

## **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 Indian 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 27<sup>th</sup> 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 km<sup>2</sup> and a buffer zone measuring 709.5 km<sup>2</sup>. The total area of the GMS measures 1435 km<sup>2</sup>. 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 21<sup>st</sup> 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 its High Power Committee, is pursuing the

*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**

<b>Date</b>	<b>Regulation</b>
<b><u>Species protection</u></b>	
<b>1972</b>	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
<b><u>Fisheries management regulations</u></b>	
<b>1982 – 1983</b>	Orissa Marine Fisheries Regulation Act (OMFRA), 1982 and Rules introduced in 1983
<b>1983</b>	OMFR Rules introduced. It outlined different fishing zones for different fishing crafts
<b><u>Habitat Protection</u></b>	
<b>1994</b>	OMFRA Biennial orders prohibiting fishing at Gahirmatha. Reissued periodically.
<b>6.06.1997</b>	OMFRA seasonal prohibition (Jan–May) on fishing by trawlers at Devi and Rushikulya 20 km seaward radius. Reissued periodically.
<b>27.09.1997</b>	Declaration of the Gahirmatha Marine Sanctuary (GMS) under the WLPA.
<b>10.10.2003</b>	State High Power Committee (HPC) recommends that the State Government consider proposals for the Devi and Rushikulya areas to be declared as Wildlife Sanctuaries.
<b><u>Fishing Rights</u></b>	
<b>21.05.1998</b>	State HPC issues restrictions on fishing within the Gahirmatha Sanctuary.
<b><u>Fishing Gear Regulation</u></b>	
<b>6.12.1997</b>	OMFRA order mandating use of Turtle Excluder Devices (TEDs) on trawlers
<b>17.04.2001</b>	OMFR Rules mandating ‘mechanised fishing vessels’ to use TEDs
<b><u>Judicial intervention</u></b>	
<b>7.03.2003</b>	Interim orders on turtle conservation from the Central Empowered Committee (CEC) of the Supreme Court of India
<b>10.10.2003</b>	HPC prohibits fishing by trawlers and gill-netters in the Dhamra mouth, Devi mouth and Rushikulya mouth from 1 <sup>st</sup> November to 31 <sup>st</sup> May, 2004
<b>7.04.2004</b>	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 7<sup>th</sup> 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 20<sup>th</sup> 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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