Project Report

Strengthening the Network for Monitoring & Conservation of Sea Turtles in India

Submitted to the US Fish and Wildlife Service under the Marine Turtle Conservation Act Fund
2012 – 2013

TAG Turtle Action Group - INDIA

Madras Crocodile Bank Trust and Centre for Herpetology (MCBT)
Post bag No. 4, Vadanamelli Village
East Coast Road, Mamallapuram- 603 104
Tamil Nadu, India

Authors:

Amrita Tripathy
Coordinator, TAG (Turtle Action Group)
Dakshin Foundation
Bangalore-560 092
Email: coordinator.tag@gmail.com

Kartik Shanker, Ph.D
Associate Professor, Centre for Ecological Studies
Indian Institute of Science, Bangalore- 560 012, India
&
Trustee, Dakshin Foundation
Bangalore-560 092
Email: kshanker@ces.iisc.ernet.in

Nupur Kale
Project Assistant
Dakshin Foundation
Bangalore-560 092

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1. Executive Summary

Turtle Action Group (TAG) is a consortium of NGOs (Non-Governmental Organisations) dedicated to the cause of sea turtle conservation and coastal ecosystem protection from around India, including the mainland and islands of Andaman & Nicobar and Lakshadweep. This group came into existence in 2008. Since then, the group has been involved in uniting organisations and individuals that work along the Indian coast on marine turtle ecology and conservation, and facilitating dialogue between them. From 2008 – 2011, the network's activities have been supported through grants from the Marine Turtle Conservation Act Fund of the US Fish & Wildlife Service. For the first year (i.e. 2008-2009), the project funds were administered, and project activities executed through the Ashoka Trust for Research in Ecology and the Environment in Bangalore, India. Since then, project funds have been administered by the Madras Crocodile Bank Trust (MCBT), Chennai. Dakshin Foundation, an NGO based in Bangalore, is the key partner for the execution of the activities of this project and has assisted with the formulation of action plans and programme design for the implementation of the project.

2008 – 2009: Formation of a national level network: The first grant of $5000 helped facilitate the formation of a network of committed groups and organisations from across the country's coastline and in the initiation of activities that were undertaken by the network.

2009 – 2010: Strengthening of the network and expansion of scope: The second grant of $30,500 provided support to expand membership of the network to include local, community based organisations and strengthen the activities and broaden the scope of TAG.

2010-2011: Building and strengthening for the conservation of marine turtles of India: The third grant of $ 39,000 supported the initiation of new activities, and strengthening and expansion of existing programmes, ensuring inclusion of all community based groups from around the country working on sea turtle conservation.

2011-2012: Building and strengthening the ongoing conservation activities on marine turtles of India: The grant of $45,000 provided support to strengthen and expand existing activities of the network, execute various capacity building workshops, and to disburse small grants.

2012-13: Strengthening the network for monitoring and conservation of sea turtles in India: The grant amount awarded for this year was $55,000. Similar to previous years, this year's grant was utilised to strengthen and expand the ongoing activities of the network, to disburse small grants, to conduct workshops for capacity building and to produce outreach material. In addition, an emphasis was laid on monitoring key index sites for sea turtles on the Indian coast.

The primary aim of the project is to provide a platform for sharing information, knowledge and experience amongst various groups and individuals. It has strived to strengthen community based NGOs from various coastal states by providing small grants, training and technical assistance. The project also sought effective engagement of network members with other stakeholder groups, research institutions and government agencies in order to better execute conservation action.

The grant provided by the funding agency for the period 2012-2013 was utilised to conduct the 5th Annual TAG workshop at Jamnagar, Gujarat, to support travel and accommodation of all members, resource personnel and organisers. The fund was used for website (www.seaturtlesofindia.org) maintenance and to build the website so that it would serve as an online data repository. The online data repository is a work in progress. A portion of the fund was utilised for the publication of outreach and educational material, relevant reports and manuals and partial support towards the production of the Indian Ocean Turtle Newsletter. Part of the grant was also disbursed as small grants to member groups of the network to carry out specific activities related to outreach and monitoring. Sea turtle monitoring was carried out at index sites, including olive ridley turtles in Odisha, and leatherback turtles on Little Andaman Island.

TAG is nearly six years old now and is a well-established network of over 25 organisations from across the country. The network has established a set of goals in the form of action plans to address sea turtle conservation effectively through cooperative and collaborative action and efforts. Research and monitoring capacities of the member organisations in collecting uniform and reliable data is being developed through monitoring protocols, training programmes and workshop sessions. This has led to standardisation of data collected during the nesting season at key sites along the mainland coast as well as the Andaman & Nicobar Islands. The annual meeting has served as a platform for member organisations to showcase their activities, share their experiences, voice their concerns and network not just with individuals/organisations with similar interests, but also with a wide array of sea turtle conservationists from diverse socio-cultural backgrounds. The current project seeks to build and strengthen this network further, by continuing to support and coordinate sea turtle conservation activities along the Indian coast, and to undertake collaborative actions that can lead to better coastal and marine conservation. As part of our objectives, we also collaborated with Gujarat Ecology Commission this year to bring out outreach materials in the local language.

This report provides details of the functioning of the network and its member organisations, project goals and objectives, activities carried out during the current funding cycle and the outcomes and outputs from the project. It also outlines the lessons learned from the collective experience of member groups, lists possible recommendations and future plans to further strengthen the network, for more effective communication and conservation.

2. Introduction to TAG

Background

Four species of marine turtles, namely leatherback (*Dermochelys coriacea*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*) and olive ridley (*Lepidochelys olivacea*) turtles have significant nesting/feeding grounds along the Indian coastline. Of several nesting sites and populations in India and other parts of south Asia, the mass nesting beaches of olive ridley turtles in Odisha, feeding and nesting grounds for green and hawksbill turtles in the Andaman and Nicobar Islands and the Lakshadweep islands, and a significant nesting population of leatherback turtles in Little Andaman Island and the Nicobar Islands are of high conservation importance. Despite all four species being listed under Schedule I of the Indian Wild Life (Protection) Act, 1972, their populations in the coastal waters of India are threatened due to unplanned coastal development and incidental catch in fisheries. The olive ridley (*Lepidochelys olivacea*) population in Odisha is believed to be particularly at risk, where over 100,000 turtles have drowned as incidental catch in the last five years.

Sea turtles play an important role as flagship species of the diverse habitats they frequent. These habitats include coral reef ecosystems, sea grass meadows, open seas and sandy beaches. The threats that sea turtle populations face are representative of threats that impact other marine and coastal flora and fauna. In the Indian subcontinent, coastal and ocean resources play an important role in the economy of fishing and other coastal communities.

Sea turtles have also been part of legend and culture in the region for more than a thousand years. Some of the oldest conservation movements were started in the subcontinent. Current models of community based and participatory conservation in many states in India can serve as excellent models for conservation which can be replicated elsewhere. Sea turtles move freely across socio-political boundaries and many factors need to come together for effective conservation. One of the most critical needs is collaboration between agencies as well as cooperation between political states. There are a number of small to medium sized non-governmental organisations located along the coast that carry out community-based conservation and outreach activities. These organisations have established themselves quite well in the field and are cost effective, but may not have the necessary resources or technical knowledge required to carry out effective conservation. Many of these organisations often work in isolation and a lot of their activities and contributions towards sea turtle conservation do not get the recognition they deserve. Some also hold a wealth of knowledge and understanding of locally effective conservation interventions and there is a need to facilitate the exchange and flow of such experiential knowledge systems.

The Turtle Action Group

The Turtle Action Group (TAG) is a network of over twenty five non-governmental organisations from around India, working towards sea turtle conservation and coastal protection. These groups initially came together in January 2009 at a workshop that was held in Chennai, where it was agreed that there has long been a need for a national level network to enable various groups to work together and collaborate towards more effective sea turtle conservation. It is acknowledged worldwide that effective sea turtle conservation requires collaboration between agencies and various stakeholders to ensure long term survival of the species and sustainable use of the resources of the habitats they represent.

Such a collaborative effort had not been undertaken before at the national level. TAG thus seeks to benefit from the pooling of resources and knowledge and to bridge the gap between conservation measures that are effective at local, state and the national levels.

Functioning of TAG

Executing organisation

Funding for the network's activities is channelled through the executing organisation, i.e. the Madras Crocodile Bank Trust. Under the programme, a policy team oversees the network's activities and the utilisation of funds, guides the disbursement of funds to member organisations to carry out specific activities and provides inputs to the core committee of the network when they seek assistance to initiate projects or activities that can be carried out collectively by all members. The administrative staff under the programme at MCBT carries out specific administrative tasks. These include organising annual workshops with local partners, coordinating training programmes, disbursing small grants, administering the work of network members, as and when required, and handling the financial aspects of the MTCA project till the end of the project term.

Members of TAG

The TAG network comprises a core group of community based and local NGOs from across the country. Currently, its membership includes more than 20 organisations from the mainland and one each from the Andaman and Nicobar Islands and Lakshadweep. Appendix I lists the core member organisations.

Seven large organisations, including national level NGOs and research institutions, are also part of the network. These organisations do not receive funding support for their activities from TAG. Since 2010, TAG has been providing small grants to a few member groups after evaluating their proposals. Institutional representatives from MCBT and Dakshin Foundation contribute by way of resource personnel and providing inputs at annual workshops, and are represented on the advisory board of TAG.
The network also liaises with state level government organisations, primarily forest

departments of coastal states within whose jurisdiction the protection of sea turtles and their nesting habitats fall. TAG also seeks regular inputs from other stakeholder groups and organisations working with fishing communities and coastal development to better inform conservation interventions that the network adopts.

Core Committee

Elected representatives from amongst member groups of TAG constitute a Core Committee. The main responsibilities of the Core Committee are to coordinate the activities of the network that are determined at annual workshops, and over the course of the following year through sustained communication with all members of the network. The Core Committee also reports to the team at the executing organisation regarding the progress of activities that the network has set out, and identifies areas where a particular group, or the network as a whole, requires support in terms of inputs, resource material, or funds. Individual members of the network approach the core committee with suggestions or queries. The Core Committee is mandated to make decisions based on a consultative process and approaches the project team at the executing agency when required. The present constitution of the Core Committee ensures representation across the geographical scope of the network and its members belong to groups from the west coast, east coast and the islands.

Advisory Board

The network seeks inputs on its activities and agenda from an Advisory Board that includes various individuals from diverse backgrounds and fields of expertise, affiliated with research organisations such as the Wildlife Institute of India and the Madras Crocodile Bank Trust.

Network Volunteers

At each annual workshop, specific tasks are assigned to volunteers from within the network to take on the responsibility of coordination and ensuring completion. These volunteers communicate with and seek inputs from the Core Committee.

3. Project Objectives

The objectives formulated at the start of the project are:

1. To support the Turtle Action Group in India for improved and dynamic approaches to sea turtle monitoring and conservation and ensuring inclusion of all community based groups from around the country working on sea turtle conservation.

2. To build the capacity and interest of local communities and students in coastal conservation through their involvement in monitoring programmes and training workshops

3. To monitor the status of marine turtles at key sites along the Indian mainland coast and islands with the involvement of local communities.

4. To establish appropriate channels of communication between partner organisations for the effective sharing of information.

5. To provide local context and synthesis that can support individual institutions in planning their own programmes.

6. To facilitate interaction of groups with a primary focus on sea turtle conservation with coastal communities, law enforcement agencies, academic institutions and the private sector.

7. To create awareness and hence achieve conservation goals by generating outreach and educational materials in local languages for specific target groups.

4. Project Activities and Outcomes

To achieve the objectives, the following activities were carried out:

1. 5th Annual TAG Workshop

The 5th annual TAG workshop was conducted at Jamnagar, Gujarat (west coast) on 12th and 13th January 2013. The participation in this annual two day workshop, organised by the Madras Crocodile Bank Trust and Dakshin Foundation, along with our local TAG partner, Prakruti Nature Club, indicates the commitment of member organisations towards sustaining TAG and its activities. This was also the first time we collaborated with the government organisation and forest department to organise this workshop. In this workshop, emphasis was laid on building capacity and creating awareness amongst local community members for protecting sea turtles. It was also decided that forthcoming activities of the network should focus more on building capacities of individual member organisations through training workshops, enhancing the education and outreach component of TAG's activities and enabling TAG to inform scientific studies on marine turtle population trends and impacts of climate change through individual contributions from member organisations. TAG-ABLE, an online repository for data collected on sea turtles in India, was reintroduced to the participants and they were encouraged to participate following the launch of the application. The objectives of this database will be to create online repositories on turtle nesting patterns, hatcheries, mortality, habitat health and threats to sea turtles. A user-friendly analysis tool enables the members to carry out simple analysis of their data, create charts and graphs that they can effectively use in their reports and outputs. The database also provides the members control over their data and enables them to determine how to share their data with other TAG members and with the public. The summary of the workshop is attached as Appendix II.

