

Enhancing livelihoods through promoting community based
sea turtle conservation at Rushikulya Rookery, South Orissa

Final Report



Supported by



February 2009

Acknowledgements

I am grateful to the Rufford Small Grants Foundation, UK for providing the necessary financial support for this project. I am also thankful to Dr. Jack Frazier, Dr. Jeffery Seminoff and Dr. P.S.Rajasekhar for the recommending the proposal for funding support. I am indebted to the Rushikulya Sea Turtle Protection Committee and other like minded NGOs for coming forward helping me with achieving the project objectives and for their unconditional encouragement during the entire project period. Last but not the least I am thankful to all the coastal communities, especially the kind-hearted local villagers for their involvement, understanding and cooperating with me in successful implementation of the project at the Rushikulya Sea Turtle Rookery in Orissa coast of India.

Introduction

Though the name sea turtle or marine turtle conjure an image that they live only on sea, one need to go back to their 90 million years evolutionary history of their origin on land and reverting back to an aquatic life (like the whales). Even though sea turtle cover all the world's tropical and subtropical seas with spectacular adaptation in their morphology for a life in water, they are highly dependent on the sea beach where they must lay their eggs. It is this remarkable amphibious link of their life history and reproductive behaviour, which makes them highly dependent on the well being of their egg laying beaches.



Over the last few decades, sea turtles have become threatened due to human overexploitation, marine pollution and careless attitudes towards them. Human disturbances, both directly and indirectly are the primary reason for current decline in population of sea turtles worldwide. Therefore, conservation of sea turtle in whatever manner possible is indispensable for future survival of their population. Among the various conservation and management strategies, community based conservation is considered to be the most effective approach which not only safeguard the sea turtle population but also provide livelihood options with turtles to the communities through various means of conservation.

What is and why community-based conservation?



The wildlife conservation methodologies have so far ignored the social component of the conservation, i.e. the human population that dependent on the natural resources as much as the wildlife that conservationist tends to protect where as they are the major

stake holders. Of late, the conservationists apprehend the need to address the issue of stakeholders who have as much as right as that of wildlife on the natural resources. Thus, participation of the local community in conservation and management of natural resources constitutes a true community-based conservation.

The olive ridley sea turtle

The olive ridley sea turtle (*Lepidochelys olivacea*) is the most widely occurring species that nest at several sites in the western Indian Ocean, Indian subcontinent and Southeast Asia. However, mass nesting of olive ridley takes place only along the Orissa coast of India. The olive ridley sea turtle is well known for its synchronous nesting behaviour also known as *arribada* (Spanish for "arrival") in which several hundreds of thousands of female olive ridleys nest *en-masse*. The major nesting aggregations for olive ridley occur in few beaches of Costa Rica and Mexico in the east Pacific and in Orissa on the east coast of India. The olive ridley turtle is designated as endangered by status and is legally protected under the Schedule I of the Indian Wild Life (Protection) Act, 1972.



The 480 km coastline of Orissa harbour three mass nesting grounds namely the Gahirmatha rookery along the northern Orissa coast, the Devi rookery located 100 km south of Gahirmatha, and the Rushikulya rookery near the mouth of river Rushikulya in the southern Orissa coast. Between January and May every year,

more than half a million olive ridley turtles have been counted nesting *en-masse* at these three rookeries. All these places are highly populated with traditional fishermen and intensive fishing takes place in the offshore waters of these rookeries during breeding season.

The Rushikulya Sea Turtle Rookery

The Rushikulya sea turtle rookery is located on the sand spit along the northern side of Rushikulya river mouth. The rookery is situated along the south Orissa coast near

Ganjam town, in the district Ganjam (Location: Lat. 19°22' N and Lon. 85°02'E; Fig. 1). This rookery is 320 km south of world's largest seas turtle rookery, the Gahirmatha mass nesting beach.

