunde and der Universität Kiel*, No. 55, 200 pp.
- Pauly, D. 1979. Gill size and temperature as governing factors in fish growth: a generalization of von Bertalanffy's theory of growth. *Berichte des Instituts für Meereskunde and der Universität Kiel*, No. 63, xv +156 pp.
- Pauly, D. 1980. On the interrelationships between natural mortality, growth parameters, and mean environmental temperature in 175 fish stocks. *Journal du Conseil international pour l'Exploration de la Mer* 39(3):175-192.
- Pauly, D. 1984. Fish population dynamics in tropical waters. *ICLARM Stud. Rev.* 8, 325 pp.
- Pauly, D. and Morgan, G.R. (eds). 1987. *Length-based methods in fisheries research*. ICLARM Conference Proceedings. Manila, 468 p.
- Pauly, D. In press. Growth and mortality of basking shark *Cetorhinus maximus*, and their implications for whale shark *Rhincodon typus*. In: Fowler S.L., Reid, T. and Dipper, F.A. (eds) in press. *Elasmobranch Biodiversity, Conservation and Management. Proc. Int. Seminar and Workshop in Sabah, Malaysia*. IUCN, Gland, Switzerland.
- Pazzibugan, D. 1998. Goodbye whale sharks: government says it is helpless. *Philippine Daily Inquirer*. March 24, 1998 (Philippines).
- Prater, S.H. 1941. Whale Shark in Indian coastal water. *J. Bombay Natural History Society*, 42 (2): 255-278.
- Pravin, P. 2000. *Whale Shark in the Indian coast- Need for conservation*. *Curr. Sc.*, 79 (3): 310-315
- Princesa, D. 1999. Whale shark ecotourism development project: progress report (February -July 1999). In: WWF Philippines' Southern Luzon whale shark and other elasmobranch research and monitoring project (February-July 1999).
- Rao, G.S. 1986. Note on the occurrence of the whale shark off Veraval coast. *Marine Fisheries Information Service, T&E series*No.66. CMFRI, Cochin: pp30.
- Reyes, M. A. 1998. Whale shark fishing profitable in RP. *The Philippine Star*, Sunday March 29 1998.