2. Monitoring the status of marine turtles at key sites along the Indian mainland coast and islands

A. Monitoring olive ridleys in Rushikulya rookery, Odisha

Odisha, with a 480 km long coastline lined by sandy beaches, serves as a suitable nesting habitat for olive ridley turtles (*Lepidochelys olivaceae*). Over the last decade, activities such as mechanised fishing have resulted in large scale turtle mortality in offshore waters. Furthermore, sea level rise, climate change and various other development activities (onshore and offshore) are considered as factors that affect the decline of sea turtles. To overcome these threats, it is important to protect the breeding habitat and to monitor their population in order to understand their biology and behaviour in relation to climate change.

Initiated by the Indian Institute of Science and Madras Crocodile Bank Trust (MCBT) and funded by Marine Conservation Society, U.K., a long term monitoring programme was started at Rushikulya rookery, one of the major mass nesting sites in the world. The project is currently coordinated by the Indian Institute of Science, Dakshin Foundation and the Odisha Forest Department and funded by the USFWS Marine Turtle Conservation Act grant. For the past seven years, the project has aimed to work in collaboration with the local Forest Department staff and NGOs involved in marine turtle conservation. As part of capacity building, the forest department staff, NGO employees, local and other researchers are trained in census of nesting populations during 'arribadas', shore line monitoring techniques, hatchery management, offshore turtle monitoring and other activities related to sea turtle monitoring .

The project aims to study the effects of climate change on the Indian Ocean olive ridley nesting populations. Variables such as air, sand and nest temperature are recorded by placing data loggers in relocated nests, sand and in a room to determine the change in temperature and its relationship with hatchling sex ratios. A hatchery is maintained with nests relocated from the natural nesting beach. The nests are collected over a period of 3 months. Along with onshore monitoring, offshore surveys are conducted to monitor the abundance and distribution of mating turtles in offshore waters.

During mass nesting, nesting turtles are counted using a strip transect method. They are also checked for occasional tags. The '*arribada*' census has been conducted since 2008 to estimate the number of nesting females. The results show that the number of nesting females has increased over the years at Rushikulya; the February 2013 event is the largest recorded arribada at this site in the last decade of monitoring. The largest number for a single night (~ 59,000 turtles) was also recorded during this event. A detailed report about this is provided in Appendix III (a).

In response to the training, the involvement of the Forest Department in monitoring and protecting both offshore and onshore turtle habitat has increased. Along with local NGOs, they have also helped in spreading marine turtle conservation awareness through education programmes, setting up a sea turtle interpretation centre and small events such as beach cleaning with participation from local communities. By following up on the collaborative work with the government and local NGOs, there will be a considerable increase in the local knowledge which should provide a boost to conservation efforts in the area.

B. Monitoring leatherback turtles in the Andaman & Nicobar Islands

Andaman and Nicobar Environment Team (ANET), Indian Institute of Science (IISc), Dakshin Foundation and the Madras Crocodile Bank Trust (MCBT) joined forces to start a long term leatherback turtle monitoring project in the Andaman and Nicobar Islands. In addition to collecting long term data on leatherback populations, the project aims to develop a conservation network in the region with a long-term education and outreach programme for local communities on the islands.

There is very little information on the status of leatherback population in the Indian sub-continent except for studies by ANET, IISc and Dakshin Foundation on Great Nicobar Island and Little Andaman Island. After the decline in the Pacific Ocean leatherback population, it has become important to monitor Indian Ocean populations and the threats they face. Since 2008, leatherback turtles have been monitored on West Bay and South Bay beaches of Little Andaman Island.

The programme includes monitoring of nests, threats and tagging of leatherback turtles. In 2010, with support from the Indian Space Research Organisation (ISRO) and the Space Technology Cell of IISc, Bangalore, a satellite telemetry study was initiated at Little Andaman Island. A total of 10 turtles have been tagged with PTTs (Platform Transmitter Terminals) between 2010 and 2013 (tracks can be viewed at www.seaturtle.org). A detailed report is provided in Appendix III (b).

Along with the monitoring programme, various education and outreach activities have been conducted for the island communities, including screening of documentaries and distribution of posters. In addition, a multi-stakeholder collaborative platform has been established for marine conservation in the islands.

3. Strengthening and expansion of the conservation and monitoring network on sea turtles

The member organisations are trained to follow standardised monitoring and data collection techniques, in order to study climate change and its consequences on important variables, such as egg and hatchling mortality and sex ratio. These would lead to more precise data collection and enable monitoring changes at a large scale and help predict population trends. TAG members are given financial support to help them in data collection, monitoring and conservation activities. Every year small grants are disbursed for supporting their ongoing work during the turtle nesting season. These primarily include hatchery construction and maintenance during the season, egg relocation, and hatchling release. We also encourage TAG members to develop their own proposals to support their ongoing projects.

4. To develop outreach and education material

Outreach is an essential step towards achieving conservation goals. The network is highly invested in outreach and awareness programmes for local communities. Various outreach and educational materials have been prepared for local circulation in the coastal states. We plan to also generate these resources in local languages. These materials target specific groups such as school children, fishermen etc. We plan to use traditional media such as street plays, folk songs and dances for conservation education on marine turtles in future.

5.
Small Grants

Grants were given out to members of TAG to support their data collection, monitoring and conservation activities. The respective amounts disbursed are provided in the table below.

Name of the organisation*	Grant amount (INR)**
Action for Protection of Wild Animals (Odisha)	30,000
Sahyadri Nisarga Mitra (Maharashtra)	30,000
Students' Sea Turtle Conservation Network (Tamil Nadu)	30,000
Visakha Society for Protection and Care of Animals (Andhra Pradesh)	30,000

* *See Appendix II for profiles of member organisations including activities carried out.
**1 USD ~ 60 INR

6. Publications

i. Newsletter

Indian Ocean Turtle Newsletter

The 16th and 17th issues of the Indian Ocean Turtle Newsletter were published in July 2012 and January 2013 respectively, with partial funding support from the MTCA. The IOTN was initiated to provide a forum for exchange of information on sea turtle biology and conservation, management and education and awareness activities in the Indian subcontinent, Indian Ocean region, and south/southeast Asia. The newsletter also intends to cover related aspects such as coastal zone management, fisheries and marine biology.

We have nearly 1000 e-copy and 1400 hard-copy subscribers for this biannual newsletter from across different parts of the world. The website http://www.iotn.org/ has an archive section with all issues up to date.

The newsletter aims to reach and serve:

- Central government agencies (Ministry of Wildlife, Fisheries and Environment)
- Coastal government agencies (local Forest Departments, Fisheries Departments)
- Coastal enforcement agencies (Navy, Coast Guard)
- Non-government organisations involved in environment and conservation
- Non-government organisations involved in social work in coastal areas
- Academic institutions
- Conservation organisations
- Community-based conservation organisations
- Individual researchers, field biologists and ecologists

ii. Manual

Sea Turtles of India: A Comprehensive Field Guide to Research, Monitoring and Conservation, published during 2011-12, is a compilation of the series of manuals produced by the Centre for Herpetology/Madras Crocodile Bank Trust in 2003 under the GOI-UNDP Sea Tur-

tle Project. The new manual features basic information on the biology, research and conservation of sea turtles and related issues, hence providing necessary information to coastal wildlife management authorities, coastal community groups, environmental organisations and other agencies. It also promotes the use of standardised data collection for research programmes in order to appropriately inform conservation strategies and management practices. Additional features of the manual include a glossary for technical terms, a directory of organisations carrying out sea turtle conservation activities in India and a bibliography for further reading. We have distributed nearly 400 copies of this manual including to individual researchers, research organisations (both govt. and NGOs), forest department officials and TAG members in 2013. We plan to translate this manual into local languages in coming years. In 2012-13, we collaborated with Gujarat Ecology Commission to develop a Gujarati version of this manual. This work is still in progress.

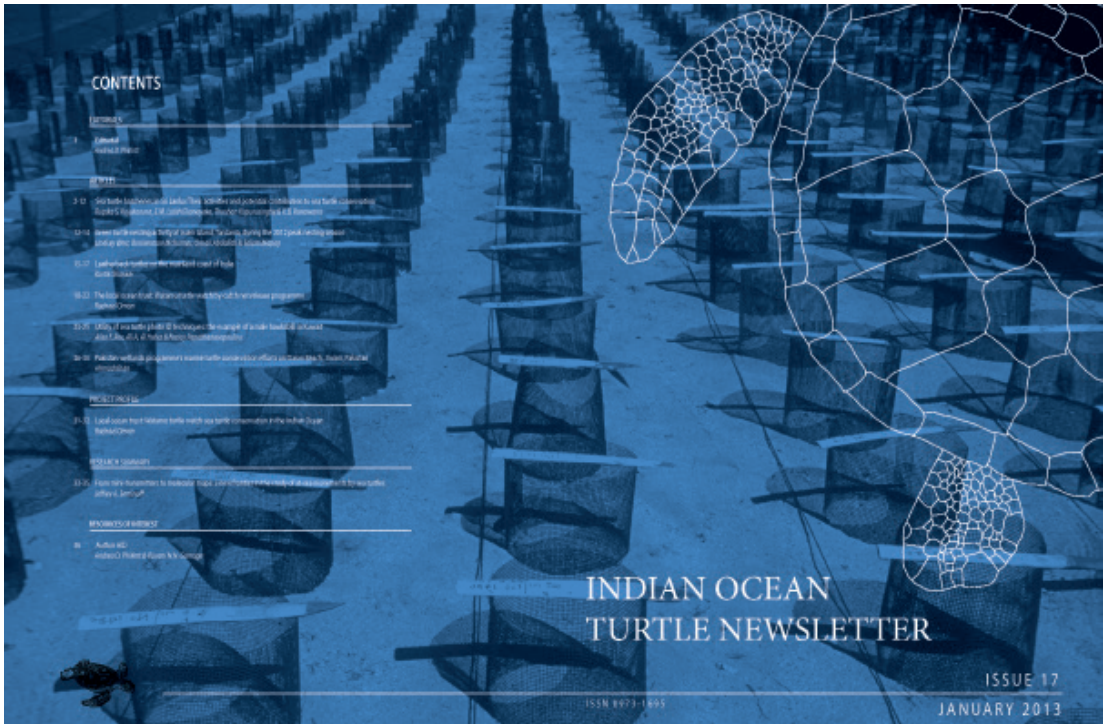
iii. Website

The website www.seaturtlesofindia.org is a platform for information on the biology and ecology of sea turtles and their habitats in Indian sub-continent. Numerous community based groups, conservation non-governmental organisations (NGOs) - local, national and international, academic institutions and government departments - have contributed to studies and surveys over the last two and half decades. The website harbors this information and makes it possible for students, researchers and others to get easy access to material. This site also includes a repository of papers, reports, notes, historical records and other grey literature. The bibliography section currently includes over 800 references, with PDFs for a large number of publications, many of which are not available anywhere else.

The website also carries content dedicated to the Turtle Action Group (www.seaturtlesofindia.org/tag). Information on the networks' activities, workshop reports, member organisations and their detailed profiles is currently made available here.

In 2012, we started a blog 'Talking Turtles'. This is an informal talking board for people working on marine turtles - from the natural to social sciences - to share their experiences. From first encounters with turtles to unusual observations to expert insights, the blog welcomes stories about marine turtles in the Indian Ocean.

TAG-ABLE, an online repository for data collected on sea turtles in India was launched as a prototype in November, 2011 during 4th Annual TAG workshop. However, there have been many changes and modifications to make it user-friendly and accessible to others. The objectives of the database will be to create online repositories on turtle nesting patterns, hatcheries, mortality, habitat health and threats to sea turtles. A user-friendly analysis tool enables the members to carry out simple analysis of their data, create charts and graphs that they can effectively use in their reports and outputs. During the 5th workshop, a session was dedicated to discuss the online repository.