Historical perspective of Rushikulya rookery

While carrying out the sea turtle nesting survey in Orissa during 1993, the biologists from Orissa Forest Department and the Wildlife Institute of India came across two fisher boys near the mouth of river Rushikulya along the south Orissa coast. They were enquiring about the status of sea turtles in their



locality. Three months later, the two-fisher boy got back to the biologists with a note on large scale nesting of sea turtles near the mouth of river Rushikulya. When the biologists checked the area, it turned out to be one of the largest mass nesting sites of olive ridley sea turtles in India. Thousands of sea turtles have been documented to nest in this area since one decade and the villager live perfect harmony with sea turtles at this rookery. Historically, this place has significant importance in terms of turtle trade. During 1950's and 60's live olive ridleys were transported from this place to Calcutta and Madras markets through railway wagons and by road means.

Contemporary Conservation with and by the People at Rushikulya

Most of the coastal villagers adjacent to the Rushikulya rookery are well aware of the *aribada* at the Rushikulya rookery from early childhood. In Hindu mythology, sea turtles are worshipped as an incarnation ('*kurma*') of one of the Hindu gods, and hence most fishing communities along the coast do not consume turtle meat/eggs or harm turtles in any form being considered as a taboo. Except for occasional exploitation of sea turtle eggs, the sea turtle in the offshore waters and on the nesting beach was a feature to accept as part of the marine and coastal system.

In 1995, the Wildlife Institute of India initiated a research programme on olive ridley sea turtles along Rushikulya rookery. As part of this programme many youths from the village were involved in tagging sea turtles, counting the dead turtles washed

ashore as well as counting them during *arribada*. This has immensely helped the fishers as to how to collect crucial information on the olive ridley turtles during mass nesting. As result of the continuous involvement of youth from adjacent coastal village Purunabandha, they have now formed a community group aiming at providing protection to olive ridley sea turtles both during nesting and hatching time. Programmes such as counting turtles during mass nesting, relocation of eroded nests and release of disoriented hatchlings safely back to sea are being undertaken by local youths since last couple of years. However, there is a need to train these local fishers so that they can continue a long-term conservation programmes for olive ridley sea turtles at this rookery.

The problems at the Rushikulya rookery



Artificial lighting near the Rushikulya mass nesting beach is a major problem for olive ridley sea turtles and as a result of this many hatchlings get entangled in the grass field that are situated close to the beach or stranded on the village roads. Non human predation of eggs and hatchlings is high in Rushikulya rookery.

Sea turtle conservation in Rushikulya

Realizing the importance of sea turtle conservation, the Government of Orissa has brought in some protection effort for this area. The coastal waters off Rushikulya have been declared as no-fishing zone during sea turtle breeding season. The Government of India (Ministry of Environment & Forests) and the Government of Orissa State is also planning to declare the Rushikulya sea turtle rookery as a *Protected Area* under the PA Network of the country.

Declaration of Rushikulya Sea Turtle Rookery as a *Protected Area* automatically strips the rights of local people on this traditional sea turtle nesting site in Orissa. Where as the people are not known to cause any harm to sea turtles, it is unjustifiable on the part of Government to alienate them from the area they are using since time immemorial. The whole process of protecting sea turtles may

become counter productive if people are not taken into confidence and their traditional rights are snatched in the name of sea turtle conservation



The Indian Wild Life Protection Act (1972), Amendment 2002 has a provision of declaring certain wildlife areas as Community Reserve (CR) or as Community Conservation Area (CCA). The Rushikulya rookery of Orissa coast offers an ideal site for a CR or CCA. This project was aimed at mobilizing the local community and

streamlines the efforts made by them to save sea turtles in this area. This project also adequately documented awareness and effort for sea turtle conservation at Rushikulya rookery, so that a case can be put up before the State and Union Government to declare Rushikulya rookery as a CR or CCA.

Livelihood Vs Enforcement by Government Agencies

Ban on fishing: The Government of Orissa (under the Union Government of India) has banned all kinds of gill nets operating in the near shore waters of Rushikulya, without providing any alternative livelihood options to the fisherfolks. As a result of which fishermen are affected as they are excluded from their primary occupation of fishing in the area.

