

INDIAN OCEAN TURTLE NEWSLETTER

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The Indian Ocean Turtle Newsletter 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.

The newsletter is distributed free of cost to a network of government and non-government organisations and individuals in the region. All articles are also freely available in PDF and HTML formats on the website. Readers can submit names and addresses of individuals, NGOs, research institutions, schools and colleges, etc for inclusion in the mailing list.

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Reference styles in list:

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Editorial

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It gives me great pleasure to introduce the Indian Ocean Turtle Newsletter, which will serve as a forum for discussing issues regarding the conservation and management of sea turtles and their habitats in South and Southeast Asia and the Indian Ocean. The newsletter aims to disseminate information in a timely manner about sea turtles and their habitats to government departments and other concerned government agencies, voluntary organizations, NGOs, fisherfolk associations, community groups, universities and students as well as other institutions and individuals involved with the conservation and management of sea turtles and their habitats. It will provide a mechanism through which awareness about the status of sea turtles and their habitats can be disseminated to a wide audience, and will be a medium to communicate with the international community (researchers, conservation organisations and other interested parties) about sea turtle related activity in the region.

The first issue has a focus on sea turtle conservation in Orissa on the east coast of India. In this issue, we review legislation related to sea turtle conservation in Orissa and evaluate its efficacy. We also present the views and perspectives of various stakeholders including traditional and mechanised fisherfolk on sea turtle conservation measures in Orissa. The issue includes profiles of various non government organisations working in Orissa on fisheries and on sea turtle conservation. Finally the issue includes a bibliography of literature on sea turtles in Orissa.

In forthcoming issues, we intend to focus on other parts of India and South Asia, Southeast Asia and the Indian Ocean islands. In keeping with our philosophy of open access, the newsletter will be distributed free to subscribers and will also be available online.

A Review of Legislation and Conservation Measures for Sea Turtles in Orissa, India

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Introduction

In Orissa on the eastern coast of India occurs the well-known phenomenon of synchronous mass nesting - the 'arribada' - exhibited by the olive ridley turtles (*Lepidochelys olivacea*). The mass nesting beaches are located at three sites - Gahirmatha, Rushikulya and the Devi River mouth (Pandav et al., 1998). Olive ridley turtles nesting at these locations are part of a distinct genetic population that nest along the east coast of India (Shanker et al., 2004a). The recent failure of *arribadas* in 1997 and 1998

accompanied by the sharp decrease in size of adults suggest a potential or imminent decline in the population, consistent with fishery-related mortality of at least 1,00,000 turtles since 1994, and 10,000-15,000 turtles per year since 1999 (Pandav, 2000; Shanker et al., 2004b). Much of this mortality is attributed to drowning in trawl nets (Pandav and Choudhury, 1999), but recent accounts suggest that gill nets may also cause large scale mortality (Wright and Mohanty, 2001).

Fishing nets in Orissa range from artisanal shore seines, entanglement nets (trammel nets), hook and line fishing, a wide variety of gill nets and trawl nets. Besides the incidental take from certain fishing operations, other threats to the turtles include *Casuarina* plantations along the nesting beaches, which have caused a loss in the nesting habitat at the Devi River mouth and artificial illumination from towns and highways at the Rushikulya site (Pandav et al., 1998). Proposals for commercial ports and other large-scale anthropogenic activities near the mass nesting beaches are likely to pose a threat to this population as well. Given the scenario of escalating threats to the sea turtles and the marine environment in general, it is necessary to reflect on the conservation measures in the state, development threats to the marine environment and existing conservation and research efforts.

As one might expect, there is no single common view between the various categories of fisherfolk (traditional and mechanised), government departments, scientists and conservationists on the existing official sea turtle protection measures in operation in Orissa. The conflicts arising out of the lack of agreement on conservation is also attributed to failure of all these groups to come together to work out effective, appropriate and commonly agreed conservation measures. However, there has been a gradual shift in this scenario and recently, diverse groups including the traditional fishworkers, turtle biologists, local conservation groups and NGOs met in December 2004 to address issues of common concern, leading to the formation of the Orissa Marine Resources Conservation Consortium. In this article, we review legislation related to sea turtle conservation in Orissa

Review of sea turtle conservation legislation in Orissa

We present key events related to sea turtle conservation legislation in Orissa, which is a combination of species and habitat protection (Table 1). The key legislations in operation in the state are the Indian Wild Life (Protection) Act, 1972, the Orissa Marine Fisheries (Regulation) Act, 1982 and the Orissa Marine Fisheries (Regulation) Rules, 1983 (Figure 1). Numerous subsequent interventions and orders have

been issued by the judiciary and official committees at the State level.

Species protection under the Wild Life (Protection) Act, 1972

Records show that till the mid 70's Orissa openly supplied local as well as distant markets like Kolkata with turtle meat and turtle eggs (Kar, 2001). The Wild Life Protection Act (WLPA) came into force in 1972; subsequently, all sea turtles found on the Indian coast were included in the list of protected species in Schedule I of the Act. The WLPA declared the consumption, trade, hunting and injury of turtles as prohibited, and the enforcement of the Act eventually led to the decline in turtle trade in Orissa by the 1980s (Kar, 2001). Significantly, the WLPA does not make a clear distinction between incidental/accidental capture in fishing nets and poaching. Therefore fisherfolk found with sea turtles in their fishing nets can be penalised in the same manner as poachers, irrespective of whether the catch takes place within or outside a protected area. Enforcing officers are vested with considerable powers and the penalties of the WLPA are heavy, comprising a combination of a term of imprisonment and fines. The nesting beaches and offshore waters at Devi and Rushikulya, being turtle habitats by definition, are also required to be protected during the breeding and nesting season by the Orissa Forest Department.

Declaration of the Gahirmatha Marine Sanctuary

On 27th September 1997, the Government of Orissa declared Gahirmatha, one of the world's largest nesting beaches and its waters as the Gahirmatha Marine Sanctuary (GMS) under section 26(1)(b) of the WLPA. This comprises parts of the nesting beaches (uninhabited islands and sand spits) and the near shore waters around the area. The marine sanctuary was divided into a core area measuring 725.5 km² and a buffer zone measuring 709.5 km². The total area of the GMS measures 1435 km². The notification of the GMS states that no fishing activities are to be permitted in the core area throughout the year. The WLPA also does not mandate that the Government undertake a consultative process of 'settlement of rights' (as provided in section 19-25 of the WLPA) if the proposed protected area is comprised of reserve

forests or territorial waters. The WLPA however provides that *'adequate measures should be taken to protect the occupational interests of local fishermen'*. Section 26(2) states that *'the right of innocent passage of vessels and boats through the territorial waters shall not be affected by the notification'*.

As proof of having taken adequate measures to protect the interests of local fisherfolk, on 21st May 1998, a High Power Committee (HPC) constituted by the Government of Orissa met to decide on fishing rights within the core and buffer zone of the GMS (Government of Orissa, 1998). The HPC maintained that no fishing would be allowed in the core area. For the buffer area of the sanctuary, a region located for the most part beyond the core area, the HPC decided to permit only catamarans and crafts using motors less than 10 hp and monofilament nets (*'of smaller net size and length'*). This was also made a condition for

registration of the fishing boats. However these decisions were drafted in exclusivity with no proof of any consultation with local fisherfolk from the region surrounding the sanctuary. This created problems in implementation. For example, the finer details of enforcing these fishing regulations such as proof of *'innocent passage'*, assessment of number of marine fisherfolk requiring access rights, process of obtaining permits to pass through the core area of the GMS to the buffer zone were overlooked. Despite the problems in implementation at the Gahirmatha Sanctuary, the State Government through it's High Power Committee, is pursuing the idea of according Protected Area status (under the WLPA) to the Devi and Rushikulya areas (See Table 1 - event dated 10.10.2003). However it is not clear what rights (fishing and passage rights) the local people will have in these new Sanctuaries.

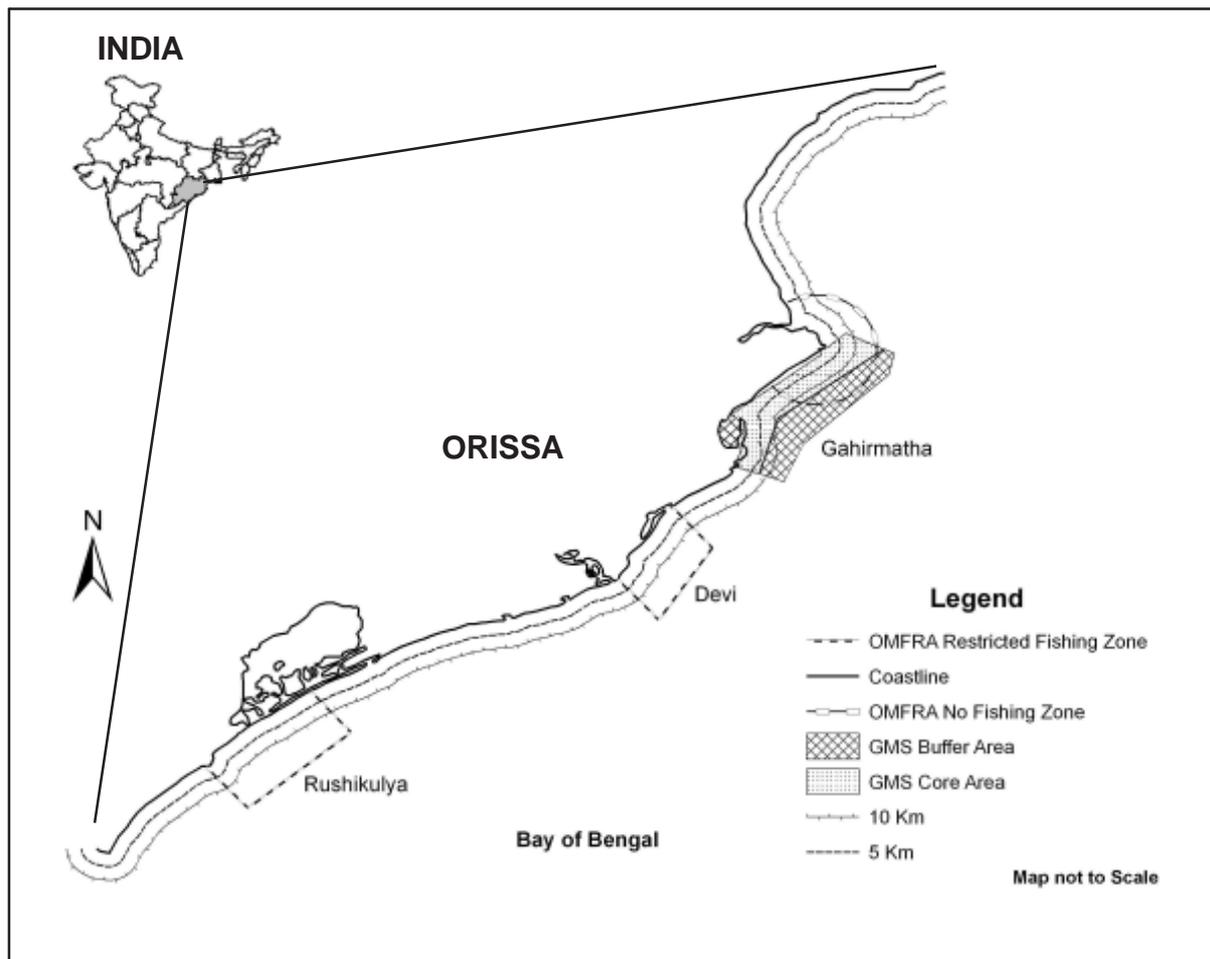


Figure 1: Fisheries regulations for sea turtle conservation in Orissa

Turtle specific fishing regulations of the Orissa Marine Fisheries (Regulation) Act, 1982

Since 1994, the Government of Orissa has been issuing biennial orders under the Orissa Marine Fisheries (Regulation) Act (OMFRA), prohibiting all fishing in the coastal waters of the Gahirmatha nesting beach. The ban on fishing in these waters is round the year and is not only for the turtle season. It is reissued at the end of each term. The Fisheries Department of the Government of Orissa introduced a seasonal prohibition on fishing by trawlers for a distance of 20 km from the seashore at the Devi (Jatadhara River mouth to

Devi River mouth) and Rushikulya (Chilika lake mouth to Rushikulya River mouth). The annual ban was for the turtle season from January to May.

