

# Status of Marine and Coastal environments and developing a Marine Protected Area Network in India



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India

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Senior Research Fellow

Dr. K.R.Saravanan

Final Report

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## Summary

The coastal and marine environment of Indian mainland has been studied in detail to assess the present status and to identify and prioritize potential sites for conservation as Important Coastal and Marine Biodiversity Areas (ICMBA), in addition to the existing Marine Protected Areas. Detailed surveys were carried out all along the coastline between 2006 and 2010. This study followed the standardized global, national and regional level approaches to develop a criteria with several indicators which were used to identify ICMBA sites in India. A state-wise site matrix was prepared and prioritized based on identified indicators considering the ecological, cultural and socio-economic values of respective sites. A total of 350 sites were visited all along east and west coasts of Indian mainland and, of these, 106 sites were identified and prioritized as ICMBA. Along the west coast of India a total of 62 ICMBA were identified, while 44 ICMBA along the east coast. Of these 106 ICMBA, 22 ICMBA have been prioritized for immediate conservation actions. These sites are proposed for consideration of Protected Areas under various categories largely as Conservation or Communities Reserves.

Indian Coastal and marine ecosystems are among the most biologically and economically productive ecosystems in the world where these ecosystems are both a source of livelihood as well as of a range of ecological services that are critical for the day to day well-being of millions of people particularly coastal communities. Despite their tremendous ecological and economic importance and the existence of a substantial policy and regulatory framework, India's coastal and marine ecosystems are under increasing threat. Numerous direct and indirect pressures arising from different types of economic development and associated activities are having adverse impacts on coastal and marine biodiversity across the country. Major anthropogenic direct drivers of ecosystem degradation and destruction include habitat conversion to other forms of land use, overexploitation of species and associated destructive

harvesting practices, the spread of invasive alien species, and the impacts of agricultural, domestic and industrial sewage and waste. Additionally, climate change is likely to have a growing impact on coastal and marine ecosystems, including a likely increase in extreme weather events as well as sea level rise, warming of the sea surface temperatures and ocean acidification. Coastal habitats are also subject to powerful natural weather phenomena, such as tsunami, cyclones, hurricanes and storms. Indirect drivers of ecosystem change include demographic, socio-political, cultural, economic and technological factors.

### Identified Important Coastal and Marine Biodiversity Areas of India

Coast	States	Identified ICMBAs	Total
West	Gujarat	15	62
	Maharashtra	14	
	Goa	4	
	Karnataka	12	
	Kerala	17	
East	West Bengal	2	44
	Orissa	14	
	Andhra Pradesh	15	
	Tamil Nadu & Pondicherry	13	
Total			106*

### List of Identified and Prioritized (in Bold) ICMBAs in India

State	District	Identified Site	Area (Sq.Km)	Suggested category
Gujarat	Kachchh	Koteshwar	146	Cons. / Comm. Reserve
		Jacau	473	Cons. / Comm. Reserve
		Gasabara	19	Cons. / Comm. Reserve
	Porbandar	Porbandar	261	Wildlife Sanctuary
		<b>Madhavpur</b>	19.6	Cons. / Comm. Reserve
	Diu-Daman	Diu	179	Cons. / Comm. Reserve
		Damnganga	9	Cons. / Comm. Reserve
	Junagad	Gopnath	87	Cons. / Comm. Reserve
	Bhavnagar	Bhavnagar	816	Cons. / Comm. Reserve
	Anand	Wadgham	927	Cons. / Comm. Reserve
	Surat	<b>Aliabet</b>	647	Cons. / Comm. Reserve
		<b>Purna</b>	147	Cons. / Comm. Reserve
	Valsad	Ambika	105	Cons. / Comm. Reserve
		Umargaon	22.5	Cons. / Comm. Reserve