Restriction for entry into the beach: During mass nesting season, the enforcing agencies prohibit any kind of activities on the nesting beach which spread for a length of ~ 5 km, even though the site is not a Protected Area and protected by laws. On the contrary, fishermen from three village viz. Kantiagarha, Gokhurkuda and Purunabandha, spend maximum of their leisure time on the sea shore for several activities such as repairing of their boat, mending of nets etc.

Use of beach for boat anchoring: Even the anchorage of boat is not allowed on the beach during nesting season and for which fishermen suffer as there are no safer places close to their village for easy unloading of boats from the sea shore.

Study Objectives

The key to long term conservation of the olive ridley sea turtles along the Orissa coast lies in not only mobilizing the local communities to participate in conservation programme, but also to instill in



them the feeling of belonging and that by protecting the turtles they are ensuring a secure future for themselves. A community participation approach, where the local communities benefit economically through increased occupational opportunities, would yield better results than a completely protectionist approach.

The main objective of this study was to evaluate the prospect of community based sea turtle conservation at Rushikulya rookery. The project also attempted at documenting people's initiatives in conservation and management of olive ridley sea turtles at Rushikulya rookery and to give them hand on training on community managed conservation programme.

This study was undertaken for a period of twelve months time i.e. from February 2008 to February 2009, which also coincides with the breeding season of olive ridley sea turtles along the Orissa coast for two season and the objectives were:

Summary of Activities Undertaken at the Rushikulya Sea Turtle Rookery

During February 2008, the field work for the project was undertaken at the Rushikulya rookery of Orissa.

Socio-economic profiles of the local communities

Five coastal villages viz. Kantiagarha, Gokhurkuda, Purunabandha, Nuagaon and Arjipalli are located adjacent to the olive ridley turtle congregation site at Rushikulya rookery. Fishing settlements near the beach include the fishing villages of Purunabandha and Gokhurkuda and the major fish landing centres are Kantiagarha, Nuagaon and Arjipalli. Majority of coastal dwellers in this area are artisanal fishermen engaged in near shore or estuarine fishing. Among the different

types of fishing gear, drift/gill nets are most popular in this part of the Orissa coast. Telugu is principal language in all the five villages, being fishers in these villages are *Nolias*, migrated long back from neighboring state of Andhra Pradesh where Telugu is spoken extensively. Literacy is poor among the fisherfolk communities in all these villages. About 95% of the populations are employed in fishing occupation while the rest of them involved in daily wage labourer, private service and small trade. Although local villagers use the Rushikulya beach for landing their traditional crafts and to construct temporary huts on the beach to sell their fish catch, olive ridleys come and nest at this beach without any apparent problem.

Status of coastal communities at the Rushikulya rookery, Orissa

Name of the Fishing Village	Total Population	Livelihood Options (%)	Fishing Community (%)	Average Family Income of a Fishermen Per Day
Kantiagarha	1877	Fishing Agriculture Business Govt. Job Other	Nolias (95%) Kevto (05%)	Rs. 50/-
Gokhirkuda	2222	Fishing Business Other	Nolias (85%) Kevto (15%)	Rs. 100/-
Purunabandha	1070	Fishing Government Job Agriculture Business Others	Nolias (15%) Kevto (85%)	Rs. 50/-

Interview based survey

The above five villages were identified for the interview based survey. A base camp was established in village Purunabandha, the closest village to the rookery as a confidence building measures for the coastal folks. In all the five coastal villages, one community group was identified among those who have prior social works for village development. These community groups were involved for all the project activities. They were also took part in community empowerment workshops and training programme that were conducted under the project.

Personal discussions and interviews were held in all the five coastal villages as well as on the fish landing centres. Fishers were asked about their opinion on sea turtle conservation and need for community involvement in sea turtle protection at Rushikulya rookery of Orissa. A standard questionnaire was prepared in English and regional language (enclosed) was followed for the interview. The fishing communities in all the five coastal villages are largely Telugu speaking and for easy dialect, a local person was engaged for interviewing them. Information was obtained from 50 persons (including fishermen, women, non-fishing coastal communities and school student) in each village surveyed.



