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Use of Sea Turtle Hatcheries, as an ex-situ Conservation tool for Sea Turtles

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Eight sea turtle hatcheries in the Galle district and one in the Hambantota district were visited fortnightly from January 1996 to December 2000 to identify the positive and negative impacts of the hatcheries and the possible measures to develop the hatcheries as an tool for ex-situ conservation of sea turtles.

The relevant biological and socio-economic data were collected and observations were also made on the hatchery practices, in order to evaluate the present status of them.

The mean annual number of eggs reburied by these hatcheries was about 180,000 (this is about 33% of the mean annual egg production in these districts). Out of them 52 and 43% were represented by Green and Olive Ridley turtles respectively. The representations of Leatherback, Hawksbill and Loggerhead were 1.5, 1 and 0.5% respectively. 98% of the total reburied eggs were incubated by the hatcheries in the Galle district and 2% by the hatchery in the Hambantota district.

The average number of egg- pits in 1m² area was 4 and the number of eggs buried in a single pit was varied from 40 to 75. The average depth of a pit was 1.5'. These artificial conditions may have direct influence on the incubation temperature and may lead to an unbalance sex ratio among hatchlings.

The estimated average incubation periods inside the hatchery did not show much variation with the natural time frame. The respective incubation periods for Green turtle, Olive Ridley, Leatherback, Hawksbill and Loggerhead were 50, 51, 60, 55 and 60 days.

The average hatching success inside the hatcheries was 75%, about 20% of the eggs were spoilt within the pits and 5% of them produced weak hatchlings. About 35% of newly hatched juveniles in the tanks were with damaged yolk sac. Over 75% of the hatchlings inside the tanks were over three days old, and over 50% of the observed hatchlings were with completely or partly healed naval. 60% of the hatchlings aged over three days were with pustuler wounds on the body. The mortality rate among rearing hatchlings was 3%. The estimated rate of predation on eggs inside the hatcheries was 0.5% per month.

The practices adopted in egg collection, transportation, burring, handling and rearing hatchlings and releasing them to sea may have considerable negative impacts on the survival of the wild stocks. In order to minimize these impacts a set of hatchery guidelines were prepared by this study. The study also emphasized the importance of an introduction of hatchery monitoring system and a license scheme to improve them as a tool of ex-situ conservation.

Law Enforcement of Turtle Conservation in Sri Lanka

By

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Turtle nesting beaches have been recorded mainly on the western, southwestern and southern beaches in Sri Lanka, and five species of turtles regularly visit these beaches to nest i.e. Olive Ridley turtle (*Lepidochelys olivacea*), Hawksbill turtle (*Eretmochelys imbricata*), Leatherback turtle (*Dermochelys coriacea*), Loggerhead turtle (*Caretta caretta*) and Green turtle (*Chelonia mydas*). The Hawksbill turtle is listed as critically endangered, and the remaining species are listed as vulnerable in the red list of threatened species. In Sri Lanka all the turtles are legally protected under the Fauna and Flora Protection Ordinance, No. 2 of 1937 and the Fisheries and Aquatic Resources Act, No. 2 of 1979. The five species of turtles and their eggs are completely protected by amendments to the Fauna and Flora Protection Ordinance in 1970 (for leather back turtle) and by regulation in 1972 (for other four turtle species). Under Section 30 of the same ordinance (as amended) it is an offence to kill, wound, harm or take a turtle, or to use a noose, net, trap, explosive or any other device for those purposes, to keep in possession a turtle (dead or alive) or any part of turtle, to sell or expose for sale a turtle or part of a turtle, or to destroy or take turtle eggs. Therefore establishment of and operation of hatcheries are prohibited under this Section, although under Section 55 of the ordinance, authorize such prohibited acts for the purpose of protection, preservation and for scientific studies and investigations. According to the section 40 of the Fauna and Flora Protection ordinance export of a turtle, any part of a turtle or turtle eggs from Sri Lanka is prohibited without a permit issued by the Director of Department of Wildlife Conservation. Import of a turtle, any part of a turtle or turtle eggs are prohibited without a permit issued by the Director of Department of Wildlife Conservation (section 37). In addition section 49 of the Fauna and Flora Protection Ordinance prohibits any business of transportation, selling and buying turtle and any part of turtle (dead or alive) without a permit issued by the Director of Department of Wildlife Conservation. According to section 29 of the Fisheries and Aquatic Resources Act regulations can be made to ban the capturing, landing, transportation, selling, buying, receiving or keeping in possession of any turtle. In addition regulations could be made to prohibit or regulate the export from or import into Sri Lanka. In 1979 Sri Lanka signed the CITES (Convention on International Trade in Endangered Species) agreement and therefore international trade in sea turtle products is illegal. The provisions of the Fauna & Flora Protection Ordinance are adequate, although the punishments for these offences, which are mentioned in the Fauna and Flora Ordinance, are inadequate to serve as a long term deterrent. Therefore a set of well-formulated hatchery management guidelines should be introduced for turtle conservation and through these guidelines hatcheries could be streamlined for turtle conservation. In addition existing law enforcement on turtle conservation has to be made aware of the general public. The provisions of the Fisheries and Aquatic Resources Act provide a significantly small penalty in turtle conservation. Strengthening the Custom Ordinance against illegal import and export of turtles and their body parts could be recommended.