- Rose, D. A. 1996. *An overview of world trade in sharks and other cartilaginous species* TRAFFIC International, Cambridge, UK.
- Rowat, D. 1996. Seychelles Whale Shark Tagging Project: Pilot Project Report: SRI-Seychelles. Unpublished. Shark Research Institute. 1999. Shark Research Institute wsletter.
- Shivji, M.S., C. Tagliaro, L. Natanson, N. Kohler, S. Rogers, and M. Stanhope. 1996. Utility of ribosomal DNA ITS2 for deriving shark species-diagnostic identification markers. In: *Proceedings International Congress on the Biology of Fishes*, Donaldson, E.M., and D.D. MacKinlay (eds.). San Francisco, CA, 87-93.
- Silas, E.G. 1986. The whale shark (*Rhincodon typus* Smith) in Indian coastal waters: is the species endangered or vulnerable? *Marine Fisheries Information Service, Technical and Extension Series* 66: 1-19. CMFRI, Cochin.
- Silvestre, G and D. Pauly. (Eds). 1997. *Status and Management of tropical coastal fisheries in Asia*. ICLARM Conference Proceedings 53, 208 pp.
- Springer, S. 1990. Rhinodontidae. p. 80. In J.C. Quero, J.C. Hureau, C. Karrer, A. Post and L. Saldanha (eds.) *Checklist of the fishes of the eastern tropical Atlantic* (CLOFETA). JNICT, Lisbon; SEI, Paris; and UNESCO, Paris. Vol. 1.
- Stead, D.G. 1963. Sharks and rays of Australian seas. Angus and Robertson, Sydney, 211 pp.
- Stevens, J.D., B.N. Norman, J.S. Gunn and T.L.O. Davis. 1998. Movement and behavioural patterns of whale sharks at Ningaloo Reef: the implications for tourism.
- Stretta, J-M., et al. 1996. Les especes associees aux peches thonieres tropicales. ORSTOM, Montpellier, Decembre 1996.
- Taylor, G. 1994. *Whale Sharks*. Angus & Robertson Publishers, Sydney, Australia.
- Trono, R. 1996. Philippine whale shark and manta ray fisheries. *Shark News* 7:13.
- UNEP-WCMC. 1 September, 2007. *UNEP-WCMC Species Database: CITES-Listed Species*
- Vivekanandan and Zala. 1994. Whale shark fishery off Veraval. *Indian Journal of Fisheries* 41(1):37-40.
- Walker, T. 1996. Localised stock depletion: does it occur for sharks? *Shark News* 6: 1-2. IUCN Shark Specialist Group.
- Wilson, S.G. In press. The seasonal aggregation of whale sharks at Ningaloo Reef, Western Australia: currents, Prop. 12.35 – p. 22 migrations and the El Niño/Southern Oscillation. *Env. Biol. Fishes*.
- Wintner S.P. In press. Preliminary study of vertebral growth rings in the whale shark, *Rhincodon typus*, from the east coast of South Africa. *Environmental Biology of Fishes* 00: 1-11.
- Wolfson, F.H. 1983. Records of seven juveniles of the whale shark, *Rhincodon typus*. *Journal of Fish Biology* 22: 647-655.
- Wolfson, F.H. 1986. Occurrences of the whale shark, *Rhincodon typus*, Smith. In: Uyeno, T., R. Arai, T. Taniuchi and K. Matsuura. (Eds.) *Indo-Pacific Fish Biology: Proceedings of the Second International Conference on Indo-Pacific Fishes*. Ichthyological Society of Japan, Tokyo, 208-226.
- Wolfson, F.H., and G. Notarbartolo di Sciara 1981. The whale shark, *Rhincodon typus* Smith, 1828: an annotated bibliography (Selachii Rhincodontidae). *Atti Social Italian National Museum and Civil Story National Milano* 122(3-4):171-203. (also on <http://scilib.ucsd.edu/sio/indexes/whalshrk.html>)
- WWF-Philippine Programme. 1996. *Report on the preliminary investigation on the whale shark (Rhincodon typus) fishery in Bohol Sea, Philippines*. Endangered Seas Campaign, World Wide Fund for Nature (WWF).
- Yapinchay, A.A. 1999. Marine wildlife conservation and community-based ecotourism. Proceedings of the Conference/Workshop on Ecotourism, Conservation and Community Development. November 7 -12, 1999. Metrocentre Hotel and Convention Centre. Tagbilaran City, Bohol.
- Yapinchay, A. A., M.N.R. Alava. 2000. Philippines community-based whale shark conservation and ecotourism development. Paper presented during the 16th American Elasmobranch Society Annual Meeting, La Paz, B.C.S., México.(Abstract).
- Yapinchay, A.A.S.P., R. Uy, and M.N.R. Alava. 1998. Catch and effort data of whale sharks in the Philippines. Paper presented during the 14th American Elasmobranch Society Annual Meeting, Guelph, Ontario, Canada. (Abstract).
- Zhardim, M.F., A.A. Nesterov and L.A. Pereira. 1998. A whale shark *Rhincodon typus* on the beach of Musul Island (Angola). *J. Ichthyol.* 38(3): 272-274.

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CONSERVATION ACTION SERIES

A decade ago, the world's largest fish, the whale shark, was slaughtered commercially in large numbers along the coast of Gujarat in western India. The hunting continued even after its listing in the Schedule I of the Indian Wildlife (Protection) Act, in 2001. However, three years of concerted campaigning, since 2004, by Wildlife Trust of India-International Fund for Animal Welfare (IFAW), Tata Chemicals Limited and the Gujarat Forest Department, has turned Gujarat's whale shark hunters into its protectors. The threatened fish is now celebrated as an icon and called – 'Vhali' - the dear one. Innovative concepts and collective action helped achieve this internationally acclaimed success: a life-size whale shark inflatable as flagship, the spiritual ambassador Morari Bapu's connection to local traditions and ethics, the participation of fishing communities, the groundswell of response from youth and schoolchildren, professional surveys to measure outcomes – all this, in addition to the collaborative forces of civic, corporate and government agencies secured this success. Today there is hope that whale sharks in India are in safe waters. This Conservation Action Report documents the campaign in its entirety and recommends taking the effort of whale shark conservation forward through science.