General fisheries management regulations and turtles

It is now being recognised that fisheries regulations play a very critical role in turtle conservation. By keeping mechanised vessels away from near shore waters, reproductive congregations are protected to a great extent. Section 4(1) of the OMFRA empowers the State Government to introduce regulations in any specified area for different categories of fishing vessels and fishing gear. Rule 16 (1) of the OMFR Rules states that the

Table 1: Turtle Conservation Measures and Related Laws

| Date | Regulation |
|--|---|
| <u>Species protection</u> | |
| 1972 | Introduction of the Indian Wild Life Protection Act (WLPA). The olive ridley turtle is currently listed on Schedule I, which affords maximum protection under the Act |
| <u>Fisheries management regulations</u> | |
| 1982 – 1983 | Orissa Marine Fisheries Regulation Act (OMFRA), 1982 and Rules introduced in 1983 |
| 1983 | OMFR Rules introduced. It outlined different fishing zones for different fishing crafts |
| <u>Habitat Protection</u> | |
| 1994 | OMFRA Biennial orders prohibiting fishing at Gahirmatha. Reissued periodically. |
| 6.06.1997 | OMFRA seasonal prohibition (Jan–May) on fishing by trawlers at Devi and Rushikulya 20 km seaward radius. Reissued periodically. |
| 27.09.1997 | Declaration of the Gahirmatha Marine Sanctuary (GMS) under the WLPA. |
| 10.10.2003 | State High Power Committee (HPC) recommends that the State Government consider proposals for the Devi and Rushikulya areas to be declared as Wildlife Sanctuaries. |
| <u>Fishing Rights</u> | |
| 21.05.1998 | State HPC issues restrictions on fishing within the Gahirmatha Sanctuary. |
| <u>Fishing Gear Regulation</u> | |
| 6.12.1997 | OMFRA order mandating use of Turtle Excluder Devices (TEDs) on trawlers |
| 17.04.2001 | OMFR Rules mandating ‘mechanised fishing vessels’ to use TEDs |
| <u>Judicial intervention</u> | |
| 7.03.2003 | Interim orders on turtle conservation from the Central Empowered Committee (CEC) of the Supreme Court of India |
| 10.10.2003 | HPC prohibits fishing by trawlers and gill-netters in the Dhamra mouth, Devi mouth and Rushikulya mouth from 1 st November to 31 st May, 2004 |
| 7.04.2004 | Revised CEC directions on fishing regulations |

waters five kilometres from the shore is reserved exclusively for non-mechanised traditional fishing crafts, and that no other type of mechanised fishing vessel shall be allowed to operate in the area. Mechanised fishing vessels (including trawlers) up to 15 meters of length are allowed to operate only beyond five kilometres of the coastline. Current studies indicate that turtle congregations are found mainly within five kilometres from the shore (Pandav, 2000; Tripathy, 2004). Consequently a better implementation of this fisheries regulation will reduce considerably trawler induced turtle mortality. The OMFRA also imposes a ceiling on the number of mechanised vessels that can be licensed to operate along the Orissa sea coast. The present limit, as notified under Form VI, Rule 17 of the OMFRA Rules, 1983, is one thousand vessels. There are however a large number of illegal and unlicensed vessels operating in violation of this rule.

Gear regulation examples: The Turtle Excluder Device (TED) and self regulation by the OTFWU

In the mid 1990s, the Government of United States of America modified Section 609 of Public Law 101-162 of the Endangered Species Act, 1973 and made it mandatory for countries exporting shrimp to the US to set in place a marine turtle conservation programme comparable to that of the US (for a review, see Bache and Frazier, in press). However, the US Government has been insisting on recognising only the usage of TEDs as suitable conservation measures in order to permit shrimp imports from India. Compelled to use TEDs, shrimp exporting trawlers from India, particularly from Orissa, have been issued free TEDs by the Marine Products Export Development Authority, an institution under the Ministry of Commerce. Some attempts at popularising TEDs in Orissa have also been undertaken with assistance from local NGOs like Project Swarajya. The OMFRA mandates that all trawl boats in Orissa must use TEDs in their nets. All trawlers insist that the accompanying catch - loss from the use of TEDs is too high (for a review of TED implementation, see Shanker and Kutty, in press). This rule is blatantly violated throughout the state and not a single trawler is known to use a TED in their nets.

On the other hand, the Orissa Traditional Fish Worker's Union (OTFWU) decided to spontaneously ban a few nets along the entire Orissa coast – the sting ray net (a

large meshed multifilament net), the large meshed monofilament pomfret net and the ring seine. Of these, the former two are well known to result in turtle mortality. It needs to be stated that this sort of self-regulation is becoming a rare occurrence and has been welcomed by conservationists, the judiciary and the Government.

Judicial intervention for turtle protection

In a recent petition filed before the Central Empowered Committee (CEC) appointed by the Supreme Court of India (Shri Alok Krishna Agarwal vs. Union of India State of Orissa and others), the petitioner outlined matters related to non-implementation of turtle protection measures and other threats to turtles in Orissa. In its first interim directions in this petition, dated 7th March 2003, the CEC imposed a complete ban on all gill net boats operating in the waters off the three mass-nesting sites. However after much agitation from the traditional fishworker organisations, led by the OTFWU, these orders were revised. The final orders of the CEC dated April 2004 are detailed and pay more attention to the nature of restrictions for the traditional fisherfolk. At the Devi and Rushikulya sites, trawlers are prohibited from fishing for the months of November till May for a distance of 20 kms towards the sea from the high tide line (point 3.1.1 of the 2004 CEC report). At these two sites, in the offshore turtle congregation areas, artisanal fishing (with sails and oars only, and in limited numbers) is permitted. Motorised fishing boats of particular specification (using small mesh size, monofilament nets up to 300 metres) are permitted in all areas except the congregation areas at these two sites. The CEC also stated that in addition to the sting ray net, the ring seine net and the sea bass net, all nets measuring 140 mm and above, whether monofilament or multifilament are to be prohibited in Orissa, until there is sufficient proof that they are not a threat to turtles (point 3.3.5 of the 2004 CEC report). The CEC also laid out specific orders regarding issuing of permits, licences and detailed documentation of fishing crafts and gear and identification mechanisms.

However, the CEC orders uphold the fishing regulations within the Gahirmatha Marine Sanctuary. In

effect, there continues to be a ban on fishing within the core area of the Marine Sanctuary for any category of fisherfolk and fishing practice. The existing regulations in the buffer zone also remain. While the OTFWU has welcomed, in general, the CEC's revised April, 2004 orders, it is still advocating for more relaxations within the Gahirmatha Marine Sanctuary. It is to resolve some of these issues that collaborative actions on sea turtle conservation planning and implementation are being initiated in Orissa

Developmental activities around the Gahirmatha Marine Sanctuary

Anthropogenic activities near Gahirmatha and the other nesting sites clearly include illegal aquaculture farms, proposed port construction and operation, industrial sand mining, proposed construction facilities for offshore oil exploration and artificial illumination from industries, towns and other residential areas near the coast. The 'Wildlife Conservation Strategy' adopted by the Government of India in 2002 states that lands falling within 10 km of any protected area should be declared an Ecologically Fragile Zone. Such zones would have the possibility of regulating environmentally destructive activities while permitting benign ones. There are also laws for the protection of the coastal environment such as the Coastal Regulation Zone Notification, 1991 and the Water (Prevention and Control of Pollution) Act, 1974. These regulate the activities of industries in the coastal zone. There are a number of activities on the coast that are in violation of these laws. Some examples include the reported release of untreated effluents by Oswal Chemicals and Fertilisers Ltd at Paradip and of Jayshree Chemicals at Ganjam, the extensive prawn farms along the Kendrapara and Jagatsingpur coast etc. Proposed projects such as the proposed commercial port at Dhamra, around twelve kilometres north of the nesting beach at Gahirmatha, lie outside the boundary of the Sanctuary but will have significant negative impacts on this ecologically sensitive site.

Conclusion

It is of interest to note that prior to the declaration of the Gahirmatha Wildlife Sanctuary, the earlier

draft map of the Gahirmatha Marine Sanctuary comprised of a region measuring 65 kms in length, and 10 kms in width (seaward distance). This included the Wheeler islands (site of the Defence Research Development Organisation missile testing range) as well as the site of the proposed Dhamra port. However, the State Government in its letter No. 11693, dated 20th June 1997 requested that these areas be excluded. This request was accepted and the finally notified area excluded the site of the Dharma port and the Wheeler islands. Ironically, there is no evidence to show that any consultation took place with local fisherfolk on deciding conservation measures or fishing restrictions in the GMS area prior to its declaration. This is despite local fisherfolk and the Fisheries Department placing formal records expressing their apprehensions on impacts of fishing restrictions on livelihoods. It appears that in the case of the GMS, defence and large-scale commercial considerations were given priority while deciding the boundaries and quality of conservation in this important region.

In retrospect, it appears that the turtle conservation measures that have been introduced at various stages in Orissa have been ad hoc and not necessarily appropriate to conservation needs of this population. Protests from traditional fisher representatives regarding livelihood concerns have been over a decade old but their involvement in official meetings on conservation measures only began in 2003. This was preceded by a scenario of severe conflict between officers and fisherfolk at the three sites and subsequent protests and demonstrations by the fisher unions. Turtle conservation measures are also most comprehensive in dealing with fisheries related mortalities, in comparison to other threats such as plantations and lighting. Implementation efforts have also focused on fisheries related mortalities. However there is still much disagreement between several categories of fisherfolk over which fishing regulations and turtle conservation regulations they are willing to follow. The conservation measures that regulate fisheries need immediate attention. This process of review and planning for sea turtle conservation in Orissa will require the involvement of fisherfolk from various categories at all stages.