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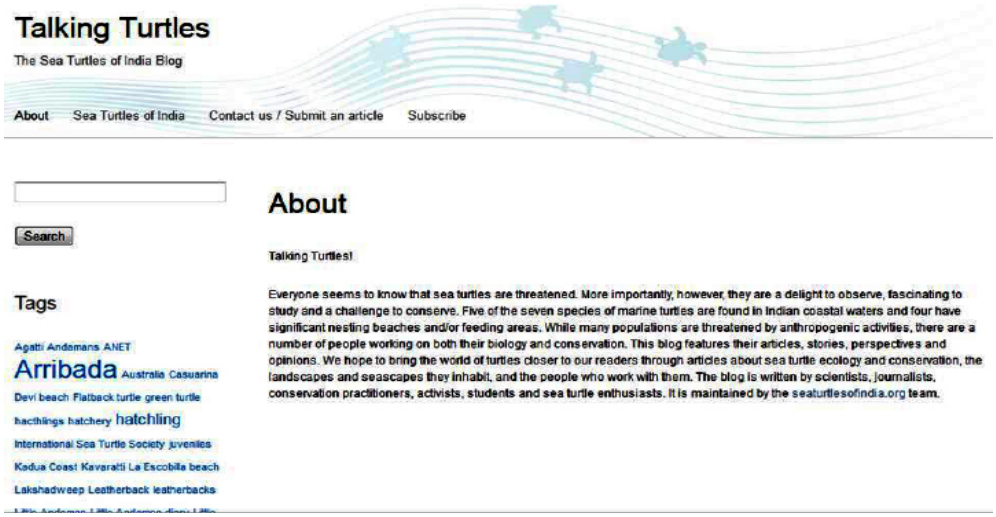
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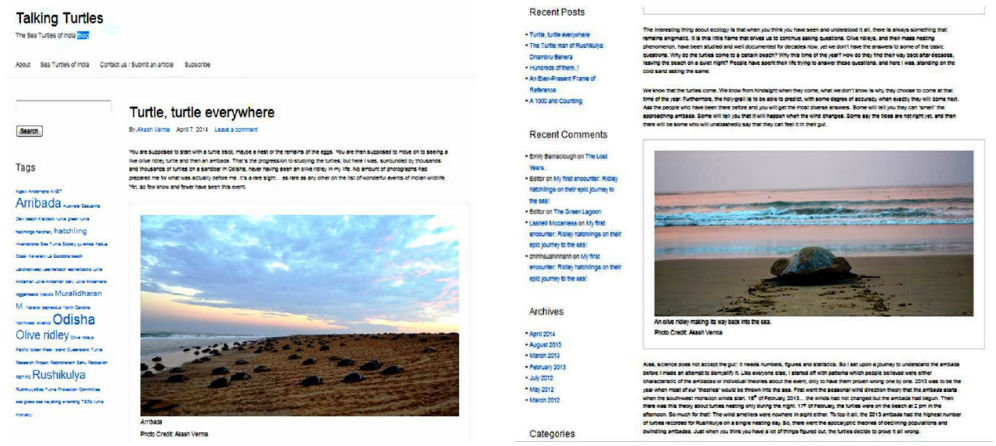
About
Talking Turtles!
Everyone seems to know that sea turtles are threatened. More importantly, however, they are a delight to observe, fascinating to study and a challenge to conserve. Five of the seven species of marine turtles are found in Indian coastal waters and four have significant nesting beaches and/or feeding areas. While many populations are threatened by anthropogenic activities, there are a number of people working on both their biology and conservation. This blog features their articles, stories, perspectives and opinions. We hope to bring the world of turtles closer to our readers through articles about sea turtle ecology and conservation, the landscapes and seascapes they inhabit, and the people who work with them. The blog is written by scientists, journalists, conservation practitioners, activists, students and sea turtle enthusiasts. It is maintained by the seaturtlesofindia.org team.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Welcome to Sea Turtles of India! Here you will find information about sea turtles in the India subcontinent. Read about the species found here and their distribution. We also have a 101 section o sea turtle biology, life history and identification. Find out about various sea turtle conservatio organisations and individuals in India. Feel free to look through the resource section for manuals posters, popular articles and a detailed bibliography.
If you would like more information or have any suggestions, do contact us, we will be happy to hear fror you.

7. Future Plans for TAG (2013-14)

Having acknowledged the necessity for continuing the activities of the network, members of TAG have committed to sustaining interactions through annual meetings and workshops, in addition to individually carrying out activities towards meeting the larger objectives laid out by TAG. The specific activities laid out for the year 2013 – 2014 include:

a. To collectively address issues of common concern

Throughout the coastline, a variety of threats and issues form the basis of conservation action undertaken by different groups. However, there are certain issues that are common across most of the coastline. TAG has identified specific issues that the network can, as a collective of individual organisations, examine and address. These include:

i. Standardisation of data collection and monitoring techniques: In order to collate data and information collected individually by member organisations, TAG will develop standardised procedures for data collection and monitoring to enable this information to be shared. This would also allow for site-specific data to feed into distribution and abundance assessments at larger geographical scales. The collated data will be available on the seaturtlesofindia.org website which will also be used as a portal to upload/download data and will generate maps of distribution and temperature related data.

ii. Coastal development: Unplanned and unsustainable coastal development along the country's coastline has threatened sea turtle nesting habitats. Although the impacts of such developmental activities (such as construction of sea walls, urbanisation, development of ports, etc.) vary from one location to the next, all members of TAG are individually contesting decisions made at the local scale. Common themes of the development agenda across sites, and across states can be collectively addressed and brought to the notice of higher authorities, including the central government. Demands can be made for more transparent decision making procedures, greater participation of local communities and stakeholders, and the development of sustainable and responsible coastal zone management plans.

b. To develop outreach and education material

One of the focus areas of the network is to develop appropriate outreach and educational material designed for specific target groups. During the year 2011-2012, it was proposed that manuals and other educational materials will be prepared for identified key themes. The posters on the life cycle of sea turtles (a set of six posters) and sea turtles of India (a set of ten posters) have been translated into in collaboration with the Gujarat Ecology Commission's ICZM (Inter-coastal Zone Management) Project and Marine National Park, Jamnagar. These were distributed during the 5th Annual Workshop. We plan to replicate this in other regional languages in 2013-14. We are also working on a flier that focuses on best practices for hatchery management. Similarly, we are also working with GEC to develop a Gujarati version of the sea turtle manual.

8. Recommendations

After careful assessment of the outcomes of the network and expectations of member organisations, the following recommendations were made to strengthen TAG and enable effective conservation efforts:

- Interactions of TAG members with other similar regional and global organisations and networks will help communicate and address conservation issues faced in other parts of the world.

- Collation of information on marine turtle status, biology, habitat and conservation techniques. By encouraging discussion, the member organisations can come up with effective solutions to frequently faced problems.

- Communication with the central government through Ministry of Environment and Forests regarding national issues to help the government in effective policy making that could serve as a solution to local conservation problems.

- Joint awareness programmes by co-coordinating with other TAG members, especially within the state by sharing resources, ideas and staff.

- Advertisement of the network activities through media campaigns to attract other similar organisations and to highlight individual organisations' efforts to give them recognition.

- Collaboration with local stakeholders such as non-members of TAG, individuals working on sea turtles and their conservation and related groups to develop holistic approaches to species-specific conservation.

9. Acknowledgments

We are grateful to the US Fish & Wildlife Service for providing funding support under the Marine Turtle Conservation Act Fund.

We are also thankful to the staff at Dakshin Foundation and Madras Crocodile Bank Trust for carrying out the administrative tasks under the project and lending their constant support as and when required. We thank our friends in Gujarat - Gujarat Ecology Commission, Gandhinagar, Marine National Park, Jamnagar of Gujarat FD and Prakruti Nature Club, Kodinar for their partnership in making 5th annual workshop a success.

We are also thankful to the Ministry of Environment and Forests for endorsing the network. We are hopeful that representatives of the Ministry and coastal state government agencies will be actively involved in network activities in the future.

Finally, we would like to thank all our member organisations whose enthusiasm in sustaining the network and efforts in carrying out network activities has validated our efforts in initiating and facilitating the Turtle Action Group.

10. Appendices

APPENDIX I (a)

Member Organisations of TAG

Name of Organisation	State
Andaman & Nicobar Islands	Andaman and Nicobar Environment Team (ANET)
Andhra Pradesh	Visakha Society for the Protection and Care of Animals (VSPCA)
Gujarat	Prakruti Nature Club (PNC)
Karnataka	Field Services and Intercultural Learning (FSL)
Karnataka	Canara Green Academy
Kerala	Green Habitat
Kerala	Naithal
Lakshadweep	Lakshadweep Marine Research and Conservation Centre (LMRCC)
Maharastra	Sahayadri Nisarga Mitra
Odisha	Action for Protection of Wild Animals (APOWA)
Odisha	Alacrity
Odisha	Green Life Rural Association (GLRA)
Odisha	Orissa Marine Resources Conservation Consortium (OMRCC)
Odisha	Rushikulya Sea Turtle Protection Committee (RSTPC)
Odisha	Sea Turtle Action Program (STAP)
Odisha	Podampeta Ecotourism and Olive Ridley Protection Club (PEORPC)
Tamil Nadu	Students' Sea Turtle Conservation Network (SSTCN)
Tamil Nadu	TREE Foundation

National level organisations and research institutions that support TAG

- Centre for Ecological Sciences, Indian Institute of Science
- Dakshin Foundation

- Greenpeace – India
- International Collective in Support of Fishworkers
- Madras Crocodile Bank Trust
- Wildlife Institute of India
- Wildlife Protection Society of India

APPENDIX I (b)

Core Committee members of TAG

East coast:

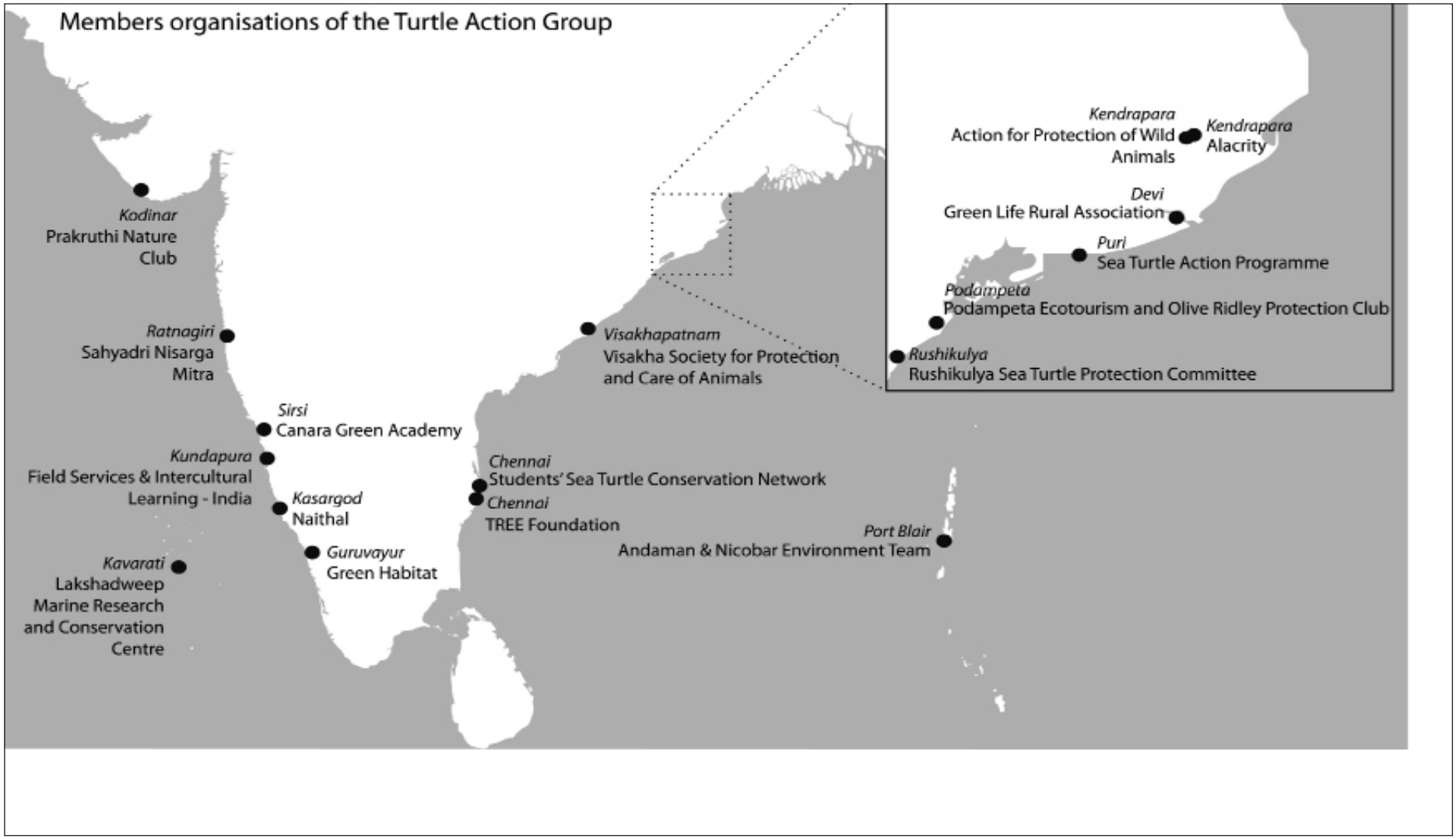
1. Supraja Dharini, TREE Foundation, Tamil Nadu
2. Mangaraj Panda, Orissa Marine Resources Conservation Consortium, Odisha
3. Pradeep Kumar Nath, Visakha Society for the Protection and Care of Animals, Andhra Pradesh