Between February 2008 and December 2008, a total of 250 persons were interviewed in five coastal villages of which 192 were males and 58 were females. Females did not respond much to the questionnaires, because of social taboo and lack of understanding on the sea turtle.

However, males were very active in answering to the questionnaires. The interviewed fishers opined that sea turtle nesting at Rushikulya is time immemorial for them and they are living with turtles as long as their memory goes. Although there is no trade at present, during early nineteen seventies, turtle trade and egg poaching was very high from this place. Live turtles were transported from here by road and rail to Calcutta (Now Kolkata).

According to fisher, many people do not have boat and net of their own and for which they fish in-group. Fishing in the sea is throughout the year except for monsoon and peak during December to February. On the other hand, during the turtle breeding season, fishermen find it difficult to fish in the near shore water due to high congregation of turtles for breeding and when these turtle entangled in fishing net,



they tear their net, which is a great loss for the fishermen. People live complete harmony with sea turtle and adult turtle/hatchlings if entangled in their net, they release them immediately. On contrary, however, in recent past, it has led to a human-sea turtle conflicts in this area due to interference by the state fishery and forest department. Since several restrictions have now been imposed upon the fishing community for sea turtle onshore and offshore protection, there are various problems that the local communities facing particularly because of the moratorium on traditional fishing in the nearshore waters of Rushikulya during October to May every year.



During the interview, fishermen were also asked about the livelihood options to them. Many complained that they are unable to fish much during the breeding season and for which their income reduces during this time. Therefore, they are in need of alternate

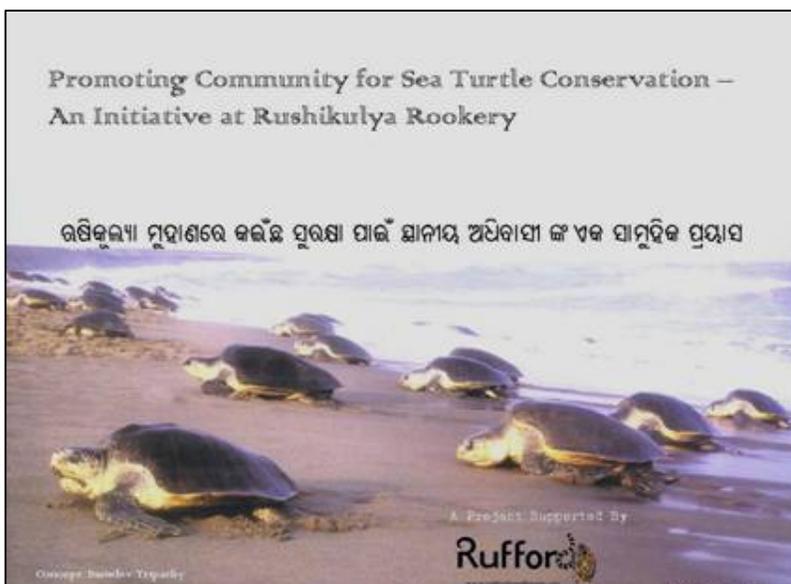
livelihood for their survival. Of the total interviewed peoples, 75% were suggested that they could take part keenly in sea turtle conservation activities if given an opportunity. They want to protect the turtle and the beach as well, but without disruption to their livelihood by any enforcement agencies. Among the various steps for sea turtle conservation, the guarding of turtle nests during the entire breeding season and restriction of near shore mechanized fishing are foremost, according to 65% of them. While the former can be taken care of by the local community, the later one required strict enforcement from government authority, suggested by group of more than 70% fishers. Barricading the entire beach and guarding by the local communities can control the non-human predation of turtle eggs and hatchlings. However, the interviewed villagers also suggested that some kind of a financial incentive must come from government to carryout the sea turtle protection programme and was supported by the village protection groups in all the five coastal villages.