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Perspectives of the Traditional Fishworkers on Sea Turtle Conservation

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The Orissa Traditional Fish Worker's Union (OTFWU) is the largest union in the State representing the interests of traditional fishworkers of Orissa. Recently the union has actively advocated for the traditional fishworkers stating that excessive turtle conservation measures have impacted their livelihoods. We have articulated our responses to the official sea turtle conservation measures in Orissa. Key points of the appeal by OTFWU to the Supreme Court's Central Empowered Committee, dated 19th February 2004 are detailed

below:

- The present system of protection solely entrusts the forest department with powers that are often abused at the village level.
- Traditional fishermen must be made partners in conservation efforts at all levels.
- No traditional fishing gear should be banned without adequate and scientific study and data.

- Fishworkers displaced due to ban on any particular gear should be provided with adequate financial assistance for shifting to any other allowable gear.
- OTFWU will voluntarily ban the use of 3 types of nets that trap turtles.
- Areas within the Gahirmatha Marine Sanctuary that do not have turtle congregations should be declared as buffer areas. Within these buffer areas the existing fishing restrictions need to be revised to allow traditional fishing practices that do not impact turtles.
- In case of a complete ban on any particular area for a particular period, all affected fishermen of that area must be compensated for the loss of income for the same period. Adequate financial allocations for this purpose must be a component of the conservation program.
- Traditional fisherfolk using traditional gears should be differentiated from mechanised gears like trawl nets.
- For each of the turtle congregation areas, joint management/ monitoring committees comprising of traditional fishermen, officials and scientists should be formed. This committee should decide upon the exact period, nature and extent of restriction on fishing activities depending upon field observations.
- The OTFWU also states that following fisheries management measures need to be undertaken as part of a more holistic marine conservation approach:
 - Stop collection of prawn seeds from sea and creeks.
 - Stop intensive aquaculture in the coastal zone as per the SC judgment by Justice Kuldip Singh, 1996.
 - Strict implementation of monsoon ban on trawling from 15th June to 31st August.
 - Enact National Marine Fishing Regulation Act to cover entire EEZ.
 - Diversify the existing trawlers and mechanised fleet to harvest deep-sea resources and thereby reduce overcapacity in traditional waters.
 - Stop water pollution from industrial establishments, sewerage, tourism, commercial ports and oil exploration etc.
 - Bring about aquatic reform conferring rights to the traditional fishing community to own and manage water bodies, fishing crafts and gears and distribution/ marketing of fish.

Turtle conservation from the perspective of Orissa's trawling industry

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Over the years, the trawler associations of Orissa through their representatives have been expressing their reactions towards turtle conservation measures enforced by the Government. These have ranged from outright rejection of the theory that holds trawling to be the major cause of turtle mortality, to making suggestions for conservation measures that meets their interests and involves them in field level implementation. In one instance i.e. in a Workshop-cum-Demonstration on Turtle Excluder Devices (TEDs) held at Paradip in February 2002, the representatives of trawler associations of the State articulated their position vis-à-vis the turtle related fishing restrictions and made quite elaborate

and vociferous statements. From these communications, their overall concerns can be figured out. Based on these statements and also from informal discussions intermittently held with the trawler associations since then, we may sum up their overall concerns as follows:

- Indian trawlers should not be forced to use any prototypes or modified designs of TEDs, since these are American innovations, which are useful only for targeted shrimp trawling which takes place in US waters. These are not suited for India where mixed trawling of shrimp, fish and crab of different varieties and sizes of catch goes on. This

- is true even in case of the so-called Indian trawler friendly CIFT TED - the latest design imposed on trawlers by the Government - which has been found to result in more than 20% of their fish catch loss - an unviable proposition.
- In place of TEDs, an indigenous device needs to be evolved under the collaborative efforts of the Government and the trawling industry, that effectively minimizes the loss of fish catch while safeguarding turtles from incidental catch.
 - If the government earmarks an area for seasonal closure of all fishing operations such as that currently existing at Gahirmatha, there is no need to make the usage of TEDs mandatory all along the Orissa coast.
 - The boundaries of the fishing-prohibited area in the coastal waters should be clearly demarcated so as to be visible from a distance, possibly by using solar powered buoys.
 - There is presently no boundary and no method to prove that a fishing boat has entered a prohibited area. There are also no clear procedural guidelines to make arrests and seizures. Therefore the act of making such arrests and seizures without any clearly laid-down procedure is unfair.
 - There is no reason why during the non-turtle season, fishing should not be allowed in the Gahirmatha Marine Sanctuary and the congregation areas along the coastal waters of Orissa.
 - The exact area and location of turtle congregation zones off the Orissa coast should be reviewed and redrawn from time to time in a collective exercise by both enforcement agencies and the trawling industry, in view of periodical changes found in the behaviour of migrating, congregating and nesting turtles in choosing new sites and abandoning old ones.
 - The prohibitive or restrictive measures on fishing operations in the waters of Orissa imposed for the purpose of turtle conservation or the conservation of other forms of biodiversity should be reviewed and reformulated on the basis of dialogues between enforcement agencies and the marine fishing industries of the State.
 - If caught within the prohibited zones, a trawler may be caught and a case registered against it by the appropriate designated officials, with no arrest of persons or seizure of boat, net, catch etc. If found guilty, the concerned trawler may be awarded with pecuniary fines at the end of the litigation. The legal proceedings have to be completed expeditiously within a time frame. Such an approach is convenient for both the trawling industry and enforcement agencies.
 - The current penalties are excessive by any reckoning and pushed quite a few fisher families to complete ruination. This is more so when we consider the fact that turtles if ever caught in trawl nets are only incidental catch and not a result of intentional poaching. Again the cases should not be forwarded to the court since the exasperating delay in the disposal of cases in the courts simply tells upon the survival of the concerned fisher families.
 - The charter of rights for marine fishing communities vis-à-vis the various legislations and regulations and their enforcement by different authorities should be formulated by the Government in consultation with the concerned fisher agencies and spelt out clearly.
 - Malpractices such as extortion and bribery by some staff in the Forest Department in connection with turtle cases should be completely stopped.
 - The trawler associations are willing to extend their wholehearted cooperation to all turtle conservation measures at the ground level, provided these are adopted with their consent. Secondly their concerned personnel should be financially remunerated using turtle conservation funds with the Government in a manner similar to other technical or enforcement agencies.
 - The Government should make efforts to involve the trawling community in research and development programmes around turtle conservation, marine fisheries and biodiversity, and also in promoting eco-tourism along Orissa coast.

Biological Studies on Sea Turtles on the Coast of Orissa

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Several turtle biologists have studied the olive ridley turtle in Orissa over the last decade and have developed strategies towards turtle conservation. Summarised below are some relevant findings of these studies:

- An increase in mortality was documented from a few thousands in the early 1990s to more than 10,000 per year by the mid 1990s (Pandav, 2000). A review of data suggested that this population may be on the verge of a decline, based on evidence from the failure of arribadas in recent years, a decline in adult sizes and high fishery related mortality (Shanker *et al.*, 2004a).
- Nearshore surveys have shown that sea turtles occur in discrete areas which have been named as 'reproductive patches'. These reproductive patches have been located off the coasts of Gahirmatha (Pandav, 2000; Ram, 2000) and Rushikulya (Tripathy, 2004), and are expected to occur in the offshore waters of other mass nesting beaches such as Devi River mouth. The patches are about 50 – 75 km² in size, and extend to a distance of about 5 – 6 km offshore.
- The Wildlife Institute of India tagged 10,000 nesting turtles and 1600 mating pairs in offshore waters from 1995 – 1999. Results showed that olive ridley turtles migrate between mass nesting beaches (Pandav, 2000). Tagged turtles were recovered from southern Tamil Nadu and Sri Lanka, indicating that at least some of the olive ridleys that nest in Orissa migrate to these areas.
- In satellite telemetry studies conducted in 2001, 3 of 4 turtles remained in the offshore waters of Orissa between April and July, 2001, moving within 50 and 200 km of the coast. A fourth turtle migrated to the coast of Sri Lanka in August 2001.
- Genetic studies confirmed the results of tagging and showed that there is no genetic difference between nesting populations in each of the

mass nesting beaches. More significantly, the results revealed the distinctiveness of the population on the east coast of India, and suggested that they may be ancestral to populations in the Atlantic and Pacific oceans (Shanker *et al.*, 2004b).

- Satellite imagery studies suggest that the failure of mass nesting at Gahirmatha in 1997 and 1998 is due to natural causes such as erosion and reduction in the nesting habitat due to the impacts of successive cyclones (Prusty *et al.*, 2000).

Conservation recommendations

- There should be more effort to identify and monitor reproductive patches. Identification and protection of these reproductive patches from trawling and other harmful fishing practices will significantly reduce turtle mortality.
- Protection of the reproductive patches (rather than the entire marine sanctuary) is a more effective and efficient way of utilising the limited manpower resources of the state, and can involve local fishing communities.
- Monitoring of turtle nesting and mortality should also be carried out by independent agencies to evaluate success of management measures.
- While reducing current mortality, turtle conservation strategies should be effective in the long term.
- The nesting habitat of sea turtles must be protected; adverse impacts of *Casuarina* plantations and beach lighting need to be mitigated.
- Rigorous assessments of various developmental activities on coastal and offshore habitats of olive ridley turtles are required
- Satellite telemetry studies will provide important information about migration and offshore distributions of turtles during breeding and non-breeding seasons.

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Views of Fishworker Support Organisations on Turtle Conservation Measures in Orissa

International Collective in Support of Fishworkers

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The International Collective in Support of Fishworkers has been involved in researching the interaction between fisheries and turtle conservation in Orissa. While several of the views in our note overlap with those of other groups such as the traditional fishworker groups and those of turtle biologists, certain others are exclusive opinions. Our views on turtle conservation measures and the highlights of our note are presented below:

- There should be strict implementation of the 5-km near-shore 'non-trawl zone'.
- Protection of reproductive patches is an efficient and cost effective conservation method.
- Regulating the use of certain gear: There should be no blanket proscription of all forms of gillnets, which is the mainstay of the fishers of Orissa.
- Compensation should be given for livelihood opportunities foregone. A compensation package for fishing opportunities foregone should be worked out, including provisions for earning an

alternative livelihood. Incentives to switch to more selective gear should also be considered.

- Recognising and protecting the rights of safe passage: In the implementation of turtle conservation measures, right of safe passage through the marine sanctuary and 'no-fishing zones' should be better recognized and protected. This is an important issue for several communities living in the vicinity of the marine sanctuary, who have to cross the core area of the Gahirmatha sanctuary to fish beyond, and face harassment on a regular basis.

Turtle Conservation Measures Useful in the Medium and Long Term

- Review of legislation: There is need for considerable improvement of the scope of legislation for turtle protection, especially with regard to turtle-fisheries interactions. Instead of total protection regimes for turtles, it may be

judicious to move into conservation regimes for all the coastal living resources, including turtles. In Orissa, as well as in other parts of India, there is a need to develop a conservation plan not only for marine fisheries within territorial waters but also for the whole of the exclusive economic zone.