West coast:

1. Wesley Sunderraj, (Independent researcher), Gujarat
2. Sudheer Kumar, Naithal, Kerala
3. Ravi Pandit, Canara Green Academy, Karnataka

Islands:

1. Naveen Namboothri, Dakshin Foundation



Map showing locations of core member organisations of TAG

APPENDIX I (c)
TAG Members Profile

TAG members:

1. Andaman & Nicobar Environment Team (ANET): Andaman and Nicobar islands

Unique in being the only organization based on an island. Andaman and Nicobar islands are an important and prime nesting sites for sea turtles of all four species that occur in India, namely green, hawksbill, leatherback and olive ridley.

2. Visakha Society for Protection and Care of Animal (VSPCA): Andhra Pradesh

Through its innovative awareness programs, VSPCA intends to educate the masses and build a strong and lasting bond between animals and human societies. They have field related expertise, necessary for effective conservation of sea turtles.

3. Prakruti Nature Club (PNC): Gujarat

PNC focus their activities along the Saurashtra and Gujarat coast. Their main focus is on protection of sea turtles, their nests and habitats, whale sharks and other sea turtle creatures. Having an excellent relationship with the forest department, they hope to contribute through the collection and distribution of information and data related to turtles.

4. Canara Green Academy (CGA): Karnataka

CGA's main mission has been conservation of turtles, mangroves and medicinal plants. Along with the Karnataka Forest Department, they have established 40 sea turtle breeding centres all over the Karnataka coastline. Potential sea turtle nesting beaches have been identified and both ex-situ and in-situ conservation are carried out, depending on the security of the nests identified.

5. Field Services and Inter-Cultural Learning (FSL India): Karnataka

They have been successful in creating awareness among fishermen community along 60km of North Udupi district of Karnataka state. They are unique in placing international volunteers in local community projects to support sustainable development and to bring intercultural dimensions to community projects.

6. Lakshadweep Marine Research and Conservation Centre (LMRCC): Lakshadweep

The organization established by a group of islanders, is the first that has a primary focus on community based marine conservation. Lakshadweep has a significant population of endangered green and hawksbill turtles. LMRCC work with the local community, school students, fishermen and the Forest Department to reduce the threats to these ocean ambassadors through education and awareness programs.

7. Sahyadri Nisarga Mitra (SNM): Maharashtra

They work towards conservation, awareness and research of region's biodiversity, focusing

on conservation of marine turtles, white-rumped vultures and Indian swiftlet.

8. Action for Protection of Wild Animals (APOWA): Odisha

APOWA believes in finding solutions to animal welfare and conservation challenges that provide lasting benefits for animal and community. They have ten years of experience in sea turtle conservation in Odisha through research, conservation and action. Their work is carried out in the buffer zone of Gahirmatha sea turtle rookery site, world's largest olive ridley mass nesting site.

9. Alacrity: Odisha

Amongst several, their sea turtle activity involves imparting awareness to fishing community residing within the periphery of the Gahirmatha area. They have also developed 'eco-development' groups, with 60 so far, within the region for conservation of natural resources including mangrove forests.

10. Podampeta Ecotourism and Olive Ridley Protection Club: Odisha

They address various threats to the nesting turtles by carrying out awareness programs that inform people in nearby villages regarding the importance of turtles to the coastal ecosystem and the illegality of such activities.

11. Rushikulya Sea Turtle Protection Committee (RSTPC): Odisha

With the primary aim to help conserve olive ridley turtles and safeguard their nesting beaches along the Rushikulya coast, they began to monitor the nesting population and assist in the release of hatchlings during mass hatching. They also collect data on tagged turtles, recapture studies, distribution of mating congregation, satellite transmitter ranging studies and monitoring hatchling mortality rates.

12. Students' Sea Turtle Conservation Network (SSTCN): Chennai, Tamil Nadu

Sea turtle conservation began in 1971, when a few dedicated wildlife enthusiasts began walking the beaches of Chennai to document the status of and threats to sea turtles. The group has been mainly organized and operated by students from colleges and even schools and a few young working adults. The motive has always been conservation and awareness creation.

13. TREE Foundation: Chennai, Tamil Nadu

It involves the fishing community youth (Sea Turtle protection Force- STPF) in a sea turtle protection and conservation programs in South India. Education and creating awareness at the community level is an integral part of our conservation program.

14. Green Mercy: Andhra Pradesh

An NGO based in Srikakulam. They carried out intensive surveys in 2001, giving better picture of marine turtles status on the coast of Andhra Pradesh. They have contributed to the conservation of marine and coastal life by holding consultative meetings with fisherfolk and local communities.

15. Sea Turtle Action Program (STAP):Odisha

This is NGO based at Devi, another mass nesting site in Odisha. They work on sea turtle protection and community empowerment.

16. Green Life Rural Association (GLRA): Odisha

GLRA was formed in 1993, by a group of thirteen committed village youth who were then working on the Wildlife Institute of India's sea turtle project. Members of GLRA also worked in Operation Kachhapa when it was launched, at the time as a joint operation with the Forest Department and Wildlife Protection Society of India. GLRA's activities are focused in the Devi river mouth region.

17. OMRCC: Odisha

It brought together divergent groups comprising of conservationists, biologists, fisherfolks to meet and interact which would be beneficial to both conservation as well as livelihoods. We continue to work closely with this organisation in monitoring the ongoing olive ridley project in Odisha.

18. Green Habitat: Kerala

Green Habitat came into form in 2002 as an independent organisation. The organisation pilots activities for wildlife and environmental conservation in Chavakkad taluk in Kerala. Our areas of focus include the mangroves of Chettuwai, nesting turtles of Chavakkad beach, birds of Enamakkal Kole Ilands and house sparrows among others. A major part of our efforts at conservation is directed towards environmental awareness and education among local communities in the area.

19. Naithal: Kerala

It is an NGO based in Kasargod district of Kerala that works on coastal information, conservation and action. It was established in 2001 by a group of local enthusiasts. They have worked on sand mining issues and work extensively on sea turtle conservation.

More information about the TAG members can be found in the 13th and 14th issues of IOTN. The links to the issues are:
IOTN- 13: http://www.iotn.org/iotn-13.php
and
IOTN- 14: http://www.iotn.org/iotn-14.php

APPENDIX II

Workshop Summary Report: 5th Turtle Action Group (TAG) workshop

Dates: 12th & 13th January 2013
Hosts: Prakruti Nature Club, Madras Crocodile Bank Trust & Dakshin Foundation
Co-hosts: Marine National Park, Jamnagar & Gujarat Forest Department
Venue: Hotel Fortune Palace, Jamnagar, Gujarat

*This document is a summary of the discussions and decisions of the **5th Turtle Action Group (TAG) Workshop**. The workshop was organized by the Prakruti Nature Club in coordination with the organising team at Madras Crocodile Bank Trust, Chennai and Dakshin Foundation, Bangalore. Financial support was partly provided under the ICZM Project of Gujarat Ecology Commission, channeled through Marine National Park, Jamnagar. Corporate sector firms like Reliance Petroleum and Refinery, ESSAR and Tata Chemicals hosted lunches and dinners for the two day event.*

Objectives of the workshop

The main objectives of the workshop were:

- Capacity building through various workshop sessions that focused on awareness and outreach programs.
- To discuss and define a concrete structure for functioning of the network, in recognition of the need for more systematic implementation of activities and programmes, and effective follow-up.
- Interaction among individual members of the network to discuss and share their ongoing work in the field of marine turtle conservation in the Indian context.
- A field trip to Marine National Park, Jamnagar.

Workshop agenda

Day 1: Saturday, 12th January, 2013

Time	Session
8:00AM	*Breakfast*
9:00 – 9:30AM	*Participant Registration*
9:30 – 10:30AM	Opening Session - Amrita Tripathy Inaugural talks by Shri R.D. Kamboj- CCF, MNP, Lomesh Brahmabhat - GEC, Mr. Dinesh Goswami- PNC An insight into turtle conservation : Work by Marine National Park- Dr. Chandresh Dave

10:30 – 10:45AM	*Tea*
10:45-12:00PM	Discussion among TAG members about their on-going works
12:00-1:30PM	*Panel Discussion- Research and Collaborations* *(Interactive session between forest officials, NGOs and researchers)*
1:30 – 2:30PM	*Lunch*
2:30 – 4:30PM	Workshop: Video documentation and film making for conservation- Part 2 By Rita Banerji and Maya Khosla
4:30-4:45PM	*Tea*
4:45-6:00PM	Travel Reimbursements
8:00PM onwards	*Dinner*

Day 2: Sunday, 13th January, 2013

Time	**Session**
8:00 – 9:00AM	*Breakfast*
9:00 – 10:15AM	Workshop: Video documentation and film making for conservation- Part 2 By Rita Banerji and Maya Khosla (*continued*)
10:15-10:30AM	Demonstration on Stranding Response By Gowri Mallapur and Dipani Sutaria
10:30-10:45 AM	*Tea*
10:45-11:30AM	General Talks- Sea turtle surveys in Gujarat - Dr. Wesley Sunderraj Satish Bhaskar's surveys – Dr. Kartik Shanker
11:30-12:00PM	TAG online database (training on data entry and database management) By Dr. Kartik Shanker
12:00-1:45PM	Workshop: Environmental Education - How to use/ create outreach materials By Dr. Pranav Trivedi
1:45 – 3:00PM	*Lunch*
3:00 – 6:30PM	Field Trip (Visit to Marine National Park)

Language: All sessions were translated into Hindi, whenever necessary.

Workshop Minutes

Day 1: Saturday, 12th January, 2013

The programme started with an inauguration and introduction to TAG and its activities over the past year by Amrita Tripathy. The morning session included inaugural notes from Dinesh Goswami of Prakruti Nature Club, Shri R.D. Kamboj, CCF, Marine National Park and

Lomesh Brahmabhat, Gujarat Ecology Commission's representative. Chandresh Dave, a marine biologist at Marine National Park, Jamnagar spoke about the sea turtles of Gujarat and forest department's conservation related work till date. During the first half of the day, the TAG members were given an opportunity to speak about their organisations and work. This session was chaired by Gowri Mallapur of Madras Crocodile Bank Trust and Sajan John of Dakshin Foundation. Green Future Foundation, Bhuj was introduced as a new member of the TAG family by Wesley Sunderraj. This session aimed at providing a platform for the members of TAG to present their current work status/plans and also to discuss the actions taken over the past year after the meeting in Mamallapuram.

Figure 1: Shri R.D. Kamboj, CCF, Marine National Park, Jamnagar addressing workshop participants
Photo credit: Akash Verma

All the groups present were given a five minute slot to present their work, unique initiatives and a two minute question and answer slot. The presentations were well received. The importance of education, awareness and outreach initiatives was repeatedly raised. Another issue that came to the fore after the presentations was the need to create a collaborative work platform across disciplines i.e. NGOs, fisher communities, police and coast guard and policy makers.