Research needs in Sea Turtle Conservation

By

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Sea turtle conservation activities in Sri Lanka are dominated by ex-situ conservation programs where sea turtle eggs are collected from the nesting beaches and reburied in a safe place away from the original nesting beach till they hatch. A few conservation projects have initiated some in-situ conservation programs where turtle nests are protected at the nesting beach. This is more laborious and expensive work compared to the ex-situ conservation. Safe entry of turtle hatchlings to the sea is the final goal of these hatchery activities. However, conservation needs of sea turtles cannot be met only by releasing large numbers of hatchlings to the sea alone. Long-term studies such as nesting biology of sea turtles, effect of temperature on sex determination and sex ratio should be carried out in order to understand the conservation needs of sea turtles and promote their long-term survival. Proper understanding of the nesting behavior of marine turtles is essential to maintain ecologically effective hatchery management practices.

Some countries such as Costa Rica, Mexico and Surinam have positively identified migratory routes of sea turtles, which nest on their local beaches. They can use these data to identify 'danger zones' for those turtle populations where migratory turtles are subjected to heavy predation and facing threats in the sea such as by-catch of fishing industry. Migratory routes of the nesting turtles in Sri Lanka are unknown.

Very few attempts have been made to tag the nesting turtles to find their migratory routes in Sri Lanka. There is an urgent need to identify the population size of the nesting turtles on Sri Lankan beaches. A proper research program was conducted only in Rekawa, near Tangalle of Southern Sri Lanka to monitor the population size of nesting turtles between the period of 1996 and 2000. These activities should be continued and extended to other turtle nesting beaches in order to identify the nesting turtle populations of Sri Lanka.

Present status of marine turtles in Sri Lanka

By
Thushan Kapurusinghe

Turtle Conservation Project (TCP), Sri Lanka.

Five species of marine turtle come ashore to nest and inhabit the waters of Sri Lanka. They are the Green turtle (*Chelonia mydas*), Olive ridley turtle (*Lepidochelys olivacea*), Loggerhead turtle (*Caretta caretta*), Leatherback turtle (*Dermochelys coriacea*) and the Hawksbill (*Eretmochelys imbricata*). The Green sea turtle is the commonest nesting species followed by the Olive ridley turtle, Leatherback turtle, Loggerhead turtle and the Hawksbill turtle respectively.

Despite the protection by government legislation since 1972, and amendment made in 1993, their future is one in jeopardy, with many turtle populations declining to the point where they are no longer significant resources either materially or culturally. This is due mainly to the indiscriminate exploitation largely for their eggs and meat. In addition, turtle nesting beaches (rookeries) are being disturbed by tourist industry development. Feeding habitats such as coral reefs, sea grass beds are destroyed in many areas and other coastal vegetation including mangrove habitats are being destroyed by pollution and unsustainable harvesting. Many turtles are accidentally caught and drowned in fishing gear each year. Marine pollution affects the turtle population by the way of destruction of feeding habitats and polythene is mistakenly identified and taken as food by the sea turtles. Turtles were slaughtered for the removal of the carapace in order to produce illegal tortoiseshell products. Critically endangered Hawksbill turtles were the main victims of the tortoise shell industry. After the complete ban of the production and the trade this issue has less impact on the decline of turtle populations in Sri Lanka. Occasionally, the dealers sell old stocks for the foreigners.