- There should also be a proper operational definition of fishing in fisheries legislation. There should be effective and transparent ways to determine what constitutes fishing within the marine sanctuary or 'no-fishing zones'.
- There should be an improved understanding about turtle-fisheries interactions.
- Measures must be undertaken to reduce the total fishing effort.
- Awareness and training programmes should be undertaken among fishing communities.
- There needs to be better socio-economic data. Reliable socio-economic data about communities dependent on fisheries resources in turtle habitats should be collected to better assess the impact of turtle conservation measures on local livelihoods.
- There should be training and better coordination among enforcement officials.
- Use of VMS and GPS for better implementation and enforcement: Satellite-based vessel monitoring systems (VMS) should be introduced to track fishing vessel movement in fishing grounds. All mechanized fishing vessels should be brought under the ambit of such a programme with financial assistance from the government.
- Hand-held global positioning system (GPS) instruments should be distributed to fishers in both mechanized and non-mechanized categories so that if prior information is given to the fishers about the location of reproductive patches, they can, with the aid of GPS, determine the location of such patches and avoid fishing there. All fishers should be prohibited to fish in such patches
- Traditional fishworkers must be made equal and effective partners in conservation efforts at all levels.
- There should be greater dissemination of information about conservation measures and regulations in place, particularly among fishworkers. This, in combination with professional training of enforcement officers responsible for apprehending fishing vessels, should ensure that unnecessary harassment of fishers and increasing opportunities for bureaucratic corruption, are avoided.
- Conservation programmes should address the range of factors that contribute to turtle mortality, including non-fishery factors such as industrial and urban pollution of the sea, development projects such as ports, military establishments and operations, oil and gas exploration, mineral mining from the coastal areas, intensive prawn culture, collection of prawn seeds (larva) with fine-meshed nets, and uncontrolled and irresponsible tourism, and bring them within the ambit of conservation programmes.
- Conservation programmes should take a holistic, ecosystem approach towards conservation, management and sustainable use of all the coastal and marine living resources, including turtles.

Initiatives towards Consensus - the Orissa Marine Resources Conservation Consortium

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Stakeholders in the turtle-fisheries scenario have been perceived as being either "pro-turtle" (anti-people) or "pro-people" (anti-turtle). Throughout the last decade there has been no conducive platform or

space whereby the turtle-fisheries stakeholders could come together to discuss and address important problems arising out of turtle-fisheries interactions. It was expressed by some stakeholders such as the

traditional fishworkers group that there should be a common platform to discuss the turtle-fisheries issue. In December 2004, divergent groups comprising conservationists, biologists, fisherfolk NGOs and other interested persons met to form a voluntary and non-official sea turtle conservation consortium in Orissa, which would be beneficial to both conservation as well as livelihoods. The group has been named as the Orissa Marine Resources Conservation Consortium.

The mission of the OMRCC was declared to be 'To ensure sustainable use of marine living resources and livelihoods'.

The objectives of the consortium are:

- To reduce and prevent the over-exploitation of marine resources of Orissa.
- To protect the rights of the traditional fisherfolk in Orissa.
- To define the rights, resources, responsibility and roles of the various stakeholders in marine conservation in Orissa.
- To work towards sustainable livelihoods of traditional fisherfolk in Orissa.
- To promote and engage in the conservation of threatened marine life in Orissa.
- To conduct periodic assessments of the effectiveness of sea turtle conservation measures in Orissa.
- To conduct periodic assessments of the impacts of sea turtle conservation measures on the livelihoods of fisherfolk of Orissa.
- To promote and facilitate collaborative sea turtle and fishery resource conservation actions in Orissa.
- To evolve and promote a common sea turtle conservation strategy developed by various stakeholders represented in the OMRCC.
- To develop conflict management mechanisms to address fisheries and conservation related issues in Orissa.
- To advocate against polluting activities and environmentally unsustainable development practices in the coastal areas of Orissa.
- To define and promote indigenous, innovative technology for sustainable harvesting of marine resources.
- To develop eco-friendly indigenous markets for marine resources of Orissa.

- To liaise with the state government, NGOs, central government, CEC, fishing communities and other policy level institutions and bodies to achieve the objectives of the OMRCC.

Members of the OMRCC

- Representatives from the OTFWU
- Operation Kachhapa and other local marine conservation NGOs
- Representatives from marine fishworkers' cooperative societies
- Marine scientists, turtle biologists, fisheries experts
- Marine resource conservation and management experts

The OMRCC shall endeavour to include other groups such as:

- Trawler representatives from different areas
- Panchayat Raj Institutions related to coastal areas
- Fish traders (particularly those associated with traditional fishworkers)

Coordination

The OMRCC shall have one coordinator and two assistant coordinators. The term of these coordinators shall be three months. The present coordinator is K. Aleya from the Orissa Traditional Fish Worker's Union. Assistant Coordinators are Biswajit Mohanty (Operation Kachhapa) and Aarthi Sridhar (Ashoka Trust for Research in Ecology and the Environment). A group of facilitators have been identified to provide inputs and support on specific areas such as advocacy (Ashis Senapati), NGO and civil society groups (Dolli Dash), community groups (Buddhimanta Rao), participatory research (Basudev Tripathy) and natural resource management (Dr. N.P. Gantayat).

The mission, objectives, membership and operational aspects of the OMRCC were decided through a collective process but these are liable to change based on changing needs and requirements. Therefore, any changes in the functioning and the present principles and operation of the OMRCC would be possible with the collective consent of the members.

The Dhamra Port in Orissa

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The proposed Dhamra minor port is located just north of the boundary of the Bhitarkanika National Park on the Orissa coast and about 10 km away from the Gahirmatha Marine Sanctuary. The proposed port, located in the immediate vicinity of this extremely important and fragile zone, was granted environmental clearance not by the Ministry of Environment and Forests (MoEF), but by the Ministry of Surface Transport (MoST) of the Government of India. This bizarre situation has its origins in July 1997, when the MoEF amended the 1991 Coastal Zone Regulation (CRZ) notification under the Environment Protection Act (EPA), 1986 and handed over power to the MoST to grant environmental clearance to port projects. The MoST's clearance powers were finally taken back three years later in 2000, but before this happened the MoST had already granted clearance to the port at Dhamra. The other equally bizarre aspect is the nomenclature of the port project as 'minor'. Minor ports have another clear and rather exceptional exemption from the Environment Impact Assessment (EIA) notification also promulgated under the EPA, 1986. They don't need to go through the EIA process and as a result getting clearances for minor ports has been rather simple for state governments and project proponents.

In 1994, the Ministry of Environment and Forests (MoEF) issued its 'Environment Impact Assessment' (EIA) notification. Meant as a tool to ensure that developmental projects did not ride rough shod over environmental concerns it listed 29 (later increased to 32) industrial and developmental activities that needed environmental clearance from the Government of India. Clause 3, Schedule I of the notification contains this list of projects which includes ports, harbours, airports (except minor ports and harbours). Why an exception was made for minor ports is not very clear. However, this exception has created one of the biggest loopholes in

environmental legislation in the country, allowing for the development of at least a 100 such 'minor' ports along the country's coastline. Many, including Dhamra, in Orissa, Kulpi in West Bengal, Positra in Gujarat and Tadri in Karnataka are located in areas that are ecologically extremely sensitive.

Presumably, the reason to exclude a minor port from environment clearance is that it is 'minor', investment is limited, land requirements are negligible, not many people will be affected, and the overall environmental impact will be minimal if not negligible. The reality on the ground is different. The difference between a major and a minor port, strangely, is not of size or quantum of investment, but of jurisdiction alone. While the major ports (such as Kandla, Cochin, Chennai, Paradip and Vishakapatnam) are under the Central Government, minor ports are under the charge of state governments. The proposed port at Dhamra is to be developed over an area of nearly 1,000 acres, and another 3,000 acres are being acquired for other project-related development activities. The proposed investment is about Rs. 1,500 crores (~ USD 300 million). As per the original notification, all projects exceeding an investment of Rs. 50 crores (USD 10 million) have to go through the EIA process, yet minor ports with more than Rs. 1,000 crores (USD 200 million) investment are still exempt from the Environmental Impact Assessment process.

At present, the Indian corporate bodies involved in the port project at Dhamra are believed to include ICICI Bank, construction major Larsen & Toubro (L&T) and Tata Steel. In October 2004, Tata Steel and L&T were reported to have signed a deal for the construction of the port valued in excess of Rs. 1,500 crores. Tata Steel has also announced plans to set up a Rs. 8,000 crore (USD 1.6 billion), six million tonne, integrated steel plant at Duburi in the neighbouring Jajpur district and invest another Rs. 5,000-6,000 crore (USD 1 billion) to develop iron ore mines in the

Keonjhar and Sundergarh districts. In addition, there is a proposed Bhadrak-Dhamra railway line. Tata officials have been quoted as saying that the development of this port is critical to all their other investments in the region.

More recently, in August 2004, South Korean steel maker Posco and Australian mining major BHP Billiton jointly approached the Orissa Government with an even larger investment proposal: a 10 million tonne integrated steel plant, that would include iron ore mining, setting up a coke plant and power generation. The proposed investment is an enormous Rs. 39,000 crore (USD 8 billion) over 10 years. Like the Tata proposal, this too mentions a port at Dhamra. And their steel plant location is also Duburi, or perhaps Dhamra itself. This cumulative proposed investment of Rs. 55,000 crores (> US 10 billion) is obviously attractive to the state government.

Recent studies reveal congregations of nesting turtles up to six kilometre offshore and 12 km south of Gahirmatha. This is a fraction of the turtle population that would be affected. Researchers remind us repeatedly that we do not yet have enough data on offshore turtle movements. But it is not difficult to imagine the impact of port construction and operations activity. Some 50 million cubic metres (cu. m.) of silt are to be dredged initially, followed by an annual two million cubic metres every single year. Subsequent shipping traffic, oil spills, chemical leaks, illumination and pollution from townships and other habitation would further impact turtles and the marine ecosystem. The Central Empowered Committee's (CEC) July 2004 report to the Supreme Court states: "*The present site (Dhamra port)*", "*will seriously impact Gabirmatha's nesting turtles and could lead to the beach being abandoned by the marine creatures. It is therefore necessary that an alternative site is located for this port*".

Chronology of events related to the Dhamra port

(Source: Petition filed in the Orissa High Court by Wildlife Society of Orissa and others, 2000)

Mar. 1881: Dhamra notified as a port (Chandbali).

Jun. 1931: Port limit extended, only a small fishing jetty on Dhamra river.

Sep. 1972: Olive ridley turtles included in Schedule I, Wildlife (Protection) Act.

Apr. 1975: Notification for the declaration of Bhitarkanika Sanctuary issued.

1978: Government establishes fishing jetty on Dhamra river within port limits.

Oct. 1988: Draft notification for the declaration of the 367 sq. km. Bhitarkanika National Park.

Present Dhamra site within national park boundary.

1994: Environment Impact Assessment notification issued under Environment Protection Act, 1986 exempting minor ports from its purview.

Jun. 1997: State government issues letter to reduce area of Bhitarkanika National Park to ensure Dhamra is outside the boundaries.

Jul. 1997: Coastal Regulation Zone notification amended conferring power on the Ministry of Surface Transport (MoST) to grant environmental clearance to ports.

Sep. 1997: Notification declaring the Gahirmatha Wildlife Sanctuary issued.

Oct. 1997: International Sea Ports Pvt. Ltd., (with Larsen & Toubro as major stake holder), gets an E I A report prepared by Kirloskar Consultants, Pune.

Dec. 1997: Fresh proclamation issued for Bhitarkanika National Park.

Apr. 1998: Orissa government asks the MoST to clear Dhamra port.