All groups were asked to specify challenges in their work, for which they required specific assistance/ support, in order to evaluate the efficacy and efficiency of these meetings and to bring to the fore the importance of a planned, unified and scientific conservation action plan across the country.

The main points of discussion were

1) Hatchery setup and management
2) Beach monitoring
3) Awareness
4) Collaborations- NGOs and FD

5) Equipment use
6) Stranding response.

From the session that ensued, it appeared that a lot more emphasis will need to be laid on training in specific aspects of sea turtle conservation. A lot of the initiatives were based on experiential learning. Progress in terms of science and techniques, data collection and dissemination and collaborative actions was identified as a necessity.

Figure 2: Participants listening to speed talks presented by various TAG members
Photo credit: Akash Verma

The post lunch session on capacity building was also interactive and was conducted by filmmakers Rita Banerji and Maya Khosla of Dusty Foot Productions. This year, the mentors focused on videography and documentation skills. Maya documented the session while Rita addressed the participants. They began the session by screening some of her earlier documentaries which address conservation and livelihood issues. Video clips from Rita's documentaries - Right to survive and Shores of silence - were shown and participants were encouraged to come up with questions. Rita talked about the efforts and challenges involved in making a small documentary, even of just a few minutes. The 25 minute long Shores of silence took Rita and her crew four years to complete. While discussing her documentary on sea turtle conservation and fisheries livelihood issues, Right to survive, she said that short films and documentaries are a strong tool for awareness, and can play an integral role in achieving success in conservation programmes. Unlike the previous year's session which focused on photography, this time, the groups were challenged to work with moving images to film a one-minute story based on a simple topic – traffic, water conservation, the life of a freshwater turtle or tortoise (all these themes were inside the workshop venue or in its vicinity). Rita talked about the basic gear used in videography. She interacted with the participants and briefed them about digital cameras and their features and functioning. Further, Rita explained the basic steps required to create a mini-film. Group

members gathered to discuss their storyline and sketch it out in the form of a "storyboard." The participants were grouped into eight small groups and each team was given a topic and a digital camera to work on their storyboard. At the end of the first day, the teams were enthusiastic and ready to film their topic. They also edited the story with the camera itself ("in-camera edit"). The videography and documentation workshop spilled over into the second day, with a surprising number of innovative mini-films.

Figure 3: Rita Banerjee and Maya Khosla talk about The Turtle Dairies Project and video documentation as an essential tool for conservation awareness.
Photo credit: Akash Verma

Day 2: Sunday, 13th January, 2013

Day 2 started with an interactive session, led by Rita and Maya. Rita began the session with a question: Can a film make a difference? As Rita addressed the participants, Maya documented the activity. The participants were allowed to present their short one minute videos and narrate their story. Rita concluded the session by showing her latest documentary, a video clip on leatherbacks of Andamans.

Led by Dipani Sutaria and assisted by Gowri Mallapur, there was a rapid session focusing on stranding responses, mainly for marine mammals. Gowri said that the success in such a situation is largely dependent on the response time, the team-work and basic protocol. Dipani illustrated this with a power point presentation. Clearly, there was a huge lacuna in the information concerning these incidents. It was emphasised that all information

should be collected and shared on the appropriate forum so that the knowledge database increases and the availability of information is augmented. Dipani further illustrated the protocol for the same and shared samples of data collection sheets. Groups working on the Gujarat Coast have been very successful in rescue attempts with whale sharks.

In the general lectures session, the first talk was presented by Wesley Sunderraj on 'Turtle nesting population and threats to nesting beaches: suggested conservation and management strategies'. Wesley started the talk with an introduction to the Gujarat coast- the longest coastline (1600 km) in India with diverse habitats that include mangroves, coral reefs, algal and sea grass beds, estuaries, mudflats, marsh vegetation and sandy beaches, Marine National Park at Jamanagar and two gulf systems namely Gulf of Kachchh and Khambhat. The Gujarat coast is well-known for green turtle nesting and solitary nesting sites of olive ridleys. His project in Gujarat was to study sea turtles as keystone species of coastal and marine ecosystems. The project included surveys of nesting populations and existing threats to sea turtles and their habitat in Kachchh, Jamnagar, Porbandar and Junagadh.

Kartik Shanker's talk "Tracking the turtle-man" was on Satish Bhaskar, a pioneer of sea turtle biology and conservation in India. The talk focused on his exciting and adventurous life, his passion for the seas and islands and his pioneering work on sea turtles.

Kartik also updated the TAG members about the online database portal under construction. A trial version of the online data entry application was introduced to TAG members and workshop participants at the 4th Annual TAG workshop. The session focused on making TAG members aware of the online application "TAGABLE". The main objective of this online application is to enable online data entry, storage and management, including data on turtle encounters, nesting patterns, hatcheries and mortality. Data will be classified into various categories such as beach, nest, hatchery and arribada datasets. The data is retrievable by users in multiple formats and the application can be used to create representations of the data (for example, by creating maps, graphs and tables). Since data privacy is a major concern, it was clarified that data would only be accessible to data providers, and would become public only if they chose to make it so.

Pranav Trivedi of Nature Conservation Foundation (NCF) was the resource person for Day 2. He gave a talk on Conservation Education (CE) and its importance. He spoke mostly about NCF's high altitude CE programme and gave an insight about how it can be implemented for marine conservation.

Pranav started his talk by introducing CE as an effective communication means that primarily focuses on values, emotions, knowledge, attitudes, and behaviour. Communicating the value of life forms and processes that support them and the roles we can play in conserving them formed the basis of his talk. According to him, CE emphasises first-hand contact with nature, aiding in building a feeling of respect and care for the environment (abiotic & biotic), thus changing lifestyles to reduce one's ecological footprint. He mentioned that awareness leads to change in perception and relations, thus leading to sensible actions. Justifying his words, he

gave examples of the high altitude CE program, where kids and teens are exposed to plants and animals in their natural environment and how they draw, learn and memorise them.

Kartik Shanker gave the vote of thanks. The academic part of the workshop ended with this. A field trip to marine national park was organised for the participants by the local partners- PNC and MNP, Jamnagar.

Figure 4: Pranav Trivedi of Nature Conservation Foundation talks about CE (conservation education) as an inportant tool for outreach and conservation awareness.
Photo credit: Akash Verma

Figure 5: Kartik Shanker addressing the workshop participants and giving vote of thanks.

Figure 6: Enthusiatic participants wading into the Marine National Park.
Photo credit: Akash Verma

Figure 7: A group of participants and organisers at Narara Island, Marine National Park, Jamnagar (during the field visit)
Photo credit: Akash Verma

Photo credit: Akash Verma

Core Committee Meeting

Due to absence of a majority of the committee members, this year's core committee meeting was cancelled. However, the list of names of Core Committee's members, its functioning, role and responsibilities, as accepted by the members present in previous year's meeting, remains the same. This includes:

East coast:
Supraja Dharini, TREE Foundation
Mangaraj Panda, OMRCC
Pradeep Nath, VSPCA

West coast:
Wesley Sunderraj, GUIDE
Sudheer Kumar, Naithal (not present)
Ravi Pandit, Canara Green Academy (not present)

Islands:
Naveen Namboothri, Dakshin Foundation

TAG Core Committee Roles and Responsibilities

Responsibilities:

The core committee (CC) members shall develop, manage and perform the duties and responsibilities related to the principles, scope and mandate laid down for achieving TAG's objectives

- The Core Committee shall formulate the vision, mission and objectives of TAG and will be shared with the TAG participants
- Its members will be responsible for the entire performance of TAG
- It will be responsible for the collective decisions and actions of TAG
- It will be responsible for deciding the venue and program of the TAG annual meetings
- It will be responsible for the reporting on activities of TAG to the participants on an annual basis.

Table 1: List of participants

Sl.No	Participant Name	Organisation	State
1	P. Virender Nath	VSPCA	Andhra Pradesh
2	Mohan D. Upadhye	Sahyadri Nisarga Mitra	Maharastra
3	Shekhar Ghadge	Sahyadri Nisarga Mitra	Maharastra
4	Abdul Saleem T.M.	Green Habitat	Kerala
5	James N.J.	Green Habitat	Kerala
6	Anna Von Schwartz-enberg	FSL-India	Karnataka
7	Julia Balogh	FSL-India	Karnataka
8	Amarbar Biswal	Alacrity	Odisha
9	Chittaranjan Das	Alacrity	Odisha
10	Savokar Behera	Green Life Rural Association	Odisha
11	Bipra Charana Behera	OMRCC/CES Staff	Odisha
12	Magata Behera	OMRCC	Odisha
13	Dambru Behera	OMRCC	Odisha
14	Mahendera	OMRCC	Odisha
15	Mangaraj Panda	OMRCC	Odisha
16	Ardu Kaleya	OMRCC	Odisha
17	Amulya Nayak	People for Animals	Odisha
18	C. H. Babajee	Podampeta Ecotourism and Olive Ridley Protection Club (PEORPC)	Odisha
19	W.Simadri	Podampeta Ecotourism and Olive Ridley Protection Club (PEORPC)	Odisha
20	Rabindranath Sahu	RSTPC	Odisha
21	RameshChandraSahu	RSTPC	Odisha
22	M.Shankar Rao	RSTPC	Odisha
23	Ashis Senapati	Project Swarajya	Odisha
24	Prafulla Kumar Naik	Project Swarajya	Odisha
25	Bichitrananda Biswal	STAP	Odisha
26	Sudhakar Kar	Sr. Scientist, Odisha FD (retd.)	Odisha
27	Chandrasekhar Kar	Sr. Scientist, Odisha FD	Odisha
28	Nirmal Kulkarni	Mahdei Research Center	Goa
29	A. J. Chasiya	Okha-Dwarka Hatchery	Gujarat
30	Abdul W. Batanwala	Earth Matters Foundation	Gujarat
31	Manoj Rathod	Dwarka Hatchery	Gujarat
32	Chandresh Dave	Marine Biologist, Marine National Park	Gujarat
33	Vipul Chavan	Asst to ACF, Marine National Park	Gujarat
34	Yashpal Anand	GEER Foundation	Gujarat
35	Devanshi Joshi	GEER Foundation	Gujarat
36	C.K. Thakkar	Ex-DFO, Jamnagar FD	Gujarat
37	S.M. Parmar	DCF, Junagadh	Gujarat

38	Wesley Sunderraj	Green Future Foundation	Gujarat
39	LomeshBrahmabhatt	Field Manager, GEC	Gujarat
40	R.D. Kamboj	CCF, Marine National Park	Gujarat
41	B.H. Dave	ACF, Marine National Park	Gujarat
42	M.M. Balodia	DCF, Marine National Park	Gujarat
43	B.A. Dave	Ex-Forester, Gir National Park	Gujarat
44	J.K. Rathod	Fisheries Department	Gujarat
45	I.K. Barad	Asst. Conservator of Forests	Gujarat
46	P.K. Babaria	Ex- Forest Officer	Gujarat
47	Pranav Trivedi	ResourcePerson,ConservationEducation Workshop	Gujarat
48	Dipani Sutaria	Aranya Farms, Ahmedabad	Gujarat
49	R.K Lodhi	GM, EESAR Oil Ltd, Jamnagar	Gujarat
50	R.S. Shankarasubramanian	Deputy GM, EESAR Oil Ltd, Jamnagar	Gujarat
51	Pankaj C. Varia	Tata Chemicals Ltd, Jamnagar	Gujarat
52	D. N Shah	Sr. GM, Reliance Industries Ltd, Jamnagar	Gujarat
53	Akash Verma	Delhi University	New Delhi
54	Maya Khosla	Resource Person, Video Documentary Workshop	New Delhi
55	Rita Banerjee	Resource Person, Video Documentary Workshop	New Delhi

* Apart from the above list of registered participants, nearly 35 forest department officials attended the two days' workshop.