North and Southwest coastline is the location of Sri Lanka's largest marine turtle rookeries. One of the most widespread form of marine turtle exploitations in Sri Lanka is the illegal poaching of turtle eggs for human consumption and or for sale to unscientifically managed 'tourist attraction' turtle hatcheries. Turtle hatcheries are mushrooming in Western and Southern areas of the island contributing very little to sea turtle conservation. The law enforcement and the implementation of community based turtle conservation projects at important nesting beaches are not at satisfactory level in Sri Lanka. In Kosgodda and Bentota beaches where all five species are reported to nest, the locals collect almost 100% eggs. Majority of the collected eggs goes to sea turtle hatcheries in the area and the locals themselves consume the remaining eggs.

Research work is not adequately conducted in order to understand the local turtle populations. To increase the public awareness in turtle conservation, the Turtle Conservation Project (TCP) which is dedicated for sea turtle conservation conducts various conservation and community development programs for coastal communities each year such as mangrove rehabilitation, model medicinal gardens, primary school programs, English teaching programs, school lectures, exhibitions and seminars, publication of educational materials etc.

National action plan for the conservation and management of sea turtles has prepared some time ago but yet to be published and implemented. These facts suggest the need of attention on sea turtle conservation and management in Sri Lanka.

'Coastal Communities and Sea Turtles'. A summary of TCP's community based turtle conservation activities in Sri Lanka 1995 - 2002.

By
Thushan Kapurusinghe
Turtle Conservation Project (TCP), Sri Lanka.

Coastal communities of Sri Lanka have to depend on their surrounding natural resources for their survival as they live in a third world's developing country. As a result of this factor, very important coastal habitats and coastal fauna such as the coral reefs, sea grass beds, mangroves, marine turtles and other coastal vegetations are under the serious threat of extinction. Coastal communities continue to use the coastal resources in destructive manner by violating the existing environmental laws due to their poor income. This complicated socio economic problem causes a great challenge to the government of the country.

Mining and gathering of corals for the production of lime is a common occurrence in some coastal areas. The firewood for burning corals is obtained by destroying the surrounding mangrove forests and coconut plantations. Removal of corals and destructive fishing practices increases the sea erosion in many parts of the coastal belt, resulting the loss of natural fisheries harbors. The beach erosion can be correlated to reef degradation because without the offshore reef to break waves, beaches are subject to the full force of ocean waves. The coastal vegetation that was once abundant in many coastal areas is destroyed due to the erosion. This in turn has resulted in the loss of nesting habitats for the marine turtles.

The government banned the removal of corals and also destroyed many lime kilns as a conservation measure. This has resulted in the loss of avenues of income for coastal communities who gathered corals, who transported the corals to the limekilns, who supplied firewood from mangrove forests etc. This clearly shows the chain connection between the coastal communities and their surrounding natural resources. Removal of a single part of the chain will negatively affect the whole community dependency system. Even though the government has prohibited the breaking of corals and cutting of mangroves etc, it has not found adequate alternatives for the coastal communities to survive. Hence these communities are forced to seek alternate avenues of income. The community members who lived on breaking coral and cutting mangroves have now got used to collect sea turtle eggs and kill turtles for flesh. This indicates that the coastal communities are shifting the use of natural resources for their livelihood in a destructive manner.

As a community based conservation organization, the Turtle Conservation Project (TCP) of Sri Lanka realized the chain connection between the coastal communities and coastal resources, which heavily depend on each other. Therefore, the TCP aims to provide alternatives to the coastal communities, to develop various talents in community members, to increase awareness on sustainable use of natural resources, to take remedial measures to redeem them from destructive practices, to provide community facilities such as libraries and primary schools etc and to conduct researches and surveys on sea turtles and their habitats as conservation and management measures. TCP seeks the support from organizations and individuals who wish to join their hands with TCP to continue its community based conservation programs in Sri Lanka.

Turtles and Tourism in Sri Lanka

By

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Tourism is a human activity. It is the world largest trade that generates US \$ 475/= billion a year, surpassing petroleum, arms and computers. Per day this translates to receipts generated by international tourism of US \$ 1.3 billion. Around 700 million people cross the borders annually for tourism purposes such as leisure, business, visiting friends and relations, business conferences and conventions, etc. Major share of tourist arrivals in the world and income is received by Europe 57.7%, other regions such as America, East Asia and South Asia receive 18.8%, 16% and 1% respectively. In other words our region receives 6.4 million tourists annually, which shows a growth of 8.3% in 99/2000.