Sea turtle awareness in coastal villages



The awareness programmes on sea turtle conservation and management was conducted in all the five villages. For awareness generation, wall painting depicting information on community initiatives on sea turtle conservation was done. A total of 1000 copies of stickers and handout in English and regional language (copy enclosed) were also produced for distribution as part of the training programme. Between February 2008 and December 2008, all the five coastal villages were visited regularly at an interval of fortnight time. During the visits, a total of 25 awareness camps were held in five villages by conducting smaller meetings in which posters, stickers and handouts in regional languages and English, were distributed among the villagers for awareness generation on sea turtles. During afternoon hours, slide shows were conducted in five village school. School children were given lectures on the importance of olive ridley and their conservation need. Besides, turtle films were also screened at the all the village community hall during weekends. As a measure of awareness creation, 500 numbers of t-shirt bearing messages on sea turtle conservation with community participation at Rushikulya was distributed freely to the village youths in all the five villages.

Empowering local communities



As part of the community based sea turtle conservation programme at Rushikulya, a one day workshop was conducted at the Purunabandha village. The identified community groups were given hand on training on various

aspects of sea turtle conservation and protection measures. Villagers were also trained on various facets of community benefits involving sea turtle as a resource. The workshop also consisted of an open discussion with the community group by the investigator as well as invited guest lectures. During the workshop, the community group representatives were provided with study and resource materials on sea turtle conservation. Technical Manuals on sea turtle monitoring, census techniques, and hatchery management were also provided to the participants (contributed by GOI-UNDP Turtle Project). Besides, field demonstrations on data collection and protection of beach, nests, eggs and hatchlings were done during the current year's mass nesting (March 2008) and hatching time of olive ridley sea turtles (May 2008) at Rushikulya rookery of Orissa.

Prospect of eco-tourism involving sea turtle



Given the poor economic conditions of the coastal communities, programmes in which local people benefit from the turtles (such as turtle watch programme during breeding season) may serve conservation objectives better than total protectionism and although community protection and management efforts have been there traditionally, revival of these traditional systems is considered to be worthy. Keeping this in mind, the aspect of feasibility of eco-tourism with turtles by the villagers was also looked into.

There is influx of tourists to the Rushikulya rookery during the sea turtle breeding season. Local fishers were trained on small-scale tourism management with sea turtle as focal interest. For field experience of fishers with tourists, tourists were taken in non/semi-mechanized boats to the inshore waters of Rushikulya for turtle watching through the sea turtle interpretation centre developed in collaboration with a local Non Government Organization, Rushikulya Sea Turtle Protection Society (RSTPC). During



mass nesting, community groups were trained on handling tourists on the *arribada* beach without disturbance to both turtles and tourists.

Promoting Community based Sea Turtle Conservation and Enhancing Livelihood through Sea Turtle at Rushikulya Rookery, Orissa

Most of the coastal villagers adjacent to the Rushikulya rookery are well aware of the sea turtle mass nesting (*arribada*) at this place from their early childhood. In Hindu mythology, sea turtle is worshipped as an incarnation of vishnu ("kurma") one of the Hindu god, and hence fishing communities in and around the Rushikulya rookery do not consume turtle meat/eggs or harm turtles in any form being considered as a taboo. On the other hand programmes such as helping in counting turtles during mass nesting, relocation of eroded nests and release of disoriented hatchlings safely back to sea are being undertaken by local youths in and around the villages surrounding the Rushikulya rookery.

Nevertheless, realizing the importance of sea turtle conservation, the Government of India and the Government of Orissa are considering the Rushikulya sea turtle rookery as a Protected Area. By declaring this site as a Protected Area, it will snatch away the rights and livelihood of the communities living in and around the rookery and the conservation effort by government may be counter productive. Therefore, instead of a Protected Area, the concept of Community Reserve can be an alternative.

Any conservation effort will be more effective only if, local people will be taken into confidence and if they will be included in the processes. Therefore, community based sea turtle conservation should be promoted at this rookery.

During turtle breeding season at Rushikulya, livelihood dependency (fishing) by the local communities get affected to some extent due to presence of turtles in the coastal waters for more than four/five months continuously. Therefore, alternate livelihood options such as income generation through assisting sea conservation effort by social & scientific organizations by the communities, sea turtle based tourism at Rushikulya and formation of cooperative groups & self help groups in the villages in and around the Rushikulya rookery should be promoted for turtle conservation and alternate livelihood to sustain at this rookery.