Sep. 1998: Final notification for 145 sq. km. Bhitarkanika National Park issued. Dhamra site now outside park boundaries.

Jan. 2000: The MoST grants clearance to Dhamra port.

Mar. 2000: 20th Annual Sea Turtle Symposium passes resolution expressing concern over Dhamra port

Dec. 2003: Lead financier ICICI Bank suggests modifications in the concession agreement for the project and interest in its construction is revived.

Feb. 2004: Tata Steel expresses interest in joint venture with L&T.

Jul. 2004: Supreme Court appointed Central Empowered Committee says: “The present site (Dhamra) will seriously impact Gahirmatha’s nesting turtles and could lead to the beach being abandoned by the marine creatures. It is therefore necessary that an alternative site is located for this port.”

Aug. 2004: Korean Steel Major Posco and Australian mining company BHP-Billiton express interest in an integrated iron ore mining, steel plant and Dhamra port construction project with proposed investment of Rs. 39,000 crores.

Sep. 2004: International campaign to save Dhamra gathers steam.

Oct. 2004: Tata Steel and L&T sign agreement for construction of Dhamra port.

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Operation Kachhapa & the Sea Turtles of Orissa

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The olive ridley in Orissa

The olive ridley turtle is known for its spectacular mass nesting behaviour. There are only three places in the world where this unique natural phenomenon - known as an *arribada* (Spanish for ‘arrival’) - occurs. One of them is in the state of Orissa on India’s eastern coast. But over the past decade the turtles have been facing increasing pressures off the coast of Orissa. Illegal trawling and gill netting has devastated their populations. While traditional fishing methods pose little problem to the turtles, large mechanised fishing vessels dragging trawl nets behind them trap and drown tens of thousands of turtles as they congregate offshore to mate. Large-scale development projects – such as the construction of a mega port, and offshore drilling for natural gas – situated in the turtle’s congregation areas and migration paths are creating increasing pressure for the sea turtles of Orissa.

Operation Kachhapa

To reduce turtle mortality and safeguard the future of the species, the Wildlife Protection Society of India (WPSI) launched “Operation Kachhapa” (OpK) in 1998. The programme is run in partnership

with the Wildlife Society of Orissa (WSO) and the Orissa Forest Department. Operation Kachhapa (*kachhapa* is the Oriya word for turtle) has successfully built up a public image for sea turtle conservation in Orissa. The programme’s main objectives are prevention of mortality by improving patrolling of illegal fishing zones, collecting data on turtle mortality and illegal fishing, building public support for turtle conservation, and fighting legal battles in court.

OpK assisted enforcement agencies by hiring sea-going patrol boats, providing equipment and support to patrol staff, and by serving as a co-ordination centre for the various enforcement agencies involved in turtle protection. OpK field staff also carry out turtle mortality counts outside the Gahirmatha Marine Sanctuary and provide the authorities with information on illegal trawler movement, illegal night fishing and gill netting. These time-consuming tasks involve walking and cycling along vast stretches of the coastline.

OpK receives immense support from the national and state media. It informs the media about mortality, nesting and hatching events, offshore mating and casualties. As a result of this continuous liaisoning, the mortality of the olive ridley along Orissa’s shores

has dominated the news for the past six years, leading to growing public concern. OpK also runs a Turtle Interpretation Centre, which is aimed at school children, in the state capital of Bhubaneswar, and is the main source of information on sea turtle activity in Orissa.

As part of its awareness programme, 'wandering minstrels' trained by OpK travel to fishing villages along the coast and present song, dance and storytelling shows highlighting turtle conservation issues, the ecological significance of the olive ridley, and how traditional fishing communities can use existing laws to protect their livelihoods. They have performed in over 150 villages in Ganjam, Puri and Jagatsinghpur districts. They also put up posters and banners about turtle conservation issues along their travels.

Legal Case

Implementation of marine fishing regulations would ensure the survival of the sea turtles as well as traditional fishermen. However, the regulations are openly flouted by large mechanised trawlers and gill netters, with devastating consequences for the turtles, as well as traditional fishermen who are unable to compete with these boats and lose their catch to them. WPSI and the Wildlife Society of Orissa had originally filed a case in the High Court in Orissa asking, among other things, for the implementation of existing fishing regulations. However, the mechanised fishing boat owners are a large and politically influential body in Orissa, and this slowed the case down. Though there were a series of court orders to implement the law, the state government dragged its feet.

Meanwhile, Mr. Alok Krishna Agarwal, a turtle lover and an advocate of the Supreme Court of India, filed a case with the Central Empowered Committee (CEC), which has been set up by the Supreme Court of India specifically to look into, and speedily decide on, environmental matters. The CEC has shown keen interest in the case. In March 2003, after a site visit to Orissa, it passed 13 interim directions to the State of Orissa asking them to implement various measures for the protection of turtles including purchase or hire of patrol boats, police protection for patrol staff, support facilities, forest department camps, coast guard patrols, etc to beef up the turtle protection

measures. Further, the CEC also passed orders asking the department to involve local fishermen in turtle protection measures. In April 2004, the CEC issued further recommendations on turtle protection activities.

Dhamra Port

The construction of a large port has been proposed on the mouth of the Dhamra River, adjoining Bhitarkanika National Park. The site is 7 km north of the nesting beaches on Nasi I and II islands, and 10 km north of the nesting site in Gahirmatha Marine Sanctuary. This area contains the world's largest population of the olive ridley. Large congregations of breeding turtles are found at the entry channel to the proposed port in front of the Dhamra River. Heavy shipping traffic – including cargo ships with as much as 120,000 DWT capacities – will cut through turtle congregations. Light and chemical pollution is inevitable. In addition, there is a further risk of the introduction of exotic species during the discharge of ballast water. The construction of the approach channel (15 km long and 230 m wide) will result in the dredging and dispersion of nearly 40 million cubic metres of ocean floor bed, destroying the benthic fauna that the congregating turtles feed on. However, the CEC in its orders dated 6th April, 2004 has directed the state government to reconsider relocation of the port in view of its likely impact on sea turtles.

Reliance Industries Limited (RIL)

RIL is India's largest private company and it has aggressively pursued oil and natural gas exploration in India and abroad. The Bay of Bengal is reported to be one of the richest reservoirs of hydrocarbons in the world, due to sediments deposited by rivers flowing across the Indian subcontinent. In 2003, WPSI received reports that RIL were planning to carry out exploratory drilling for natural gas off the Orissa coast. A Multi-Disciplinary Expert Group (MEG) was constituted by the Ministry of Environment and Forests to look into the effects of exploratory drilling on the Orissa sea turtles. Operation Kachhapa's Project Co-ordinator is a member of the MEG. However, even while the MEG was deliberating on the issue, RIL went ahead

with its drilling, and announced that it had discovered gas in block NEC-25 in June 2004. This has been brought to the attention of the CEC and a hearing is expected in January, 2005.

OpK's future plans

OpK is carrying on its planned activities though the scale is much lower this year due to a reduced budget. Awareness and education for the local fishermen by the wandering minstrels is being conducted. OpK is also supporting local initiatives by turtle protection clubs and youth groups at Devi and Rushikulya River mouth nesting beaches. Such groups provide much needed data on turtle casualties and fishing activity in the prohibited areas so that these issues can be brought to the attention of the enforcement authorities. Their members also assist the forest department in nest protection and hatchling rescue. Such groups shall be empowered to carry on turtle conservation activities in the future. OpK is in touch with forest, fisheries and coast guard officials to ensure that patrolling is carried out in the prohibited areas to protect the congregating sea turtles.

OpK has joined the recently formed Orissa Marine Resources Conservation Consortium (OMRCC) which is a coalition of turtle scientists, local fishermen unions and conservation groups. This new group has been formed with the initiative of the Ashoka Trust for Research in Ecology and the Environment, Bangalore and is a first step towards forging a partnership and common platform among different groups who are interested in turtle conservation. OpK is also closely monitoring the implementation of the Supreme Court's orders passed for turtle protection on the Orissa coast. OpK has been made a member of the monitoring committee to be set up by the state government for monitoring the implementation of the Court's orders. Sadly, this committee is yet to be formed. Prodded by the Supreme Court of India in 2003, the government shook off its languor and finally decided to be serious. Last year, due to increased enforcement, the casualties plunged to a level of 7,000, which is half of the average casualties noticed a few years earlier. Though it sounds good, the figures are clearly unacceptably high and OpK is determined to ensure that the number of casualties are brought down.

Profile of NGOS working on sea turtle conservation and fisheries in Orissa

RUSHIKULYA SEA TURTLE PROTECTION COMMITTEE

The Rushikulya Sea Turtle Protection Committee (RSTPC) plays a pivotal role in saving the sea turtles of the Rushikulya rookery. A group of motivated village boys of Purunabandha village, Ganjam, near the Rushikulya sea turtle rookery have formed this group which is a non-government non-profit organisation registered under the Societies Registration Act, 1860. The group was initiated in 1998 and has a total membership of 50, mostly from fishing communities. The RSTPC works with technical support from many sea turtle biologists including Dr. Bivash Pandav, Dr. S.K. Dutta, Mr. B. C. Choudhury and Mr. Basudev Tripathy.

Over the years, RSTPC and its members have done considerable work on the protection and

conservation of olive ridley turtles at the Rushikulya rookery with minimal funding support. Many of these village boys were actively involved with the Wildlife Institute of India's sea turtle project along the Orissa coast during 1994 – 1999.

Projects undertaken by the RSTPC and supporting agencies:

- Conservation of olive ridley sea turtles along the Orissa coast – supported by *Operation Kachhapa* & *WISO*, Orissa.
- Rescue operation for olive ridley hatchlings at Rushikulya Rookery – Supported by *Wild Orissa*, Bhubaneswar (2003-2004).

- Sea turtles and their habitat protection at Rushikulya Rookery – *Wildlife Trust of India, New Delhi* (Basudev Tripathy, Investigator of the above project supported through the Wildlife Trust of India) (2003-2004).
- Sea turtle interpretation centre at Rushikulya rookery – *Vasant V. Sheth Memorial Trust, Mumbai (Eastern Shipping Corporation)* (2003-2004).

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| Fax Number | : | 06811-254070 (O) |
| E-Mail | : | turtle_rushikulya@yahoo.co.in |
| Organisational Affiliation | : | Non-profit, Non-Governmental Organisation; Registered under the Societies Registration Act, 1860, established in 1998; Regd. No. GJM 7285-107/2003-04 |
| Total members | : | ~ 50 |
| Area of operation | : | Ganjam District, Orissa |
| Contact Person | : | Mr. Rabindranath Sahu |

MAA GANGA DEVI SANTI MAITRI YUVAK SANGA

Over the years, Rushikulya has emerged as one of the most important sea turtle nesting beaches in India. However, this area is subject to severe natural as well as human-related disturbances. A multitude of problems ranging from artificial illumination to extensive beach erosion exist in this area. The olive ridleys and their nesting beaches need more protection and involvement of local communities. With this in mind and with a vision of community development, the Maa Ganga Devi Santi Maitri Juvak Sangha (MDSMFS) started functioning in Purunabandha in

2001. The MDSMJS has a total membership of 25 and the youth from this NGO are supported by Operation Kachhapa's conservation programme. They also work in close association with the Orissa Forest Department. This organisation comprising of village members is also involved in social activities such as cleanliness campaigns and other small environmental programmes with larger organisations such as the Nehru Yuva Kendra – a national youth organisation.