Sri Lanka achieved the target 400,000 tourist arrivals in 1982, 1999 and 2000 and has experienced ups and downs due to the well known reasons of the ground situation. Accordingly tourist receipts too ranges from US \$ 156 – 274 million.

In spite of the fluctuation of tourist arrivals, the investment for tourism during the last decade was encouraging. Construction of Hotel accommodation and development of other tourist facilities and amenities continued. As a result, today the accommodation sector consists of 13,000 rooms ranging from 1 to 5 Star levels. Sri Lanka Tourism is trying hard to achieve 1 million tourist target by 2004 under the promotional tag line of "Sri Lanka a land like no other".

It is estimated that nature based tourists spend US \$ 15 – 18 billion annually. (W.T.O.).

To watch turtles is a dream and a photographic image during their stay in Sri Lanka. It is one of the few countries that turtles can be "seen" and "touched".

Turtles in Sri Lanka have a very high tourism potential. It is strength of tourism product and has a tremendous opportunity to develop to show turtles and study turtles.

Sri Lanka Tourist Board proposes to formulate a policy with regard to conservation of turtles and tourism activities/turtle hatcheries, turtle sanctuary, turtle conservation, etc.

- Develop turtle conservation and community development in the areas of in-situ conservation of sea turtles.
- Promote turtle conservation to attract above four types of nature-based tourists.
- Train guides and interpreters.
- Establish an interpretation center.
- Publish a take away brochure with pictures and activities of the center.

The Tale of a rehabilitated turtle egg collector from Rekawa, Sri Lanka.

By
Wasantha Edirisooriya, TCP Community Environmental Education Trainer (2001)
&
P. K. Sampath, TCP Turtle Nest Protector, Rekawa (1996 – 2000)

The Rekawa is a small village on the South coast of Sri Lanka, approximately 10 kilometers Eastwards along the coast from Tangalle. The village is located on the border of the intermediate and dry climatic zones of Sri Lanka, and borders on a large saline lagoon surrounded by extensive mangrove forests. There are no electricity or telephone lines in the village and the majority of households do not have running water. Water is mainly obtained from roadside storage tanks.

The village is divided into two divisions, Rekawa East and Rekawa West, and the numbers of families in these divisions are 121 and 144 respectively. Income generation activities for the families in the Rekawa area include agriculture (47%), lagoon fishing (10%), sea fishing (18%), coral mining (9%) and others (17%) such as masonry, carpentry, government services and labor.

The community of Rekawa village has suffered several setbacks in the last decade. During the late 1980's and early 1990's, Rekawa was the location of political violence, which bereaved many families of their skilled men-folk. An irrigation system designed by the government to improve the quality of the agricultural land surrounding nearby Tangalle, drained Rekawa of its groundwater. The groundwater was eventually replenished by saline water from the sea and Rekawa lagoon, which rendered the land unsuitable for agriculture unless there are heavy rains. These events have resulted in low incomes for most of the families in Rekawa with approximately 57% of the families dependent to some degree on government welfare.

Because Rekawa is located on the border of two climatic zones there is a high local biodiversity. As well as the mangrove forests, the local vegetation consists of scrub jungles, medicinal plants, fruit trees and a wide variety of wildlife including 150 resident and migratory birds, 27 species of mammals, 23 species of reptiles, many arthropods and aquatic life. Because of high biodiversity and beautiful beach with five species of marine turtles, Rekawa is one of the most attractive places for tourists in Southern part of Sri Lanka. Some people of Rekawa began to collect sea turtle eggs and also occasionally killed some turtles. Almost 100% of the eggs were taken from the Rekawa beach until 1996. This was controlled by a NGO called Turtle Conservation Project (TCP), which employed the turtle egg collectors as nest protectors. TCP began its community based in-situ nest protection and research program in Rekawa to conserve the endangered sea turtles. This beach patrolling program had to be temporarily close down due to the lack of funding. Tourism is the only alternative for the previous egg collectors at the moment and TCP with the assistance of Sri Lanka Tourist Board and Sri Lanka Hotel School initiated a new nature guide-training program for the locals in Rekawa who dependent on sea turtle egg collection.

Education & Awareness as a Tool for Sea Turtle Conservation

By

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Turtle Conservation Project (TCP), Sri Lanka.