Organising Team

Amrita Tripathy	Dakshin Foundation, Bangalore and Madras Crocodile Bank Trust, Tamil Nadu
Kartik Shanker	Centre for Ecological Sciences, Indian Institute of Science and Dakshin Foundation, Bangalore
Dinesh Goswami	Prakruti Nature Club, Gujarat
Jignesh Gohil	Prakruti Nature Club, Gujarat
Gowri Mallapur	Madras Crocodile Bank Trust, Tamil Nadu
Mittal Gala	Madras Crocodile Bank Trust, Tamil Nadu
M Muralidharan	Dakshin Foundation, Bangalore
Sajan John	Dakshin Foundation, Bangalore
Mrinalini K. Siddharth	Dakshin Foundation, Bangalore
Paroma Sengupta	Dakshin Foundation, Bangalore
Wesley Sunderraj	Gujarat Future Foundation, Gujarat

APPENDIX III (a)
Monitoring olive ridley turtles in Odisha

The 480 km long coastline of Odisha has sandy beaches suitable for nesting olive ridley turtles (*Lepidochelys olivacea*). This population, which is an evolutionary source for other populations across the world, faces large scale mortality due to natural and anthropogenic causes such as mechanised fishing, predation and development activities both on- and offshore. There have been changes in the topography of the nesting beach as well due to reasons such as erosion. It is imperative to study the biology and behaviour of this species in relation to these threats and climate change to assess population trends.

In order to better understand these population trends, a long term project was initiated by the Madras Crocodile Bank Trust (MCBT) with funding from Marine Conservation Society, U.K. and USFWS Marine Turtle Conservation Act grant. This project was started at Rushikulya, one of the major mass nesting sites in the world. The project has worked in collaboration with the local Forest Department and NGOs involved in sea turtle conservation. Through capacity building workshops and regular interactions, the project has successfully worked with the local Forest Department. The forest department staff, NGO employees, enthusiastic locals and other researchers have been trained in hatchery maintenance, beach monitoring, nesting population census and other monitoring methods.

One of the aims of this project is to understand the effect of climate change on populations of olive ridleys. To study this, air, incubation and sand temperatures are recorded by placing data loggers in a room, relocated nests and sand. The relocated nests are enclosed in a hatchery situated close to the natural nesting site. Dead hatchlings are collected from these nests and sexed using histological techniques to understand the relationship between changing temperatures and sex ratios.

Since 2008, the Indian Institute of Science and Dakshin Foundation have been monitoring Rushikulya beach and recording both solitary and mass nesting data using the scientifically robust strip transect method. During mass nesting, a 20 m strip transect method is used to count the nesting females. Table 1 provides estimates of mass nesting from 2008 to 2012. The arribada for 2012-13 occurred from February 13th-19th, 2013 (Table 2). These results suggest that there has been an increase in the number of nesting females at Rushikulya.

Off shore surveys are conducted to better understand the distribution of turtles in offshore waters through the season. In 2012, a line transect approach was also initiated to estimate the abundance and monitor the congregation patterns of olive ridley turtles in the offshore waters of the Rushikulya mass nesting beach. A total of 14 line transects of 3Km each were designed perpendicular to the shoreline separated by a distance of 500 m.

The local NGOs involved with us are:
Orissa Marine Resources Conservation Consortium (OMRCC), Rushikulya Sea Turtle Protection Committee (RSTPC), Green Life Rural Association (GLRA), Action for Protection of Wild Animals (APOWA), and ALACRITY.

Table 1: *Arribada* **estimates from Rushikulya, 2008-2012**

Year	Days	Count	Mean	Variance	LCL	UCL	CV	M	SE
2008	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	786	53138.0	7572.4	41372.0	64904.1	0.1	34609818.7	5883.0
	4	352	17847.9	1083.6	14509.7	21186.1	0.1	2785847.3	1669.1
	5	-	-	-	-	-	-	-	-
2009	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
	3	608	30828.2	3282.9	25017.8	36638.5	0.1	8440068.2	2905.2
	4	612	31031.0	2694.3	25767.2	36294.8	0.1	6926825.6	2631.9
	5	193	9785.9	501.7	7514.5	12057.3	0.1	1289829.8	1135.7
2010	1	661	11171.8	3482.1	9177.1	13166.5	0.1	994688.4	997.3
	2	2765	46732.4	29515.7	40925.0	52539.8	0.1	8431384.2	2903.7
	3	1774	29983.1	11773.8	26315.3	33650.9	0.1	3363275.5	1833.9
	4	86	1453.5	193.2	983.7	1923.4	0.2	55189.0	234.9
	5	423	7149.3	1207.2	5974.8	8323.8	0.1	344845.9	587.2
	6	143	2416.9	296.9	1834.5	2999.4	0.1	84811.7	291.2
	7	58	980.3	136.4	585.5	1375.1	0.2	38963.7	197.4
2011	1	1738	28122.98	22991.2	23215.91	33030.05	0.09	6019836.4	2453.5
	2	2194	35501.62	16872.8	31297.89	39705.35	0.06	4417842.3	2101.9
	3	2090	33818.77	9176.3	30718.67	36918.87	0.05	2402650.8	1550.0
	4	1506	24368.93	3867.2	22356.42	26381.44	0.04	1012547.0	1006.3
	5	589	9530.74	3188.1	7703.47	11358.02	0.1	834734.1	913.6
	6	799	12928.90	2981.3	11161.77	14695.83	0.07	780600.3	883.5
	7	143	2313.92	151.7	1915.27	2712.56	0.09	39729.6	199.3
	8	140	4530.74	155.5	3723.70	5337.78	0.09	162828.2	403.5
	9	22	711.97	28.9	363.78	1060.17	0.24	30309.7	174.1
2012	1	2068	31634.99		28955.5	34314.47	0.04	1794909.3	1339.74
	2	710	9588.865		8633.87	10543.86	0.05	228002.93	477.5
	3	165	1707.245		1348.3	2066.19	0.10	32209.98	179.47

Table 2: Estimates of 2013 *arribada*

Days	Counted (n)	Estimated mean	Upper CL	Lower CL	CV	Variance
Day 1	1317	16347	18206.63	14487.72	0.1	864395.5
Day 2	1340	19781	21310.95	18251.48	0.0	585024.9
Day 3	4135	59290	63116.83	55462.47	0.0	3661827.4
Day 4	2018	30458	33890.6	27025.33	0.1	2945741.8
Day 5	564	7702	9685.93	5717.7	0.1	984181.27
Day 6	657	8972	10074.31	7869.29	0.1	303882.52

APPENDIX III (b)

Monitoring leatherback turtles in the Andaman & Nicobar Islands

Introduction

The leatherback turtle (*Dermochelys coriacea*) is the only extant species of the family Dermochelyidae. Leatherback turtles are the largest of living reptiles, growing up to 2 metres and weighing as much as 900 kg. It is also the only sea turtle that lacks a bony shell. The adult leatherback is also the widest-ranging reptile migrating longer distances than all other sea turtles. It is found in tropical and temperate waters of the Atlantic, Pacific, and Indian Oceans. The leatherback is listed as Critically Endangered by the IUCN and under Schedule I of the Indian Wildlife Protection Act (1972). There is great concern over the drastic declines in the nesting populations of this species throughout the world, especially the Pacific. The Malaysian rookeries have undergone a well-documented decline from approximately 5000 nests per year in the 1960s down to less than 10 nests per year in the 2000s. Very little is known about the status of leatherback populations from the Indian waters, barring recent work by the Andaman and Nicobar Environment Team (ANET) on Great Nicobar Island, and the collaborative efforts of ANET, Dakshin Foundation and Indian Institute of Science, Bangalore on Little Andaman Island.

Based on the lessons learned from the population declines in the Pacific and Southeast Asia, it is imperative to understand where these turtles from the Andaman & Nicobar Islands migrate and the threats they face throughout their range. Some of the current major nesting beaches in the Andaman group of islands are:

- Cuthbert Bay and Karmatang Beach No.9 (Middle Andaman Island)
- West Bay, South Bay and two beaches between Ekiti Bay and Jackson Creek on the Little Andaman Island

Some of the important nesting beaches in the Nicobar group of islands are:

- Galathea Bay, South Bay and Safed Balu on the east coast of the Great Nicobar Island, Kopenheat, Alexandria Bay, and Casuarina Bay on the west coast of the Great Nicobar Island
- Other nesting sites at Great Nicobar Island are Renhong, Rekoret and Pulobed, which have re-formed over the last few years.
- Beaches off the Nicobari hamlets viz., Muhincohn, Pulo Kiyang and Bahua/Kinveinyalo, along the west coast of Little Nicobar Island are important leatherback nesting sites

Many of these prime nesting sites of the Andaman and Nicobar islands were badly affected by the December 2004 earthquake and the subsequent tsunami. Not much is known about the impacts of this event on the populations of leatherbacks here. A project was initiated to monitor leatherback turtle nesting at South Bay in January, 2008. Since the initiation of the project, the South Bay beach has been monitored for 6 years from 2008-2013. Every year, a camp has been established on the South Bay beach and daily monitoring of leatherback nesting has been carried out roughly between the months of January and March. Over the last three seasons (2010-2013), a camp has been established on the West Bay beach for monitoring. Monitoring efforts have focused on West Bay since 2010.

Objectives

The objectives of the surveys were to continue the long-term monitoring of leatherback nesting in South and West Bay, Little Andaman Island through the capture-recapture programme. Intensive surveys were carried out to monitor tag recaptures of leatherback turtles from previous seasons at South Bay. In addition, a satellite telemetry study was initiated and habitat monitoring was carried out on the nesting beaches in South and West Bay to understand the effect of physical changes on leatherback nesting.

The surveys were carried out in collaboration with the Forest Department, Andaman and Nicobar Islands and in coordination with ongoing research activities in the region.

A total of ten leatherback female turtles were tagged with Platform Transmitter Terminals (PTTs) to track post nesting migratory routes. More turtles will be tagged in the forthcoming season.

Description of the Nesting Beach

The South Bay leatherback nesting beach lies on the south-west tip of Little Andaman Island. The main leatherback nesting beach begins west of the Benyabol River and extends nearly three kilometers up to the Tothibue River. Many small creeks and rivers that were inundated by tides had to be crossed during the low-tide in order to access the entire nesting beach. The nesting beach west of Benyabol begins with a steep (reflective) profile, with slightly coarse sand, which later flattens out and becomes a dissipative to ultra dissipative beach with very fine sand towards the western end. The beach from 3 km east of Benyabol River to the lighthouse is 3 km in length and was also monitored for hawksbill, green and olive

Figure 1. Camp at South Bay, Little Andaman Island

ridley turtles.

The West Bay leatherback nesting beach is located 7 kms North of the Tothibue River. The nesting beach is 7 km long and has two creeks that are difficult to cross during spring tides. The nesting beach has a very flat profile with fine sand along the entire stretch.

Figure 2. Beach at South Bay, Little Andaman Island

Figure 3. Beach at West Bay, Little Andaman Island

The nesting beaches at South and West Bay were found to be quite wide (50-250 m from the high tide line) for most of the stretch. Vegetation on the nesting beach was sparse, though a lot of plastic flotsam and other debris were encountered. Crocodiles, monitor lizards, palm civets, wild boar and feral dog tracks were frequently encountered on both the beaches.