CONTACT INFORMATION

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| Total members | : | ~ 25 |
| Area of operation | : | Ganjam District, Orissa |
| Contact person | : | Mr. Budhhimantha Rao President |

ORISSA TRADITIONAL FISH WORKERS' UNION

Since 1989, the leaders from the fishing community have worked toward uniting the various marine fishworker groups across the six districts of Orissa. Finally, in 1995, the 'Orissa Traditional Fishworkers Union (OTFWU)' took birth with the representation of fisher leaders from all six districts. For better coordination and effective functioning, the OTFWU formed district level unions and has linked up with 'Samudram', an active federation of women fishworkers working towards the welfare of fisher women and children since 1992 in the districts of Ganjam and Puri. Since 1995, the Union in association with the National Fishworkers Forum has been active along the coast of Orissa and acts as a pressure group to mobilise government resources for the benefit of traditional fishers.

The vision of the OTFWU is to foster harmony, fraternity and brotherhood among traditional fishworkers, preserve their cultural heritage and support needy fellows to lead a dignified life with self-reliance along with other communities in Orissa.

The objectives of the OTFWU include:

- Mobilising all traditional fishworkers and bringing them to the fold of OTFWU.
- Promoting unity among traditional fishworkers from the grassroots level to the State level.

- Strengthening affiliated district unions to exert pressure on the district administration and Panchayati Raj Institutions.
- Generating awareness among traditional fishers on education, health and environment.
- Developing capacity of district and state union leaders to identify common issues and strategise campaign techniques to address micro and macro issues that affect the lives and livelihoods of traditional fishers.
- Liaison and network with other like-minded groups and movements to fight for common causes.

The OTFWU has spearheaded advocacy efforts to ensure that the rights of the traditional fishworkers are not impacted by turtle conservation measures. They have negotiated on behalf of the traditional fishworkers with the state government and have petitioned the Supreme Court appointed Central Empowered Committee on this matter. The OTFWU has also highlighted their experiences on mitigating the adverse impacts of conservation on the livelihoods of traditional fishworkers to other national and international forums. At the same time, the OTFWU along with Samudram has expressed its interest in being part of turtle conservation measures and is pressing for conservation that does not impact the traditional sector of fishers.

CONTACT INFORMATION

| | | |
|-------------------|---|---|
| Mailing Address | : | OTFWU, At: Sana Aryapali, PO: Bada Aryapali, Via: Ganjam, Orissa, India, Pin: 761 020 |
| Telephone Number | : | +91-6811-262286 |
| Fax Number | : | + 91-6811- 254314 |
| E-Mail | : | otfwu@hotmail.com |
| Members | : | Traditional fishworkers from all 6 districts of Orissa. This includes fisherfolk operating almost all categories of fishing crafts except trawlers. |
| Area of operation | : | Orissa |
| Contact person | : | K. Aleya, General Secretary, OTWFU |

SAMUDRAM - THE WOMEN'S COLLECTIVE

Samudram is a state level federation of women fishworkers' organisations working in Orissa for the development of marine fisherfolk. The organisation started functioning in the year 1993 from the village of Sana Nolia Nuagam as a federation of women's organisations of Ganjam district and was registered in the year 1995-96 under Societies Registration Act XXI of 1860. The formation of Samudram was due to the intervention of the United Artists Association with support from Action Aid from 1993 to 2002 through a project named Marine Fisher Folk Development Project (MFFDP). However, both Samudram and its counterpart, the Orissa Traditional Fish Workers' Union now are independent functioning entities.

At present, the head quarters of the organisation is at Katuru village in Chatrapur Block of Ganjam district. The organisation is active in both Ganjam and Puri districts and has contacts in Balasore & Bhadrak districts of Orissa. Samudram aims at empowering traditional marine fisherwomen in all aspects of life and foster unity, solidarity, love, peace and mutual concern among them.

The objectives of the organisation include:

- Promoting self-esteem and dignity among the traditional marine women fishworkers.

- Enhancing the socio-economic, political and cultural status of traditional marine women fishworkers.
- Capacity building of traditional marine fisherwomen to counter confidently any law or system that is detrimental to their interest.
- To improve the quality of life by developing the living conditions of traditional marine fisherwomen through the spread of education and better health practices. These are promoted by member organisations in collaboration with like-minded organisations and the Government.
- To act as a nodal point for the collection, compilation & dissemination of relevant information.
- Promoting networking among other like-minded organisations working for a common cause.

Samudram has addressed issues at the micro level such as the sale of country liquor, illiteracy, child marriage, influence of moneylenders, gambling etc. At the macro level, the women have taken up issues related to marine resource conservation through activities such as stopping the illegal collection of prawn seeds, violations of fishing regulations by trawlers etc. In future they hope to take up issues such as procuring land titles, licensing of liquor shops in marine villages, etc.

CONTACT INFORMATION

| | |
|----------------------------|---|
| Mailing Address | : Samudram, At: Katuru, P.O.: Bada Aryapalli, Dist: Ganjam – 761020 |
| Organisational Affiliation | : Non-profit, Non-Governmental Organisation Registered under the Societies Registration Act, 1860, established in 1998.Regd. No. GJM 7285-107/2003-04 |
| Total members | : Exceeds 2000 |
| Area of operation | : Ganjam District, Orissa |
| Contact person | : Smt. B. Chitamma, President |

UNITED ARTISTS' ASSOCIATION, GANJAM

In 1965, different youth groups in Ganjam town came together to work under a single umbrella and raised funds through cultural programmes and drama to be used for welfare programmes, emergency relief and for the establishment of educational institutions. This united youth group became an organisation named the United Artists' Association (UAA) which has been functioning since then from Ganjam, Orissa. UAA is committed to the promotion of non-exploitative gender and human rights, a sensitive, environment friendly, hunger free and self-reliant society in Orissa. In 1995, the Government of Orissa and the UNICEF recognised the organisation as a nodal NGO and channeled their funds through UAA to develop the status of water and sanitation in the rural areas. Since then the organisation has been working with a network of grassroots NGO/CBOs and has played a catalytic role in developing capacities in managerial, and technical skills of its network members. UAA

has been nominated to the National Task Force on the Large Marine Ecosystem of the Bay of Bengal Program . Currently UAA provides support service to 22-block level NGOs.

Areas of work of the United Artists Association:

- Community organisation
- Promotion of voluntarism
- Education and development of appropriate teaching aids
- Health and sanitation
- Training, research and documentation
- Protection of the environment and development of social forestry
- Development and dissemination of low cost and eco/user friendly technology
- Emergency relief and rehabilitation.

Supporting agencies

- Government of India, Government of Orissa, Action Aid, UNICEF, SEEDS, AICF, CWS

CONTACT INFORMATION

| | | |
|----------------------------|---|---|
| Mailing Address | : | United Artists' Association At/Po/Dist – Ganjam - 761 026 (Orissa) |
| Telephone Number | : | 06811 – 254314 254164 |
| Fax Number | : | 06811 – 254314 254164 |
| E-Mail | : | unitedartists@sify.com , mangaraj56@yahoo.com |
| Organisational Affiliation | : | Non-profit, Non-Governmental Organisation Registered under the Societies Registration Act, 1860, established in 1967 |
| Total members | : | ~ 100 |
| Area of operation | : | Orissa |
| Contact person | : | Mangaraj Panda, Secretary |

PROJECT SWARAJYA

Founded in August 1988, Project Swarajya (PS) is a non-profit Non-Government Organisation based at Cuttack, Orissa with branches and activities in other districts of the state and beyond. Right since its inception, the organisation has engaged itself in multifarious social welfare activities such as human rights, women's empowerment, child welfare and environment and biodiversity protection.

The following environment and biodiversity

protection activities have been undertaken by PS

- Study and campaign for prevention of water pollution in Taldanda Canal in 1993.
- Survey and conservation of mangrove forests on the Orissa coast in 1992-94.
- Survey and conservation of the Indian horse shoe crabs on the Orissa coast in 1992-94.
- Protection of olive ridley sea turtles on the Orissa coast: ongoing since 1996

- Presently engaged in popularising the Trawl Guard as a bycatch reduction device among the trawling community.
 - Installation of Fish Aggregating Devices along Orissa coast in 1993-95.
 - Integrated paddy-cum-fish farming in waterlogged areas in Orissa coast in 1994-95.
 - Running of Eco-Clubs in Cuttack from 1997-99.
 - PIL in Orissa High Court against pollution by PPL (admitted in 1995 and disposed off in 2002) and litigation against Oswal Fertilisers at Paradip (admitted in 2002).
- Supporting agencies
- Government of India, Government of Orissa
 - DANIDA, SIDA, NORAD, CEBEMO, UNDP, WORLD BANK

CONTACT INFORMATION

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E-Mail : projectswarajya@sify.com, dollidash@rediffmail.com

Website : <http://www.projectswarajya.com>

Organisational Affiliation : Non-profit, Non-Governmental Organisation; Registered under the Societies Registration Act, 1860, established in 1988.

Area of operation : Orissa

Contact person : Mrs. Dolli Dash, Secretary

WILD ORISSA

Wild Orissa, an organisation registered under the Societies Registration Act as well as the Income Tax Act, has been actively involved in the conservation of wildlife and nature in the country since 1997. Wild Orissa was set up with an objective to create awareness among the general public and youth about the importance of conserving nature and the natural environment and its bearing on all life and life support systems. This includes participation in activities towards the improvement of the environment of urban and semi-urban areas, arresting the decline of major wildlife forms, field studies, workshops, camps etc. in an effort to study the status of our wild flora and fauna. Important activities include:

- Monitoring of wildlife sanctuaries, national parks, forests and protected areas
- Carrying out surveys, studies and research on wild floral and faunal species
- Associating and assisting the Government and other organisations in matters related to enumeration of tigers, leopards, elephants etc. during census.
- Conducting annual waterfowl/bird census in the state of Orissa and adjoining areas
- Undertaking conservation programmes including campaigns for the preservation of species like the tiger, elephant, mouse deer, olive ridley, chowsingha etc.
- Organising inter school competitions on wildlife and nature to inculcate love for our wild heritage.
- Creating public awareness on issues relating to wildlife and their habitat through mass media.
- Organising meetings, symposiums, seminars, workshops to address issues relating to wildlife.
- Ensuring community participation in conservation and preservation of wildlife and their habitats by interacting with and motivating local communities.

CONTACT INFORMATION

Mailing Address : Wild Orissa
BJ-29, Mezzanine Floor, BJB Nagar, Bhubaneswar, Orissa

Organisational Affiliation : Non-profit, Non-Governmental Organisation
Registered under the Societies Registration Act, 1860, established in 1998.

Contact person : Mrs. Monalisa Bhujbal, Secretary

GREENPEACE

In November 2004, “Rainbow Warrior II”, the legendary flagship of Greenpeace, was on a tour of the eastern coast of India to raise the profile of the rich marine ecosystems, fragile habitats and endangered creatures of the world’s oceans. Her third voyage to India, the Rainbow Warrior docked at Chennai and Paradip, witnessing a surging spirit of participation from different groups and coastal communities. Through the tour, the focus increasingly rested on the Gulf of Mannar and the Bhitarkanika Sanctuary, highlighting the biodiversity and the threats these iconic marine hotspots face. The mainstay of the tour was the series of dialogues on the management of a network of marine reserves and an introduction to seamounts – the submerged mountains of our seas.

