

EXECUTIVE SUMMARY

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The Indian peninsula, hemmed in by the Indian Ocean, Arabian Sea and the Bay of Bengal, boasts of a magnificent marine ecosystem. A combination of geo-morphological and climatic factors and the nutrients supplied by the rivers along the coast, make it exceptionally productive and biologically rich.

Dense mangrove forests in the Sunderbans, the world's largest congregations of nesting sea turtles in Orissa, delicate seagrass beds in Palk Bay, enigmatic dugong in the Gulf of Mannar, majestic whale sharks in the Gulf of Kutch and some of the world's most beautiful coral reefs in the Lakshadweep and Andaman and Nicobar islands; these are just a few of the rare treasures to be found along India's 8,000 km. long coast-line.



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Besides being repositories of diversity, the ecological wealth of the oceans sustains the livelihood of millions of people. India has a significant marine fisheries sector that has long been an important source of employment and livelihood for coastal communities. The diversity of marine species and ecosystems create rich spawning and breeding grounds for aquatic organisms; a conservative estimate suggests that at least 3.5 million people derive their livelihood from marine capture fisheries in the over 4000 fishing villages situated along the Indian coast-line, though other estimates put the number of people dependent on marine fisheries as much higher. Hundreds of thousands are also supported indirectly, through the marketing and trade of marine produce. The sector is dominated by small-scale and artisanal fishworkers, making a livelihood from fishing and small-scale trading activities.



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Despite its biological wealth, India's marine environment has been overlooked, indeed, neglected. There is a paucity of accurate information, a direct result of the meagre scientific attention it has been afforded, and what information exists, has not been adequately collated.

Even with the limited information available, it is clear that we are in troubled waters. A dense coastal population, still on the rise, is exerting increasing pressure – both direct and indirect – on marine and coastal ecosystems. Our coastal and marine environment is being destroyed by non-selective and destructive fishing practices. Our oceans are being encroached upon and damaged by unplanned and unsustainable development and polluted by industry. Our seas have become the final sink for human-generated pollutants through runoff and direct dumping. Climate change and mega tourism projects, meanwhile, threaten to eclipse the incredible diversity of many coastal hotspots.

Fisheries resources in several parts of the country are under stress, with most of the major commercial stocks showing signs of overexploitation. This has serious repercussions on the livelihoods of those dependent on these resources, clearly pointing to an urgent need for better management of resources.

As in other parts of the world, over-fishing in coastal waters is fast becoming a major problem, with the ongoing expansion of Indian trawler fleets from Orissa, Andhra Pradesh, Maharashtra and Gujarat, and the looming threat of foreign fleets eyeing India's rich fisheries resources.

The Central Government is currently attempting to dilute one of India's most progressive pieces of environmental legislation – the Coastal Regulation Zone (CRZ) Rules, 1991, under the Environment Protection Act. This is the latest of several amendments and dilutions of the CRZ since its inception, each of which has successively weakened this crucial piece of legislation.

However, there is still a lot left to protect, both in terms of ecosystems and species. In those sections of the coast where mechanised fisheries are either absent or still nascent, many thousands of traditional fisher-

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folk are still able to live off the bounty of their seas, in a sustainable and self-sufficient manner.

As a nation, we are at a critical juncture; if we are to ensure that our seas remain clean, healthy and productive, if we are to conserve the full diversity of our marine ecosystems, and if our oceans are to sustain the millions of small-scale, traditional and semi-traditional fishermen who depend on these resources for their daily survival, we must take action now.

Over the last two years Greenpeace India, with extensive inputs from major stakeholders, has conducted extensive research, investigating the current status of a number of biodiversity 'hotspots' situated along India's east coast. This report, India's Coastal and Marine Environment - Planning for the Future, presents the findings of these case studies.

The establishment of a network of fully-protected marine reserves is essential to ensure the survival of our marine resources. Marine reserves are a special form of marine protected area (MPA) which are off-limits to all extractive and destructive uses, including fishing. They are the most powerful tool available for the conservation of marine life, as they take into account the whole ecosystem. Marine reserves also enable exploited species to recover and reproduce, thus benefiting fisheries in adjacent areas. Most studies agree that between 20% and 50% of the sea should be protected in order to achieve the conservation of viable populations, support fisheries management, secure ecosystem processes and ensure connectivity between marine reserves in networks.

Experience from marine reserves in other countries with marine ecosystems similar to India's, including St Lucia, the Philippines, Belize and Fiji, shows an increase in the number, size and diversity of species within the reserves and benefits to fisheries beyond the boundaries of the reserve.

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At present, India's Marine Protected Areas cover just about 5,000 sq. km., less than 4% of the country's Protected Area network and an even tinier fraction of India's seas. Although well-intentioned, the experience of the main MPAs along the coast of mainland India has not been encouraging. The exclusion of local communities from the design and management of MPAs has caused resentment. The forest department

(entrusted with management of MPAs under the Wildlife Protection Act) is more accustomed to terrestrial operations and demonstrates a lack of understanding of marine dynamics, leading to further mistrust and alienation. To make matters more complicated, only a few of the measures introduced to protect the marine environment are effectively implemented.

Greenpeace believes that it is essential that India take up the challenge and work towards building a network of marine reserves in both, its coastal waters and throughout its Exclusive Economic Zone (EEZ) with the goal of extending full protection to 40% of India's waters. Such a network is essential for conservation as well as the long-term sustainability of India's coastal fisheries and will bring other benefits in the form of education, research, recreation and tourism opportunities.

One of the key lessons to be learnt from other countries is that building a network of many small marine reserves in the coastal zone has the advantage of benefits in terms of enhanced fish stocks being spread amongst more fishing communities all along the coast, instead of being concentrated around a few large marine reserves, while some communities lose their fishing grounds altogether. However, for such a patchwork of reserves to be effective they must be designed in consultation with and agreed upon by all the affected local communities – if not, they will be no more than 'paper parks'. Since most, if not all, fisheries in India are coastal, (with even trawlers rarely venturing more than 50-70 miles from the shore), the designation of large areas offshore as marine



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reserves will have few negative impacts on livelihoods. What it will ensure is that these areas are preserved for posterity and serve as protected areas for offshore species.

India's responsibility in ensuring the preservation of the marine environment does not stop at the 200nm limit. It is important that the Government of India continues to strengthen its coordination and cooperation in marine matters with other countries in the region. It is also crucial that India takes on a leadership role in advocating good governance for the protection of the global commons.



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Networks of marine reserves are needed at the national, regional and global level. The UN Millennium Project calls for 10% of the oceans to be covered by marine reserves in the short to medium term, with a long term goal of 30%. The World Parks Congress recommends that a global system of effectively-managed, representative networks of marine protected areas be developed by 2012.

As will be evident from the findings presented in this report, we are precariously positioned at the brink of an irreversible loss: If we are to protect our coastal and marine ecosystems, and indeed, the communities dependent on these resources, we must first take action to reverse years of neglect... and we have to do so now.



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