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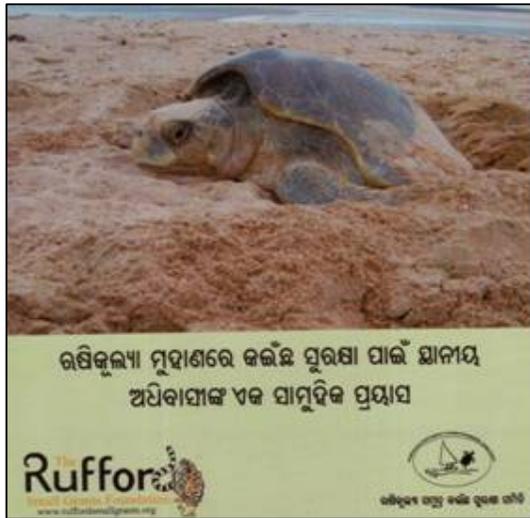
Sea turtle interpretation centre at Rushikulya

As a confidence building measures for coastal dwellers, a low cost sea turtle interpretation center was set up at the Purunabandha village. A locally formed community group "Rushikulya Sea Turtle Protection Committee" was requested to administer this interpretation centre. To attract more visitors to the interpretation center, the place was adorned with posters on different species of sea turtles and their life history. Each visitor was made aware with details on the community based sea turtle conservation through handout and stickers. To get feedback from visitors, they were requested to place their remarks in the visitor book (sample enclosed). Regular film and slide shows on sea turtle were conducted in the interpretation centre since February 2008.

Benefits to Turtle by Community Involvement

Traditional fishermen vs. trawling: The Orissa Marine Fisheries Regulation Action prohibits any kind of mechanized fishing within 20 km radius from the seashore. The 20 km radius is reserve for traditional fishing. However, illegal fishing continues to take place in all the area of Orissa and as a result of which, the mortality of turtles is on the rise every year. If the traditional fishing community will be encourage to fish in the near shore 20 km water, they will surely report any kind of illegal fishing within the reserved territory to the local fishery and wildlife authority instantly for quick actions. Trawling is equally harmful to traditional fishing practice as it deprives the marine living resources available within their reach as traditional fishing as such is not harmful for sea turtles.

Control of non-human predation of nest and hatchlings: If the traditional fishermen will be involved in protection activities, it will reduce the nest predation problem to a large extent. Being on the beach most of the time, they can vigil the beach continuously, efficiently and in a more cost effective way.



Awareness creation on sea turtle conservation among fishermen: Besides protection, there is a need of sea turtle awareness programmes in the coastal villages and the community groups can take up this exercise, if trained properly.

Checking of disorientation of hatchlings: During mass hatching, many turtle hatchlings get disoriented because of artificial illumination from landward side.

Involving the local communities, collection of disoriented hatchlings and guarding them could be carried out competently. The local Rushikulya Sea Turtle Protection Committee is doing this activity since last couple of years. However, to continue this exercise, the members of RSTPC and such organizations in the coastal villages adjacent to the Rushikulya rookery must be strengthened for the process of community involvement.

Benefits to Fishermen from Community Involvement in Conservation



Retain the traditional rights on the sea and beach: By declaring the Rushikulya sea turtle rookery as a Community Reserve or Community Conservation Area, the artisanal fishermen will have their traditional rights on the beach and in the offshore waters.

Promotion of eco-tourism and there by income generation by local community: There is tourist influx into the Rushikulya rookery every year. These traditional fishing communities can serve as guide and is a good source of financial benefit to the local people.

Funding support for village development: The surplus funds of the government and non-government scheme towards sea turtle conservation and protection through community participation can be utilized for various village developmental activities such as boat repairing unit in the village, handicraft training for women, road and water facilities, village community hall development etc.