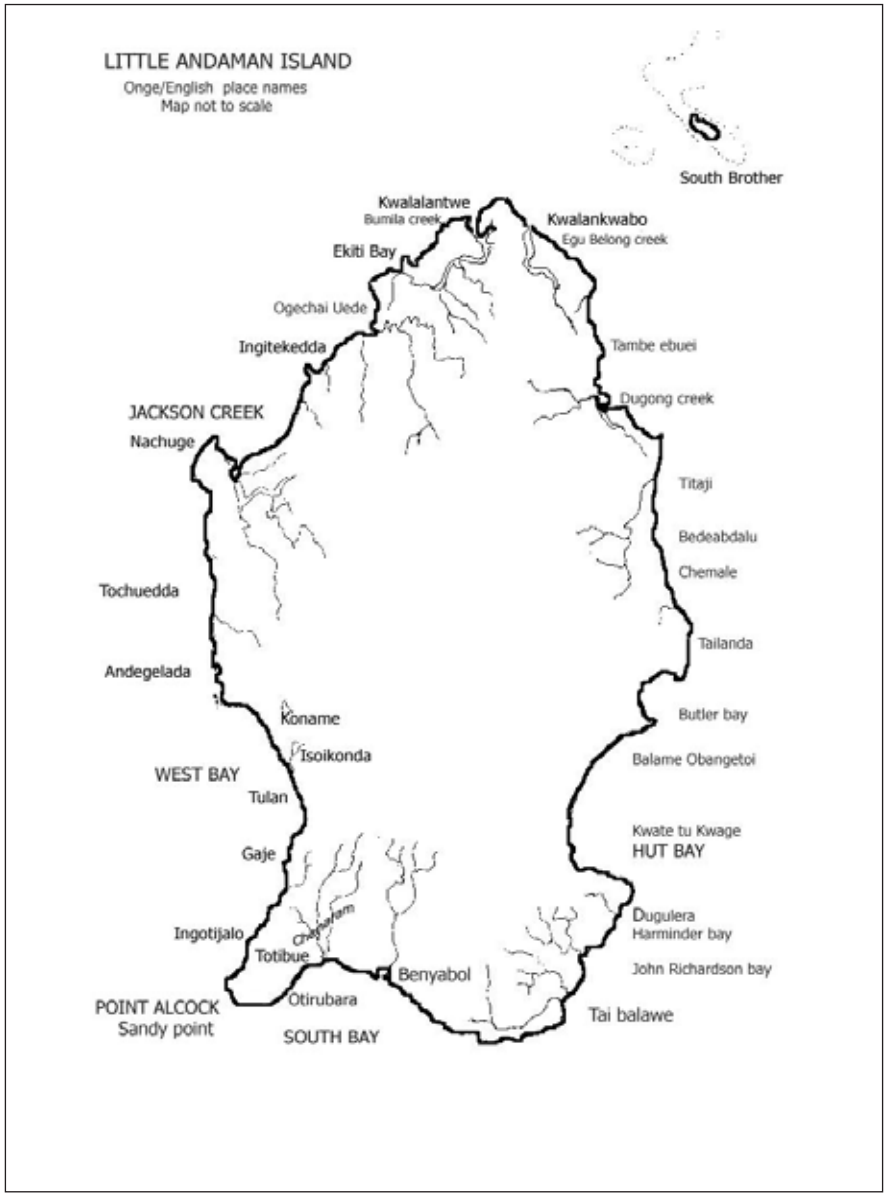


Figure 4. Map of Little Andaman Island

Methodology

Nesting beach monitoring

The nesting surveys commenced on 12th December 2012 in South Bay and 29th November 2012 in West Bay and continued till 8th February 2013. The study had a two tiered approach: apart from the collection of biological data, there was a secondary emphasis on laying the groundwork for the following years in terms of planning and logistics, establishing relationships and building rapport with the local community, field assistants and support staff.

When nesting turtles were encountered, biometric measurements and information on time of nesting, tide and clutch size were also obtained. Measurements such as CCL (Curved Carapace Length), CCW (Curved Carapace Width) were recorded using a standard flexible metal tape along with any other identifying marks, such as bite marks, injuries or barnacle growth. Where tracks and excavations were observed, the area was marked and information on the location of the nest viz. distance from the High Tide Line was noted. In addition, nests were regularly monitored to determine trends in nest depredation on the nesting beach.

Measurements of diameter and weight of ten eggs each from different clutches were also recorded. When nesting turtles were encountered, a photograph of the head was taken by placing the camera approximately 3 feet directly above the head of the leatherback turtle. This was to start a database to identify female turtles using the pink spots on their head.

Tagging and genetics

- Adults were tagged with a miniature PIT tag and an external metal tag in order to identify individuals. All adults nesting on the monitored beach were tagged during the season in order to estimate total individuals, nesting intervals and remigration intervals.

- A small skin biopsy sample was collected from the tagged leatherbacks following standard procedures. For the genetic analysis, the haplotypes of the animals will be compared with data from other key nesting populations from the Pacific and Indian Oceans in order to determine whether the Andaman and Nicobar Islands populations are distinct from other regional populations.

Satellite monitoring

Three leatherback female turtles were fitted with Kiwisat 202 satellite PTTs (specially made for leatherback turtles) during the 2012-2013 nesting season. The satellite transmitters were attached to the medial ridge of the turtle's carapace where it is most prominent, usually posterior of the widest area of the carapace. This location provides the greatest bight for attachment and lessens drag effect in comparison with attachment near the leading edge of the carapace.

Results

South Bay

At South Bay, surveys had to be restricted to daylight hours as our previous years of monitoring (especially the last three years) of the South Bay beach reveal that night survey of the nesting beach is a logistically daunting task due to the presence of large river openings (Benyabol and Tothibue).

A total of 56 nests were encountered, out of which 45 were leatherback nests and 11 were olive ridley turtle nests. Since nesting surveys were carried out during the day, no tagging and recapture of leatherback turtles was possible. The monitoring effort indicated 18 leatherback nests were depredated, mostly by monitor lizards and by feral dogs.

A number of nests of olive ridley, hawksbill and green turtles were observed close to the camp site (located 3 km from the Benyabol River). Remains of three olive ridley turtles were found, indicating that they were killed and consumed.

West Bay

Monitoring commenced at the West Bay beach on November 29, 2012. A total of 102 nests were observed. During the monitoring period, a total of 77 leatherback turtle nests were recorded and 12 nesting females were tagged. Out of the 15 nesting females that were tagged, 13 were recaptured during the season and one turtle tagged previously in 2010 was also recaptured.

Predation was observed to be very low during the season in comparison to previous seasons. Only 16 nests were found to be predated on (16%). Three nests were protected to record the nest temperature using electronic temperature loggers. In addition, a total of 25 olive ridley nests were observed with no evidence of hawksbill or green turtle nesting.

Three leatherback turtles were tagged with PTTs during 2012-2013 at West Bay (one on 28th January, 2013 and two during the first week of February 2013) to study post nesting migratory routes. The two turtles tagged during the first week of February did not transmit any data, possibly as a result of transmitter failure. The data from PTT ID No. 113336 (tagged on 28th January) indicated that the turtle travelled south all the way to the western coast of Australia where it stopped transmitting. Tagging several more leatherback turtles with satellite transmitters will reveal the full extent of their migration.

Discussion

The leatherback nesting monitoring programme at South Bay and West Bay over the past six years reveals a potential increase of leatherback nesting compared to the poor nesting reported for 2005 and 2006 following the December 2004 tsunami. However, such fluctuations may occur due to variations in reproductive cycles, food supply, environmental conditions and the effects of mortality at various stages of their life histories.

Data from tag recaptures indicates that the minimum re-nesting interval recorded is 9 days. The re-nesting interval varies from between individuals. Out of the 78 turtles that have been tagged over the last six nesting seasons, 56 have been recaptured within the season. The first inter-year recapture during this period occurred this season, with the recapture of a turtle tagged in 2010. Long term-data from forthcoming seasons should provide a better understanding of intra and inter seasonal nesting patterns.

Over the past six years, surveys have revealed that there is a clear peak in nesting during late December and early January. Sporadic nesting continued from the last week of February till the first week of March. There is also a small population of green turtles and olive ridleys nesting on the South and West Bay beaches. More olive ridley nests were observed in West Bay and South Bay than any of the previous seasons. Data from other nesting sites in the Andaman group of islands have also indicated an increase in olive ridley nests for the 2012-2013 nesting season. Depredation rates seem to vary from season to season. The current season revealed relatively low predation rates.

Recommendations

We recommend the following actions for the conservation and management of leatherback turtles in the Andaman and Nicobar Islands.

1. Monitoring

a) The current monitoring at the beaches of South and West Bay, Little Andaman Island should be continued in order to understand trends in leatherback nesting at the site, their nesting ecology, the threats they face and changes in their nesting habitats. These beaches serve as index beaches for monitoring leatherback populations in the islands.
b) Intensive surveys of the sites of Great and Little Nicobar islands are required to assess the status of these beaches and whether leatherback turtles have started nesting again at these sites.

2. Satellite telemetry and genetics

More satellite telemetry studies on leatherback turtles need to be carried out to trace their post nesting migratory routes and assess their exposure to fishery related threats. While we have some insights into the post-nesting movement patterns of leatherbacks in the Indian Ocean, more leatherback turtles need to be tagged with transmitters in subsequent years to discern patterns in the migratory route. Genetic studies are also underway to assess the stock to which the Andaman and Nicobar leatherback turtles belong.

3. Capacity building and training

The long term conservation and management of the leatherback turtles in the Andaman and Nicobar Islands depends on the involvement and support of local civil society and government. Funds need to be mobilised to provide support to initiate monitoring, for conducting training and awareness programmes for the Forest Department staff and for local groups. Since the leatherback turtle nesting beaches are currently in areas not accessible to the general public, the main focus of training needs to be forest department field staff. In addition, awareness programmes can inform the public about leatherback turtles and their value as a natural heritage of the islands. Specifically, we also recommend training in beach and hatchery management for Forest Department field staff throughout the islands.
Summary of six years of monitoring

A. Tagging Data

Year	Leatherback	
2007-2008		6
2008-2009		9
2009-2010		2
2010-2011	South Bay	West Bay
	6	23
2011-2012	South Bay	West Bay
	0	20
2012-2013	South Bay	West Bay
	0	12

B. Leatherback Nests and Predation Patterns:

Year	Total Number of Nests		Percentage of Nests Predated	
2007-2008	25		32	
2008-2009	39		20	
2009-2010	7		28	
2010-2011	South Bay	West Bay	South Bay	West Bay
	58	91	24	58
2011-2012	South Bay	West Bay	South Bay	West Bay
	36	148	50	30
2012-2013	South Bay	West Bay	South Bay	West Bay
	45	77	40	20

APPENDIX IV

Small Grants Program 2012-2013

A part of the MCTA project fund is disbursed as small grants through Madras Crocodile Bank Trust. The small grants programme was started in 2010. Till date, four rounds of small grants have been disbursed. The main aim of this initiative is to provide financial support to local NGOs and member organisations of TAG that work on sea turtle conservation in different parts of India. To make this more instructive for members, we have designed the grant making process to go through the usual steps of grant application/ proposal submission, review and approval and grant making.

The total amount disbursed through 2009-10 small grants was to 283, 000 INR (1USD ~ 60 INR). During 2010-11, a small grant application and review process was initiated. 10 TAG member organisations were given small grants. We intend to give greater emphasis to this process for future small grants and will solicit inputs from independent reviewers who are experts in the field in order to enhance project design and implementation by member groups. During 2011-12 and 2012-13, we selected four TAG members to be awarded small grants for their consistency and commitment with regard to their ongoing work and timely report submission. The table below provides details about the small grants disbursed during 2012-13.

Table 1: 2012-2013 Small Grants Details

Name of the organisation	Grant amount (INR)*
Action for Protection of Wild Animals (Odisha)	30,000
Sahyadri Nisarga Mitra (Maharashtra)	30,000
Students' Sea Turtle Conservation Network (Tamil Nadu)	30,000
Visakha Society for Protection and Care of Animals (Andhra Pradesh)	30,000

*1 USD ~ 60 INR

Increased capacities of independent groups will ensure greater benefits to the network as a collective and allow for the creation of local networks that seek inputs from these groups. Financial support to individual efforts of member organisations in the nature of small grants can help sustain their interest and participation in the network, in addition to achieving the overall conservation objectives of the network. As a facilitating organisation, this demonstrated need has necessitated MCBT and partner organisations to commit additional resources towards meeting long term network objectives within the broader scope of sea turtle conservation and habitat protection. This has justified our need to solicit continued support from the Marine Turtle Conservation Fund towards continuing to facilitate and coordinate the network's activities. With the support of Dakshin Foundation, TAG is now coordinated by a dedicated team of members from both organisations who will continue their roles in providing administrative support to the network.