The Rainbow Warrior provided a unique platform for the convergence of a cross-section of groups and communities directly involved in the protection of our seas. Given the importance of awareness building and outreach, the tour made it possible to reach out to more than 2500 people inclusive of students from schools, colleges and academic institutions, eco-clubs and interested and concerned public. The “Save our Seas” tour of November 2004 was Greenpeace India’s first step to network, research and further it’s understanding of marine issues (coastal and high seas) pertinent to India. It was also an opportunity to build upon the prevailing community work and their persistent labour in protecting the seas.

At Orissa, the Rainbow Warrior and Greenpeace were involved in: -

- Meeting on the CEC directives – In a well-attended meeting with representatives from concerned constituents such as environmental groups, enforcement and regulatory bodies and fishermen’s collectives, the problems and potential solutions with respect to Orissa and the olive ridley turtles were discussed.
- Fact-finding – The most immediate threat to the Gahirmatha Sanctuary- the proposed Dhamra port was highlighted. In a cyber-petition coordinated by Greenpeace, more than 1000 people endorsed their support, calling for the concerned corporations and the Government to reconsider the project.
- World Fisheries Day – Greenpeace joined the deliberation and celebrations in an event coordinated by the Orissa Traditional Fishworkers’ Union at Bhubaneswar. Given Greenpeace’s global experience with respect to marine reserves, the team was invited to make a presentation on a community based approach to marine reserves and conservation.

In the coming year, Greenpeace will look forward to coordinating with local communities and groups in Orissa. Greenpeace also looks forward to continuing the documentation of turtles through the nesting and hatching season, and hopes to identify areas of work to add synergistic value to the ongoing campaign to champion the cause of the turtles and local communities.

CONTACT INFORMATION

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Contact person : Sanjiv Gopal, Oceans Campaigner

WORLD WIDE FUND FOR NATURE INDIA

The World Wide Fund for Nature India (WWF-India) has been working to promote harmony between humankind and nature for almost three decades. Today, it is recognised as the premier conservation NGO in the country dealing with conservation and development issues. At a time when the web of life has come under increasing threats, WWF-India's attempts have been to find and implement solutions so that human beings can live in harmony with nature, and leave for future generations, a world rich in natural resources and natural wonders.

WWF -India (formerly known as World Wildlife Fund) was established as a Charitable Trust in 1969. With its network of State/Divisional and Field Offices spread across the country to implement its programme, WWF-India is the largest and one of the most experienced conservation organisations in the country. WWF-India articulated its mission statement to suit India's specific ecological and socio-cultural circumstances:

"The promotion of nature conservation and environmental protection as the basis for sustainable development"

The WWF India has five broad programme components:

- Promoting India's ecological security – restoring the ecological balance
- Conserving biological diversity
- Ensuring sustainable use of the natural resource base
- Minimising pollution and wasteful consumption
- Promoting sustainable life-styles.

Marine turtles are flagship species for WWF world over. WWF-India engages with multiple stakeholders and partners like government agencies, NGOs, research institutes, coastal communities and the private sector for an integrated approach to conservation.

WWF-India initiated its marine turtle conservation programme in 2003 at the Rushikulya rookery with the collection of disoriented hatchlings and release as a programme with the communities. WWF's marine turtle conservation initiative aims to minimise/reduce threats to the marine turtles from unsustainable fishing practices and coastal development through community participation. WWF hopes to facilitate a consultative mechanism between trawler operators, other fishing communities, government agencies and other NGOs to adopt by-catch reduction devices. Other programme objectives include reducing turtle mortality; building the capacities of the fishing communities to manage turtle nesting areas and the conservation of the marine eco-system by adopting friendly fishing practices. Finally, WWF hopes to promote the Rushikulya rookery as a community conserved area. The private sector such as the tourism and hotel industry will be engaged as part of WWF's conservation programme. WWF-India also seeks to facilitate the Government of India (GOI) policy initiatives to conserve marine turtle habitats and populations.

CONTACT INFORMATION

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Website : <http://wwfindia.org>

Contact person : Dr. (Ms.) Swayam Prabha Das
Coordinator, Oceans & Coasts Programme

Letters to the Editor

Lighting and sea turtle hatchlings in Rushikulya

Sir,

This refers to the article “Showing The Way: Mass hatching of olive ridleys in Rushikulya, Orissa” by Belinda Wright and Biswajit Mohanty (Kachhapa 9: 1-2, Editorial). The article describes a method of preventing disoriented turtle hatchlings from moving towards land. It claims that Operation Kachhapa was the first organisation to have tried this method in the year 2003. I would like to clarify that the Rushikulya Sea Turtle Protection Committee (RSTPC), a local NGO in Purunabandha village was the first organisation to use this method on the first day of the mass hatching of olive ridleys at the Rushikulya rookery in 2003.

In fact, the genesis of development of this method dates back to April 2001. Following my M.Sc dissertation work in 1996 which quantified 80% hatchling disorientation towards the landward side (published in *Hamadryad* 27: 185-192, 2003), the Wildlife Institute of India's sea turtle research project continued to quantify the disorientation of hatchlings till 2000. In April 2001, the GOI-UNDP Sea Turtle Project, implemented by the Wildlife Institute of India, invited Dr. Jack Frazier of the Smithsonian Institution to assist in satellite telemetry experiments on olive ridley turtles in Orissa. In the coconut grove of Purunabandha village near the Rushikulya rookery, amongst the range of topics on sea turtle research and management, the discussion moved to developing a mechanism to assist emerging hatchlings to reach the sea in the context of landward illumination. The participants in this discussion were Dr. Jack Frazier from Smithsonian Institution, Mr. B.C. Choudhury, Dr. Bivash Pandav, Dr. Kartik Shanker and myself from Wildlife Institute of India and Dr. Chandrasekhar Kar from Orissa Forest Department. Operation Kachhapa was by then already involved in the hatchling rescue operation in Rushikulya and methods employed by the field staff even included collection of the hatchlings prematurely from the nest to prevent them from crawling towards the landward side. Dr. Frazier and

other sea turtle biologists pointed out that such practices might tamper with the life history parameters of sea turtle hatchlings, particularly the phenomenon of natal beach imprinting. He stated that such practices must be discontinued and new turtle friendly and community-based methods be developed. The presently practiced method was developed then primarily by Dr. Pandav and Dr. Jack Frazier but was not used in the year 2001 as the hatching season was already over by then.

In 2002, based on the suggestions of Dr. Frazier and others, Dr. Bivash Pandav of the WII refined the method of creating a soft and supple barrier on the landward side of the beach to prevent hatchlings from reaching the grass fields beyond the barrier. Dr. Pandav's suggestion was to create a 400 to 500 meter length flexible wall on the landward side of the beach, employing used cement bags. The Purunabandha village based RSTPC volunteers prepared some flexible walls. However, one member of the RSTPC, Shri Dambaru Behera suggested replacement of the cement bags with nylon mosquito nets, which were then extensively used in the Purunabandha area for collection of prawn seeds. In fact, Dr. Pandav met the entire cost of production of this 500 meter improvised flexible wall made of mosquito nets. Unfortunately, this improved method could not be used in 2002 due to the failure of mass nesting at Rushikulya and the nets remained with the RSTPC.

In 2003, the RSTPC successfully installed the improvised flexible nets on the Rushikulya rookery from the first day of mass hatching. Sadly, for reasons unknown, the Orissa Forest Department prevented the RSTPC from using their flexible nets shortly thereafter. Ironically, in their joint protection efforts, the Orissa Forest Department and Operation Kachhapa used the very same method for preventing hatchling mortality from disorientation.

What is surprising and unfortunate in this whole episode is the complete obstruction of the participation of local communities on one hand and

the appropriation of credit for innovations and ideas rightfully belonging to others. One fails to understand how wildlife conservation can progress if community participation is systematically thwarted by both non government organisations and the state machinery.

Basudev Tripathy
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Casuarina plantations along sea turtle nesting beaches in Orissa

Sir,

While carrying out field work for the research project "A quantitative analysis of incidental sea turtle captures during commercial shrimp trawling in coastal waters off Orissa" I visited some of the sea turtle nesting beaches in Orissa during August 2002. During this period I covered a distance of approximately 65 km on foot and walked along the Gahirmatha, Devi and Rushikulya coasts.

Casuarina made inroads into the coastal areas of Orissa after 1971. A severe cyclone devastated the Orissa coast in October 1971. After this cyclone, the coastal afforestation branch of the Orissa Forest Department started planting *Casuarina* along the Orissa coast. The objective of planting *Casuarina* was two-fold: to act as a barrier to cyclonic storm and to prevent beach erosion. This plantation drive was renewed once again after the super cyclone that swept across Orissa coast in October 1999.

During my walk along the sea turtle nesting beaches in Orissa in August 2002, I came across extensive one to two year old *Casuarina* plantations. Except for the old plantations, no recent *Casuarina* plantation has come up in and around the Gahirmatha mass nesting beach. However, I came across new plantations on the southern most portion of the Gahirmatha coast between Kanpur village and Pentha. The beach near Pentha has witnessed mass nesting twice during 1999 and 2000. Planting of *Casuarina* in this area is definitely a cause for concern.

The coastal stretch between the mouth of river Hansua and Mahanadi is a good nesting area for ridley turtles and the entire area comes under the jurisdiction of the Mangrove Forest Division (Wildlife), Rajnagar. I have not visited this area for the last five years and am not aware of the exact status of *Casuarina* plantations in this stretch.

Though I did not walk the beach between Paradeep and Devi River mouth, I was carrying out experimental trawling very close to the shore line in this area. From a distance I could see extensive *Casuarina* plantations that were coming up close to the high tide line in this sector. The coastal stretch in this sector, particularly between the mouth of the Jatadhara River and the mouth of the Devi River has been recorded as a good sporadic nesting ground of the olive ridley turtle. Plantation of *Casuarina* close to the high tide line in this sector is going to have an having adverse impact on sea turtle nesting in this area.

In my view, *Casuarina* plantations have impacted the nesting habitats of sea turtles the most in the sector between the Devi River mouth and the mouth of the Kadua River. I came across recent *Casuarina* plantations all along the 14 km stretch from Devi River mouth (19.9N & 86.4 E) till Gundalaba village (19.9 N & 86.3 E). Most of these plantations were very much within the high tide line. This stretch of beach is a known mass nesting area for the olive ridley turtle in Orissa. With this *Casuarina* plantation, I doubt if any space is left for turtles to nest in this area.

Thankfully, the mass nesting beach near the mouth of the Rushikulya River has been spared from *Casuarina* plantations. However, good sporadic nesting beaches adjoining the Rushikulya mass nesting beach are under *Casuarina* plantations. Recent *Casuarina* plantations in this area are located immediately after the Kantiagada village (19.4 N & 85.1 E) and extend up to Prayagi village in the north (19.5 N & 85.2 E). Most plantations in this area have been carried out either inside or in close proximity to the high tide line (within 10 meters). I personally have not visited the 40 km stretch between Prayagi village and the mouth of Chilka

Lake in the recent past and am not aware of the status of recent *Casuarina* plantations in this area.