Five of the world's seven species of marine turtles namely Green turtle (*Chelonia mydas*), Leatherback turtle (*Dermochelys coriacea*), Loggerhead turtle (*Caretta caretta*), Hawksbill turtle (*Eretmochelys imbricata*) and the Olive Ridley turtle (*Lepidochelys olivacea*) come ashore to nest in Sri Lanka. Despite government legislative protection; marine turtles are still being exploited in Sri Lanka for their eggs and meat. As a result of these threats marine turtles are listed as either endangered or critically endangered.

TCP is a Sri Lankan Non Governmental Organization, established in 1993, with the aim of devising and facilitating the implementation of sustainable marine turtle conservation strategies through education, protection, research and community participation. Public awareness is identified as a major issue by the global, regional and national action plans for the conservation and management of sea turtles. There are similar work done by many organizations in other countries but here in Sri Lanka, the awareness programs on marine turtles were not implemented at a satisfactory level. Lack of work has been done in this area so far and it is need to be done. The importance of the need of continued education among the communities especially at key fish and turtle landing sites must be realized and youth generation must be actively involved in marine turtle conservation in their local areas.

To implement the priority actions (Recommendations) identified by the global, regional and national action plans for the conservation and management of endangered marine turtles, the TCP education unit referred the environmental policy documents such as the Bio-diversity Conservation Action Plan (BCAP) and National Environmental Action Plan (NEAP) and implemented some recommended activities on public awareness.

TCP has successfully conducted series of school lectures between 1995 and 2001 and believes that the completed school lecture programs effected sea turtle conservation in long-term basis when consider the community participation aspect of sea turtle conservation. Thousands of school children learnt many aspects of sea turtles and their conservation requirements. The number of questions asked by the students on turtle biology at each workshop provides the idea of inadequate knowledge on sea turtles. All these questions were answered and explained in detail. As most of the students who participated for awareness programs live in the coastal areas, it is very important to educate those children in conserving sea turtles and their habitats. We believe that majority of them will pass the message to other family members as well.

TCP has assisted to number of school children in preparation of their turtle project reports for schools as an advance level activity. TCP provided information and photographs on sea turtles and guided the children through out the project duration. In addition, TCP provided the knowledge on scientific research, data analyzing and compilation of project reports.

Some biometric data on nesting marine turtles at Rekawa turtle nesting rookery in Southern Sri Lanka.

By

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Turtle Conservation Project (TCP), Sri Lanka.

Marine turtles represent an ancient and distinctive part of the world's biological diversity. There are seven species of sea turtles living in the world and five of them come to ashore in Sri Lanka. Sea turtles are reptiles and basically spend their entire life in marine or estuarine habitats. They are the only remaining reptilian ties to terrestrial habitats for nesting and restricted cases of basking. TCP surveys revealed that Rekawa is the location of one of the most important green turtle (*Chelonia mydas*) rookeries in Sri Lanka. Leatherback turtle (*Dermochelys coriacea*), Loggerhead turtle (*Caretta caretta*), Hawksbill turtle (*Eretmochelys imbricata*) and Olive ridley turtle (*Lepidochelys olivacea*) also nests at Rekawa. During this study all these five species of turtles were encountered on the Rekawa beach.

Two-kilometer stretch of Rekawa beach was patrolled every hour during the night and when a turtle observed then starting to collect the biometric data on the nesting turtles. During the daytime also beach was patrolled for protect the nests from the predators and some villagers approaching to the beach. Biometric data collected includes times of each nesting stages such as emerge time, starting to dig the body pit, nest chamber, egg laying, nest chamber covering, body pit covering, starting to return to the sea and entering to the sea. Also the egg count, sample egg weight and diameter measurement were taken. The curved carapace length and width was measured after the turtle laid eggs. All the turtles are tagged first time when they come to the beach for identification purposes on their front flipper using Dalton plastic tags or rare flipper using titanium tags.

Position of the nest on the beach is mapped and the nest is covered by 1 meter x 1 meter metal net for protection from monitor lizards, mongooses etc. When the hatchlings are emerged from the nests, number of emergent hatchlings along with a sample weight, length and width measurements were recorded.

Using the tagged individuals it was able to identify 664 individual turtles came to nest during the study period. Of this 596 (89.76%) were the green turtles and 68 (10.24%) individuals were from all the other four species (36 olive ridley, 23 leatherback, 3 hawksbill and 6 loggerhead). It was observed total of 2709 nests laid by the five species of turtles during the study period. From that 2614 nests (96.49%) were laid by the green turtles and all the other species laid only 95 (3.51%) nests. Olive ridley turtles laid 39 (1.44%) nests and leatherback turtles laid 43 (1.59%) nests, loggerhead turtles laid 7 (0.26%) nests and hawksbill laid the minimum of 6 (0.22%) of nests.