State	District	Identified Site	Area (Sq.Km)	Suggested category
Maharashtra		Vaitrana	132.4	Cons. / Comm. Reserve
		Bassien	150	Cons. / Comm. Reserve
	Thane	<b>Thane creek</b>	152	Cons. / Comm. Reserve
		Dharamtar- Karanja	340	Cons. / Comm. Reserve
		Kondalika	98	Cons. / Comm. Reserve
	Raigad	Murud-Janjira	141.7	Cons. / Comm. Reserve
		Harihareshwar- Savitri	21.77	Cons. / Comm. Reserve
		Shrivardhan	9.6	Cons. / Comm. Reserve
		Dabhol-Dapoli		Cons. / Comm. Reserve
	Ratnagiri	<b>Purnagad</b>	9.4	Cons. / Comm. Reserve
		Devgad		Cons. / Comm. Reserve
		Angria Bank	400	Conservation Reserve
		Jaigad	40.75	Cons. / Comm. Reserve
	Sindidurg	Vijayadurgh	48.45	Cons. / Comm. Reserve
	<b>Achra-Malvan</b>	62.74	Cons. / Comm. Reserve	
Goa	Goa	Galgibagh		Cons. / Comm. Reserve
		<b>Zuari-Mandovi estuary</b>	84.5	Cons. / Comm. Reserve
Karnataka	Uttara Kannad	<b>Kali estuary</b>	25.3	Cons. / Comm. Reserve
		Aghanashini	46	Cons. / Comm. Reserve
		Sharavati	13.6	Cons. / Comm. Reserve
		<b>Netrani island</b>	5	Conservation Reserve
	Udupi	<b>Kundapur</b>	16.7	Cons. / Comm. Reserve
		Sita-Swarna	15	Cons. / Comm. Reserve
		Hanovar		Cons. / Comm. Reserve
		Malpe		Cons. / Comm. Reserve
		Mulki-Pavanje	3.5	Cons. / Comm. Reserve
	Dakshin Kannad	Gurpur-Netravati	13.8	Cons. / Comm. Reserve
Kerala	Kasargod	Kadakkavu		Cons. / Comm. Reserve
	Kozhikode	Edayilakadu		Cons. / Comm. Reserve
		<b>Kolavipalem</b>		Conservation Reserve
		Edakkazhiyur		Cons. / Comm. Reserve
	Thrissur	<b>Kole wetlands</b>	175	Cons. / Comm. Reserve
	Ernakulam	<b>Vypin-Fort Kochi</b>		Cons. / Comm. Reserve
		Vembanad		Cons. / Comm. Reserve
		Kumarakom		Cons. / Comm. Reserve
		<b>Kumbalangi</b>		Cons. / Comm. Reserve
	Kollam	Ayiramthengu		Cons. / Comm. Reserve
Ashtamudi			Cons. / Comm. Reserve	
West Bengal	24 Pragnas	Jambudweep	5.12	Cons. / Comm. Reserve
	Midnapur	Jambuchar	130	Cons. / Comm. Reserve
		Junput	57.6	Cons. / Comm. Reserve
Orissa		Talseri- Udaipur		Cons. / Comm. Reserve
		Subarnarekha		Cons. / Comm. Reserve
		<b>Chandipur</b>	81.56	Cons. / Comm. Reserve
		Vasantpur-Bhopal		Cons. / Comm. Reserve
		Jambu		Cons. / Comm. Reserve
	Devi	88.38	Cons. / Comm. Reserve	

State	District	Identified Site	Area (Sq.Km)	Suggested category
		<b>Chilika</b>	1095	Wildlife Sanctuary
		<b>Rushikulya</b>	18.85	Cons. / Comm. Reserve
		Gopalpur		Cons. / Comm. Reserve
		Bahuda	4.78	Cons. / Comm. Reserve
		Bahuda swamp	18.55	Cons. / Comm. Reserve
		Paradeep	260	Cons. / Comm. Reserve
Andhra Pradesh		Sunapur	34.54	Cons. / Comm. Reserve
		Nuvularevu	10.32	Com. / Cons. Reserve
		<b>Naupada</b>	28.98	Com. / Cons. Reserve
		Kalingapatnam	10	Com. / Cons. Reserve
		Gangavaram	3	Com. / Cons. Reserve
		Pudimadka	2	Com. / Cons. Reserve
		Vashista	148	Com. / Cons. Reserve
		Bangarampalem	4.2	Com. / Cons. Reserve
	Puducherry	Yenam		Com. / Cons. Reserve
		Gundalakama	38.9	Com. / Cons. Reserve
		<b>Machilipatnam</b>	26.38	Conservation Reserve
		<b>Bantumeli</b>	28.44	Conservation Reserve
		Nizamapatnam	45.64	Com. / Cons. Reserve
		Pennar	23.5	Com. / Cons. Reserve
	Krishnapatnam	48.6	Com. / Cons. Reserve	
	Pulicat	383	Wildlife Sanctuary	
Tamil Nadu & Puducherry	Thiruvallur	Pulicat	82.4	Com. / Cons. Reserve
		Muttukad	32.42	Com. / Cons. Reserve
	Villupuram	<b>Kaliveli</b>	101.4	Com. / Cons. Reserve
	Puducherry	Ariyankuppam	4	Com. / Cons. Reserve
		Cuddalore	9.567	Com. / Cons. Reserve
	Cuddalore	<b>Pichavaram</b>	20	Wildlife Sanctuary
		Pazhayaar		Com. / Cons. Reserve
	Nagapatnam	Vettaikaranirupu	81.11	Com. / Cons. Reserve
		Talaingnayar		Conservation Reserve
		Muthupet	287.5	Wildlife Sanctuary
		Adiramapatnam	32.25	Conservation Reserve
	Pudukotai-Ramnad	<b>Palk Bay</b>	725	Wildlife Sanctuary
Kanyakumari	Manakudy	4.41	Com. / Cons. Reserve	

## Prioritized ICMBA sites