APPENDIX V

Audit Statement for Financial Year 2012-2013

MADRAS CROCODILE BANK TRUST
VADANEMMELI VILLAGE, MAHABALIPURAM
CONSOLIDATED BALANCESHEET AS AT 31/03/2013

PREV YR.	LIABILITIES	AMOUNT(Rs.p)	AMOUNT(Rs.p)	PREV YR.	ASSETS	AMOUNT(Rs.p)	AMOUNT(Rs.p)
	CAPITAL FUND:				FIXED ASSETS:		
30,193,602	As per last year Balance Sheet	30,193,602.00		7,263,714	As per Schedule		7,357,066.65
	Add: Excess of income over Expenditure	57,945.27	30,251,547.27	144,941	MCBT Master Plan Development		169,941.00
					ADVANCES AND DEPOSITS:		
				10,000	Staff Advances		
					As per last year Balance Sheet	10,000.00	
					Add: Given during the year	237,000.00	
					Less:Recovered during the year	200,500.00	46,500.00
				85,161	Deposits:		
					Electricity Deposits	63,486.00	
					Telephone Deposits	13,475.00	
					Cable Deposits	4,000.00	
					Cylinder Deposits	7,600.00	88,561.00
				540,000	RECURRING DEPOSITS:		
					As per last year Balance Sheet	540,000.00	
					Add: Invested during the year	180,000.00	
						720,000.00	
					Less:Matured During the year	-	
							720,000.00
				639,545.00	Advance for Expenses	639,545.00	
					Add: Given during the year	5,890,048.00	
					Less:Recovered during the year	5,161,490.00	1,368,103.00
				1,173,457	ANET Advance	1,173,457.00	
					Add: Given during the year	2,092,381.00	
					Less:Recovered during the year	2,842,676.00	423,162.00
					ARRS Advance		47,217.00
				177,869	TDS on Interest		266,996.00
					CLOSING BALANCES:		
				166,330	Cash on hand	352,477.00	
				141,593	Cash on hand-FC A/c	320,152.00	
				306,810	Cash at bank-IOB Mahabalipuram Branch	749,408.84	
				81,915	Cash at bank-SBM Thiruvanmiyur Branch	53,639.77	
				3,421,695	Cash at bank-IOB Mahabalipuram Branch(FC Account)	5,836,849.00	
				12,794,632	Short term Deposits with Scheduled Banks	11,415,597.00	
				3,245,940	Cash at bank-SB A/CNO.27300	1,035,877.00	19,764,000.61
30,193,602			30,251,547.27	30,193,602			30,251,547.26

MADRAS CROCODILE BANK TRUST VADANEMMELI MAMALLAPURAM 603 104. Chennai

For MADRAS CROCODILE BANK TRUST

Trustee

C.V.R. & CO. CHENNAI Chartered Accountants

For C.V Ramaswamy & Co.,
Chartered Accountants.

Partner

29705
6971
25-9-13

MADRAS CROCODILE BANK TRUST
VADANEMMELI VILLAGE, MAHABALIPURAM
CONSOLIDATED INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31/03/2013

PREV YR.	EXPENSES	AMOUNT(Rs.p)	AMOUNT(Rs.p)	PREV YR.	INCOME	AMOUNT(Rs.p)	AMOUNT(Rs.p)
6,926,839	FEED AND REPTILE RELATED EXPENSES			13,086,880	Gate Contributions		13,670,200.00
	Feed Expenses - Reptile	3,037,053.00					
	Maintenance of Sheds	1,508,906.00		12,445,222	CONTRIBUTIONS RECEIVED FOR :		
	Pit Maintenance	1,353,173.00				16,000.00	
	Certification Fees	168,173.00			Adopt an Animals	277,375.00	
	Lab / Veterinary Expenses	91,638.00			Cepf Lantana Proj	554,440.00	
	Water Supply	34,016.00			Crocodile Transport	973,613.00	
			6,192,959.00		Education	21,574.00	
8,223,697	ADMINISTRATION EXPENSES				Fish Project	510,703.44	
	Travel and Conveyance	4,437,682.00			Contribution for Issf Project	2,955,028.00	
	Food and Lodging Exp	1,926,494.00			Contribution for Mtca	2,376,331.50	
	Croc Shop Expenens	963,319.00			Contribution for Sccs	316,195.00	
	Stationery and Printing	812,239.00			GGF Project	1,049,116.02	
	Electricity Charges	748,452.00			Gharial Task Force	40,000.00	
	Fax/email	478,927.00			Marine Turtle Project	474,920.00	
	Outstation Travel & Conveyance	354,964.00			Rufford Grouper Fishery	34,500.00	
	Hospitality Expenses	327,257.00			Docent Registration	30,000.00	
	Vehicle Maintenance	298,813.00			Film Shooting	1,622,091.00	
	Telephone Expenses	280,175.00			General Donations	140,485.10	
	Vechile Hire Charges	138,750.00			Journal Contributions	4,621,918.00	
	Computer Maintenance	136,197.00			Madras Turtle Project - Reserach	429,200.00	
	Postage	78,028.00			Nature Camp (EcoTours)	355,330.00	
	Publicity and Advertisement	70,560.00			Nature Camp(Education)	97,428.00	
	Library / Books / Journals	67,113.00			Andaman Socmon project		
	Rates,Fees and Taxes	44,970.00					16,895,448.06
	Audit Fees	36,489.00					
	Boat Maintenance	36,111.00					
	Pooja Expenses	25,825.00		678,655	BANK INTEREST	108,473.00	
	Office General Expenses	24,825.00			SB Interest received	1,340,093.00	1,448,566.00
	Office Equipment (Project)	7,734.00			FD Interest		
	Bank Charges	6,153.00					
			11,301,077.00	3,220,598.72	OTHER RECEIPTS:	74,880.00	
801,433	Other research related expenses				Anet Marchandize Sales	1,814,908.28	
					Accomodation and other charges	1,541,686.00	3,431,474.28
	Education	284,073.00			The Croc Shop Sales		
	Equipment and Maintenance	7,200.00					
	Field Expenses	531,667.00					
	Miscellaneous	96.00					
	Research Expenses	483,665.00					
			1,306,701.00				
19,951,969	Carried Forward		18,800,737.00	29,431,356			35,445,688.34

MADRAS CROCODILE BANK TRUST VADANEMMELI MAMALLAPURAM 603 104

MADRAS CROCODILE BANK TRUST
VADANEMMELI VILLAGE, MAHABALIPURAM
CONSOLIDATED INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31/03/2013

PREV YR.	EXPENSES	AMOUNT(Rs.p)	AMOUNT(Rs.p)	PREV YR.	INCOME	AMOUNT(Rs.p)	AMOUNT(Rs.p)
15,951,969	Brought Forward		18,800,737.00	29,431,356		-	35,445,688.34
11,570,208	SALARIES AND STAFF PAYMENTS						
	Salaries						
	Wages (Casual)	12,420,003.00					
	Staff Welfare Expenses	1,762,970.00					
	Staff Provident Fund	281,737.00					
	Staff Insurance and Medical	206,986.00					
	Staff Savings	140,287.00					
	Contract Labour Welfare (Tea Etc)	78,050.00					
		76,744.00					
	OTHER PAYMENTS:		14,966,777.00				
65,932	Meetings & Seminars						
17,000	Donations						
851,107	Depreciation		650,358.40				
			75,000.00				
975,140	EXCESS OF INCOME OVER EXPENDITURE		894,870.67				
29,431,356			57,945.27				
			35,445,688.34	29,431,356		-	35,445,688.34

Date
Chennai

For MADRAS CROCODILE BANK TRUST

Trustee

MADRAS CROCODILE BANK TRUST
VADANEMMELI
MAMALLAPURAM
603 104.

For C.V Ramaswamy & Co.,
Chartered Accountants. 29705

Partner 6971

25/9/13

C.V.R. & CO. Chartered Accountants CHENNAI

MADRAS CROCODILE BANK TRUST, MAHABALIPURAM ROAD, CHENNAI - 603 104
Schedule to Fixed Assets as at 31.03.2013 - MCBT

DESCRIPTION	WDV AS AT 01.04.2012	ADDITIONS	DEDUCTIONS	TOTAL	RATE	DEPRECIATION	WDV AS AT 31.03.2013
Airconditioner	48,794.09	21,250.00		70,044.09	25%	17,511.02	52,533.07
Boats & Boats (UP)	234,984.96	272,210.00		507,194.96	20%	101,438.99	405,755.97
Bolero	192,276.59			192,276.59	25%	48,069.15	144,207.44
Building,including roads,walls etc	689,786.95			689,786.95	5%	34,489.35	655,297.60
Building on leased land-(UP)	644,182.35			644,182.35	5%	32,209.12	611,973.24
Building-Thandarai	529,099.20			529,099.20	5%	26,454.96	502,644.24
Camera & camera(UP)	31,807.20			31,807.20	25%	7,951.80	23,855.40
Camera & Flash	20,334.11	26,000.00		46,334.11	25%	11,583.53	34,750.59
Cellphone	2,202.33			2,202.33	25%	550.58	1,651.75
Computer	3,353.28			3,353.28	60%	2,011.97	1,341.31
Crockstock Souvenier Shop	946.35			946.35	25%	236.59	709.76
Directors'House	18,768.95			18,768.95	10%	1,876.90	16,892.06
Equipments R&D & Equipments (UP)	68,974.19	120,371.00		189,345.19	25%	47,336.30	142,008.89
Fax Machine	2,992.16			2,992.16	25%	748.04	2,244.12
Furniture & Fittings	78,933.72			78,933.72	10%	7,893.37	71,040.35
Furniture & Fittings	2,472.27			2,472.27	25%	618.07	1,854.20
Fridge	20,671.88	162,619.00		183,290.88	25%	45,822.72	137,468.16
Genset	219,921.68			219,921.68	25%	54,980.42	164,941.26
Guest house	15,901.68			15,901.68	10%	1,590.17	14,311.51
Laboratory	1,035.33			1,035.33	10%	103.53	931.80
Land	1,801,209.00			1,801,209.00		-	1,801,209.00
Laptop	119,154.15	110,489.00		229,643.15	25%	57,410.79	172,232.36
Machinery and tools	36,420.12	16,746.00		53,166.12	25%	13,291.53	39,874.59
Motor Bike	20,330.33	35,000.00		55,330.33	25%	13,832.58	41,497.74
New pit construction	293,458.35			293,458.35	10%	29,345.83	264,112.51
Office equipment	78,512.63	70,376.00		148,888.63	25%	37,222.16	111,666.47
Printers	19,426.24	20,412.00		39,838.24	25%	9,959.56	29,878.68
Pump set	9,250.48			9,250.48	25%	2,312.62	6,937.86
Sheds	151,888.20			151,888.20	10%	15,188.82	136,699.38
Shop	93,264.50			93,264.50	5%	4,663.23	88,601.28
Slide Projector + LCD projector	147,062.33	77,756.00		224,818.33	25%	56,204.58	168,613.75
Snake room	11,253.71			11,253.71	10%	1,125.37	10,128.34
Ticket counter	94,151.04			94,151.04	5%	4,707.55	89,443.49
Turtle tank	72,188.07			72,188.07	5%	3,609.40	68,578.67
TV,VCR, & Stabilizer	6,980.97	2,221.00		9,201.97	25%	2,300.49	6,901.48
Water Tank and well construction	36,700.00			36,700.00		-	36,700.00
Washing Machine	9,091.41			9,091.41	25%	2,272.85	6,818.55
Mahindra Xylo-TN19 B 0853	446,582.25			446,582.25	25%	111,645.56	334,936.69
Inverter	7,650.00			7,650.00	25%	1,912.50	5,737.50
Solar Power Plant	38,467.13			38,467.13	25%	9,616.78	28,850.34
	6,320,480.17	935,450.00	-	7,255,930.17		820,098.78	6,435,832.10

MADRAS CROCODILE BANK TRUST, MAHABALIPURAM ROAD, CHENNAI - 603 104
Schedule to Fixed Assets as at 31.03.2012- ANET BASE

DESCRIPTION	WDV AS AT 01.04.2012	ADDITIONS	DEDUCTIONS	TOTAL	RATE	DEPRECIATION	WDV AS AT 31.03.2013
15HP Motor	1,057.20			1,057.20	25%	264.30	792.90
Building	339,584.26			339,584.26	5%	16,979.21	322,605.05
Computer	24,972.13			24,972.13	60%	14,983.28	9,988.85
Equipments	40,370.35	46,373.00		86,743.35	25%	21,685.84	65,057.51
Furniture & Fittings	30,259.95	6,400.00		36,659.95	10%	3,665.99	32,993.95
Jeep	56,250.00			56,250.00	25%	14,062.50	42,187.50
Land	430,000.00			430,000.00		-	430,000.00
Laptop	8,748.63	-		8,748.63	25%	2,187.16	6,561.47
Motor bikes	253.91			253.91	25%	63.48	190.43
Office equipment	523.20			523.20	25%	130.80	392.39
Slide Projector	126.21			126.21	25%	31.55	94.66
Water tank and well construction	7,500.00			7,500.00		-	7,500.00
Zodiac inflatable boat	3,588.81			3,588.81	20%	717.76	2,871.04
	943,234.65	52,773.00	-	996,007.65		74,771.89	921,235.76
GRAND TOTAL	7,263,714.82	988,223.00	-	8,251,937.82		894,870.67	7,357,066.65

MADRAS CROCODILE BANK TRUST VADANEMMELI MAMALLAPURAM 603 104.

For more information on the Turtle Action Group visit
www.seaturtlesofindia.org/tag

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Photo: Kartik Shanker


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