The average egg count for green turtle population that nest on Rekawa beach was 112.1 (1985 nests observed), average egg weight was 42.8g (19,050 eggs were measured) and the average egg diameter was 42.5 mm (18,880 eggs were measured).

Incidental Capture of Sea Turtles in fishing Industry in Sri Lanka

BY

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Turtle Conservation Project (TCP), Sri Lanka

Five species of marine turtle come ashore to nest and inhabit the waters of Sri Lanka. All five species are listed by the International Union for the Conservation of Nature (IUCN) as either endangered or critically endangered. Sea turtle populations in many areas are declining to the point where they are no longer significant resources either materially or culturally. In Sri Lanka, this is due mainly to the destruction of terrestrial and aquatic sea turtle habitats such as nesting beaches, coral reefs, sea grass beds and other coastal vegetations, Slaughtering of sea turtles for their meat, and the collection of almost 100% eggs from the nesting beaches for personal consumption and for sale. One of the major threats face by the sea turtles in Sri Lanka is the accidental by-catch in fisheries industry. Therefore, attention must be given for an assessment of incidental by-catch of sea turtles in Sri Lanka.

Historical data and reports to date on the extent of turtle by-catch in Sri Lanka are confusing and provide little insight due to their contradictory nature. In 1984 Jinadasa estimated (via a series of calculations based on generalised assumptions) that marine turtle by-catch for the entire island was approximately twelve to fifteen turtles per week. Therefore, he estimated the annual marine turtle by-catch for the whole of Sri Lanka to be four hundred turtles as a realistic albeit conservative total. However, it seems that these were probably gross underestimates when reports from other authors are considered. Gunawardane estimated that ten turtles were landed and butchered per day in Kandakuliya, a small fishing village on the Northwest coast of Sri Lanka. Perera witnessed the butchery of 16 turtles over a three day period in May 1986, in Negombo, a fishing town approximately 110km due south of Kandakuliya. Both authors noted that the majority of the turtles caught in the region were Olive Ridleys (*Lepidochelys olivacea*). In early 1994, TCP staff witnessed the butchery of thirteen Olive Ridleys at Kandakuliya in one morning.

The TCP by-catch survey was carried out between September 1999 and November 2000 in order to assess the extent and nature of incidental marine turtle by-catch at fish landing sites within programme boundaries by collecting data on marine turtle entanglements. Information derived from this survey was then used to formulate an action plan to minimise turtle by-catch in Sri Lanka. Sixteen major fish landing sites were selected for the by-catch survey along the Northwest, Western, Southwest, Southern and Southeast coasts of Sri Lanka between Kalpitiya and Kirinda (448km). These fish landing sites were: Kandakuliya, Chilaw, Negombo, Colombo (Modara), Panadura (Modara), Wadduwa, Beruwela, Moragalla, Galle, Weligama, Mirissa, Dondra, Kottegoda, Tangalle, Hambantota and Kirinda.

The programme included an introductory seminar programme for fishermen at each fish landing site and the collection of by-catch data from each site. Between November 1999 and November 2000 a total of 5241 turtle by-catch was reported, this figure included all five species of turtle which nest on the beaches of Sri Lanka. A total of 13760 interviews with fishermen were carried out during the survey period.

**Beach Survey Assessment on nesting Sea Turtles on Southern Coast between
Kapuhenwala and Hambantota of Hambantota District.**

By
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This survey was conducted between the period of March 2001 and 30th of June 2001. The survey was carried out covering 39 km stretch of a beach between Kapuhenwala and Hambantota. The Key objectives of the survey were to assess the nesting species and abundance of sea turtles in the survey area, Identification of beach vegetation, assess the beach front development and human impact on sea turtles that nest in the survey area. Main beaches located between Kapuhenwala and Hambantota are Rekawa, Kandamodara, Godawaya, Ussangoda and Kalametiya, There are fishing harbours of various sizes at Rekawa, Kahandamoodara, Kalamatiya, Velipatanwila, Pattiyavaraya, Godawaya, Mirijjawila. Over 600 fishing boats [small boats, catamarans, multiple day boats, and ma-dell catamaran] were recorded.