Suggestions for Rushikulya Sea Turtle Rookery

There is a great deal of enthusiasm among the villagers towards sea turtle protection and conservation at the Rushikulya rookery. However, to make the activities more efficient and effective, there is a need of proper plan of actions for the local communities as well as for sea turtle conservation. Eco-tourism has great prospects at this rookery, but it need to chalked out in a organized manner so that a *high value low volume tourism management plan* can be developed for this area. From the observations of the Rufford Small Grant Programme supported Rushikulya



Rookery Community Project, Rushikulya is found to be the most suitable and safe area in the country where man-animal coexisting from time immemorial and is on the top for affirm the country's first community reserve/community conservation area.

Suggestions for Community Reserve or Community Conservation Area initiative in Rushikulya came out through interviews with fishers, village meetings, workshops and

group discussion with villagers that was carried out under the project. For Rushikulya sea turtle rookery to be a COMMUNITY RESERVE or a COMMUNITY CONSERVATION AREA, the following measures are required to be followed:

Sea Turtle Monitoring Committee: The foremost issue among others was to have a local Sea Turtle Monitoring Committee (STMC), in which there will be ten (10) representatives from each of these five villages. Among the representatives, there should be two members each from of the fishing community, educated youth, local NGO, woman and village leaders. The STMC will review the sea turtle situation at its annual meeting before the breeding season. Based on the suggestions from the group, a draft programme along with the budget will be prepared which will be sent the concern forest, wildlife and fishery department for approval. The STMC will monitor the entire programme for the season and meeting will be held every month to update the progress of the work. A monthly report will be sent to the concern authority updating the community managed sea turtle monitoring programme. Funds for the protection and conservation will be requested from concerned forest and fishery department. At the end of the breeding season, the surplus amount balance with the committee will be planned for various village developmental programmes.

Awareness programmes: Awareness programmes may be conducted by the STMC regularly in the five villages. Besides they may also train the local youth on sea turtle conservation techniques. For this experts in the field of sea turtles can be invited to train the villagers free of cost. Wide publicity on the Rushikulya sea turtle rookery may be done through electronic and print media.

Eco-tourism with turtle: To manage the tourist inflow into the rookery, the STMC may train some youth so that they can serve as tour guide. Tourists may be entertained by taking them into the offshore waters with country boat and turtle watch during sporadic and mass nesting time. The revenue generated from turtle watch programme will be accommodated towards manpower and infrastructure for this.

Specific Recommendations

Based on the community based sea turtle conservation study undertaken at Rushikulya sea turtle rookery, the following are some of the specific recommendations for sea turtle conservation as well as for safeguarding the interest of traditional fishermen at this place:

1. Traditional and artisanal fishing during sea turtle breeding season should be allowed by the concerned wildlife and fisheries authorities, as there is no harm to turtles due to traditional fishing. However, fisherfolk should voluntarily stop near shore fishing during mass nesting and mass hatching of turtles at the Rushikulya rookery.
2. Hoardings in local regional languages indicating "Does" and Don'ts" should be put up in the fish landing centres for educating fishermen and raising awareness amongst the fishers on sea turtle conservation.
3. The Government authorities should set up a Sea Turtle Monitoring Committee as proposed, involving community representatives from the villages adjacent to the rookery. This Committee may be asked to look after of the sea turtle protection activities at the rookery without intervene from the concern authorities. Funds allocation from government for sea turtle protection should be on annual basis to this committee.
4. Since the traditional fishing community is being called upon to regulate itself, the question of alternative sources of livelihood may be looked into urgently. Ecotourism and tourism involving sea turtles and involving fishers should be promoted by the government.
5. The non-mechanized traditional fishermen and fisher folk cooperatives must be involved in monitoring turtle congregation and nesting. Such efforts will provide them with employment, improve and widen the intelligence gathering network and reduce conflict between the fisher folk and wildlife protection staff. Further wherever feasible local conservation teams may be allowed to partake in proactive conservation measures.

6. The Forest as well as Fisheries Department must involve the traditional fishing community in conservation efforts highlighting at the same time that certain restrictions will ensure their long-term livelihood security.

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