Based on my observations, I conclude that *Casuarina* has been planted along most parts of the Orissa coast either inside or very close to the high tide line. The fact that sea turtles prefer to nest in wide, open beaches, devoid of artificial vegetation is well known. However, the way in which *Casuarina* has been

planted all along the Orissa coast, it is apparent that the need for sea turtles to use the beach for nesting has not been considered at all.

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A bibliography of literature on sea turtles in Orissa, India

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¹ The Central Empowered Committee of the Supreme Court of India evaluated the protection of the olive ridley turtle under the Indian Wild Life Act, 1972. See also *Kachhapa* 9: 22

² The Central Empowered Committee of the Supreme Court of India visited Orissa to evaluate the implementation of its orders with regard to the protection of the olive ridley turtle in Orissa

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Book Review

The Chelonian Emperor has no Clothes: When and where did Red Listing go Wrong?

A Review of Predicting extinction: Fundamental flaws in IUCN's Red List System, Exemplified by the Case of Sea Turtles. Nicholas Mrosovsky, Department of Zoology, University of Toronto, private publication, 2004 (57 Pages)

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For nearly 40 years, the World Conservation Union (IUCN) Red List Programme has been classifying the extinction risk of imperiled animal and plant species around the globe. But according to author Nicholas Mrosovsky, these classifications are often erroneous due to inadequacies in both the Red List Programme's criteria for identifying species' extinction risks as well as an overly precautionary approach by those employing the system. This argument is not new, as Mrosovsky and others have written about this on a number of other occasions (eg. Mrosovsky 1983; 1996; 1997, Webb and Carillo 2000). However, in *Predicting Extinction*, Mrosovsky goes beyond the general problems and provides detailed accounts of why the system is flawed, using several of the most recent sea turtle assessments to illustrate his points. For the most part, he focuses on four main shortcomings with the IUCN Red List Program: i) inadequate recognition in the differences between species, ii) inconsistency in application of the Red List criteria among assessors, iii) insufficient scientific documentation, and iv) lack of transparency in the Red Listing Process. The text is filled with witty, investigative, and at times scathing passages regarding the current Red Listing system. It's a rather short read that will be interesting to sea turtle enthusiasts and wildlife biologists alike.

Predicting Extinction starts out chronicling the changes in Red List Categories and Definitions, from the initial Red Data Books of the 1960s with their Category 1, 2, etc. labels to those in the new millennium with their 9-tiered system (Critically Endangered, Endangered, Vulnerable, etc.). Here, Mrosovsky makes an interesting

point regarding the increasingly liberal use of the term 'Endangered': whereas the term was initially applied to species considered to be 'in immediate danger of extinction (Honegger 1968)', by 1979 a species was considered Endangered when it was simply "in danger of extinction (Honegger 1979)." The dropping of the term 'immediate' may seem trivial to some, but it is the initial step toward an overly precautionary approach to Red Listing. Such precaution, as Mrosovsky argues, introduces bias toward listing in a higher category of threat than is warranted by the facts.

"...a global listing for a species that is widespread is not in itself very useful or informative, and may even lead to confusion"

Although the IUCN would argue that the single system employed by Red Listing is beneficial for comparing the predicaments of a wide diversity of taxa, *Predicting Extinction* points out that this lack of recognition of the differences among species is one of Red Listing's gravest inadequacies. Why, as Mrosovsky questions, would any system use the same assessment approach for species with dramatically different biology and demographics? Assessing a species with a 35-year generation time may very well require a different approach than when assessing a species with a 5-year generation time. Likewise, assessments of globally distributed species would surely require a different approach than assessments of species with restricted ranges. In *Predicting Extinction*, Mrosovsky elaborates on these points, detailing why the IUCN stumbles when

from the distant past to monitor long-term changes? With globally distributed species, how can we address local and regional trends when the assessments are painted with such a broad, global stroke?

“The Critically Endangered category has become debased.”

Certainly the more problematic cases are the ones that open the Red List up to criticism, sea turtles being a prime example. Of the seven species found worldwide, six are globally classified as vulnerable, endangered, or critically endangered, the seventh (the flatback turtle) is listed as Data Deficient. With respect to the most recent leatherback, hawksbill, and olive ridley turtle global assessments, Predicting Extinction presents stern, effective cases for why the Red List severely overstates the true risk of extinction. How, for example, can leatherback turtles be considered Critically Endangered when several Atlantic subpopulations are actually increasing. Similarly, how can olive ridley turtles be considered Endangered when the Mexican subpopulation now has upwards of 1 million nests per annum? And with the hawksbill, a classification of Critically Endangered has been used, despite the fact that several sea turtle authorities have gone on record stating that the species is not going extinct any time soon. Indeed there are fewer adult nesting hawksbill turtles today than there were, say, 50 years ago, but that does not

necessarily mean the species is going to be extinct anytime in our lifetimes. To right these wrongs, Mrosovsky suggests that “the entire system should be overhauled or replaced by a new system”. He further explains that sea turtles should be reexamined, and perhaps most importantly, the categories should be restated so that they better describe extinction risks.

Having personally undertaken the recent MTSG green turtle assessment (Seminoff 2004), I must say that I agree with many of the points raised by Mrosovsky in this article. Clearly, the ‘one size fits all’ approach to assessing species leads to problems. And any sea turtle expert would be hard pressed to come up with an argument for why any sea turtle species is on the brink of extinction. That said, there are also several points that I believe are missed in this document, perhaps due to the timing of this writing. Namely, it is important to note that the Red List criteria do have the capacity to address species with different generation times (see ‘10 years or 3 generations’, IUCN 2001a), and they have prescribed an assessment method for widely distributed species (IUCN 2001b). Moreover, the newest criteria do in fact mandate the use of literature and personal accounts that are either available to the public or must be made available by assessors. Nevertheless, as I’m sure Mrosovsky would agree, these accommodations fall far short from their intended goal.

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Announcements

Indian Ocean Marine Turtle MOU – Meeting and Website

The third Meeting of the Signatory States will be held at the United Nations Conference Centre, Bangkok, from 23-31 March 2005. The Meeting of Signatory States will be preceded, on Monday 28 March, by a meeting of the IOSEA Advisory Committee.

The national reports that have already been submitted by most the Signatory States will serve as a good basis for reviewing strengths and weakness in implementing and reporting. More time will be allocated towards identifying priorities for concerted intervention. The meeting is also expected to consider, among other things, progress towards the establishment of a network of sites of importance for marine turtles, preparations for a 2006 Year of the Turtle campaign, a proposal to review information on fisheries-turtle interactions in the IOSEA region, as well as policy papers on traditional and cultural use of marine turtles, and hatchery management.

The provisional agenda and registration form can be found in the Meetings section of the IOSEA Website: www.ioseaturtle.org. The website contains a wealth of additional information on marine turtle conservation activities around the Indian Ocean and Southeast Asia region:

- the Online Reporting Facility has detailed reports from nearly 20 IOSEA Signatory States, which can be queried in relation to more than 100

activities, as well as threats and mitigation measures at key sites;

- an Interactive Mapping System (ImapS) includes three decades of nesting and migration data that can be queried interactively, and overlaid with information on coral reefs, mangroves and sea grass distribution;
- the Project Database now includes entries for more than 40 active projects and activities;
- an electronic library has valuable resource material, outlines of powerpoint presentations and other useful information;
- a new Flipper Tag Series resource contains details of tag numbers in use around the region, with a view to promoting standardization and eliminating duplication;
- the latest news headlines and features are added to the website on almost a daily basis; including preliminary assessments of the damaged caused to conservation projects and turtle habitats by the recent Indian Ocean Tsunami.

Source: Douglas Hykle

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Conservation and Society (<http://conservationandsociety.org>)

‘Conservation and Society’ is a peer-reviewed interdisciplinary journal that aims to promote work on the theory and practice of conservation. Conservation and Society was initiated two years ago as an interdisciplinary journal to integrate conservation research from the natural and social sciences. Although the journal was originally visualized to have a focus on South Asia, its geographical scope has been expanded to include issues regarding conservation from developing countries around the world. The journal is committed to disseminating information in the developing world. **Free online access** is available for all articles and subscriptions are highly subsidised for Asia, Africa and latin America.

Individuals are encouraged to become donor subscribers for which they will be credited on the journal as well as on the website. These donations subsidise free/discounted online access and hard copy distribution in the developing world. As we are trying to produce this journal independent of a publisher, individual donations are of critical importance in determining the future of the journal in terms of free online access and subsidized distribution in the developing world. Please visit the journal website:

<http://www.conservationandsociety.org> or email editor@conservationandsociety.org for further details and enquiries.



Indian Ocean Tsunami Sea Turtle Fund

Make a Contribution

Help our colleagues and friends in areas affected by the recent tsunamis in the Indian Ocean. This fund will be used to help rebuild damaged and destroyed infrastructure related to sea turtle research and conservation in the region, and in other ways that are deemed most helpful. An advisory panel of sea turtles from the region is being established to determine how funds should be disbursed.

It is expected that these funds will not be needed for a few weeks as there are more important humanitarian issues to address first. Our goal is to have a large pool of funds in place when the time comes that such help is needed.

At present we know that among the worst impacts to turtle conservation activities are the complete destruction of the work and conservation centers in southern Sri Lanka, to a small extent in the Maldives, and we are yet to hear from our colleagues in India on the state of their resources. As news filters in, we will update this important stream of information.

Our hearts reach out to all those affected by the Indian Ocean tsunamis.

If you prefer to help survivors and their families with humanitarian aid consider making monetary donations to these organizations:

- Operation Wallacea Indonesia Tsunami Fund,
- Friends of the Earth Indonesia (WALHI) Earthquake and Tsunami Donation Appeal
 - India Together <http://www.indiatogether.org/relief/tsunami/>
- The Indonesian Red Cross (Palang Merah Indonesia) (bahasa Indonesia) or (English)
 - International Red Cross in Indonesia
 - American Red Cross International Response Fund
 - AmeriCares South Asia Earthquake Relief Fund
 - Direct Relief International International Assistance Fund
- Médecins Sans Frontières International Tsunami Emergency Appeal
 - Oxfam Asian Earthquake & Tsunami Fund
 - Sarvodaya Relief Fund for Tsunami Tragedy
 - UNICEF South Asia Tsunami Relief Efforts

OTHER RELIEF AGENCIES IN INDIA

Prime Minister's National Relief Fund,
Prime Minister's Office,
South Block, New Delhi 110 001

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National Alliance of People's Movements(NAPM)

Donations by cheques or demand drafts can be sent in favour of 'NFF Tsunami Relief And Rehabilitation Fund', NAPM National Office, Haji Habib Bldg, A Wing, First Floor, Naigaon Cross Road, Dadar (East), Mumbai 400014.
Tel. No: +91- 22 - 2415 0529 (Alimbhai).

International Collective in Support of Fishworkers
<http://icsf.net/jsp/english/flashnews/helpPage.jsp>

South Indian Federation of Fishworkers' Societies
<http://www.tsunami2004-india.org>

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