Turtle nesting activities were recorded by direct observations of turtle tracks on the beach and body pits. Interviews were made with the locals and officials of the fisheries cooperative Societies in order to receive more information about the area and other coastal activities. Beachfront developments were observed and information was gathered from locals as well. Any destructive activity was noted down when observed.

All five species of sea turtles were recorded from the survey area during the survey period. In Rekawa Green sea turtles were more abundant and the Leatherbacks were more prominent at Godawaya and Pattiyawaraya.

The study of the vegetation cover in the study area indicated that there are three main types of vegetation cover. 1. shrub vegetation, 2. Creepers that spread on the ground and, 3. medium size woody plants. The species identified are Pandanus tectorius, Cyprus, Spinifex littoreus, Ipomea pescaprae, cactus, Pedalium murex, Emilia sonchifolia, Phyla nodiflora, Crotalaria podocarpa, Tribulus terrestris, Polkitcha, and also some mangrove species were reported near the lagoon mouth. Coconut, Thespesia [sooriya] and Cyprus plants have been replanted along the coastal belt in some places in the survey area.

Turtle Conservation Project (TCP) - Sri Lanka

The TCP was established in 1993 and 1995 it was registered as an independent Sri Lankan non-governmental organization (NGO) with the Central Environmental Authority (CEA). The TCP operates according to an approved constitution and is currently coordinated by a committee of 7 residents of Sri Lanka. The TCP employs a core of 4 full time staff and has its head-office in Tangalle. It maintains field offices in Rekawa, Panadura and Kandakkuliya in order to facilitate the operations of the initiated activities.

The Vision of the TCP is "*Sustainable level for sea turtle populations in Sri Lanka*" while its mission is to "*conduct researches, surveys, education & awareness programmes, community based conservation & management programmes, to achieve the sustainable level of sea turtle populations in Sri Lanka*".

In doing so it works closely with the following decision making bodies; a) National Aquatic Research Agency, b) Department of Wild Life Conservation, d) Other International/National Conservation bodies like CMS, IUCN & Law enforcement authorities etc., e) Tourists Board and f) Ministry of Fisheries, providing valuable information helping in prudent decision making, policy development & strategic planning.

The staff and committee members of the TCP has presented papers, on the status of marine turtles in Sri Lanka, and TCP programmes at the following conferences; 1995 Symposium on Sea Turtle Biology and Conservation, North Carolina, USA; 1st National Conference on Herpetology Research and Conservation in Sri Lanka, Kandy, Sri Lanka, 1995; International Conference on the Biology and Conservation of the South Asian Amphibians and Reptiles, Kandy, Sri Lanka, 1996; The 1996 Symposium on Sea Turtle Biology and Conservation, Orlando, Florida, USA; IUCN/SSC Northern Indian Ocean Sea Turtle Workshop in Bhubaneswar, India, 1997; the 1997 Symposium on Sea Turtle Biology and Conservation, Orlando, Florida, USA; 1999 Symposium on Sea Turtle Biology and Conservation, South Padre Island, Texas, USA; the 2nd ASEAN Sea Turtle Symposium, Malaysia 1999, the 2000 Symposium on Sea Turtle Biology and Conservation, Orlando, Florida, USA; the 2001 Symposium on Sea Turtle Biology and Conservation, Philadelphia, USA. The Fourth World Congress of herpetology 2001, Bentota, Sri Lanka.

It also publishes many publications like reports, leaflets, booklets, posters and a quarterly news bulletin called "Turtle News". It has in its possession a rare collection of slides and video footage collected over the years. It also maintains its web site www.search.lk/turtle as a source of information for the local and international community.

The TCP organized turtle-sensitive, nocturnal "Turtle Watches", for fee-paying tourists, to provide employment as tourist guides cum egg protection patrols for 17 one-time turtle egg collectors in the Rekawa community in-situ marine turtle nest protection and research programme for which, **the TCP in 1998 won the highly commended British Airways Tourism for Tomorrow award for the southern region.**

TCP has received funding or is presently funded by the following agencies NORAD, Netherlands Embassy, The British Embassy, CEIF (Ministry of Forestry and Environment), Columbus Zoo, British Airways, CMS / United Nations Environment Programme, WSPA, and has also been allocated funding under Global Environmental Facility - Medium grants scheme to carry out a in-situ conservation project covering *Kalamatiyawa, Ussangoda and Rakewa* in the South to Southeast of Sri Lanka.

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