

Best Practices in Wetland, Coastal and Marine Tourism

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Additional Professor

IGNFA

Outline

- Over view wetland/ coastal and marine tourism
- Case studies & Success indicators
- Target species / Planning /Execution
- Discussion on best strategies adopted

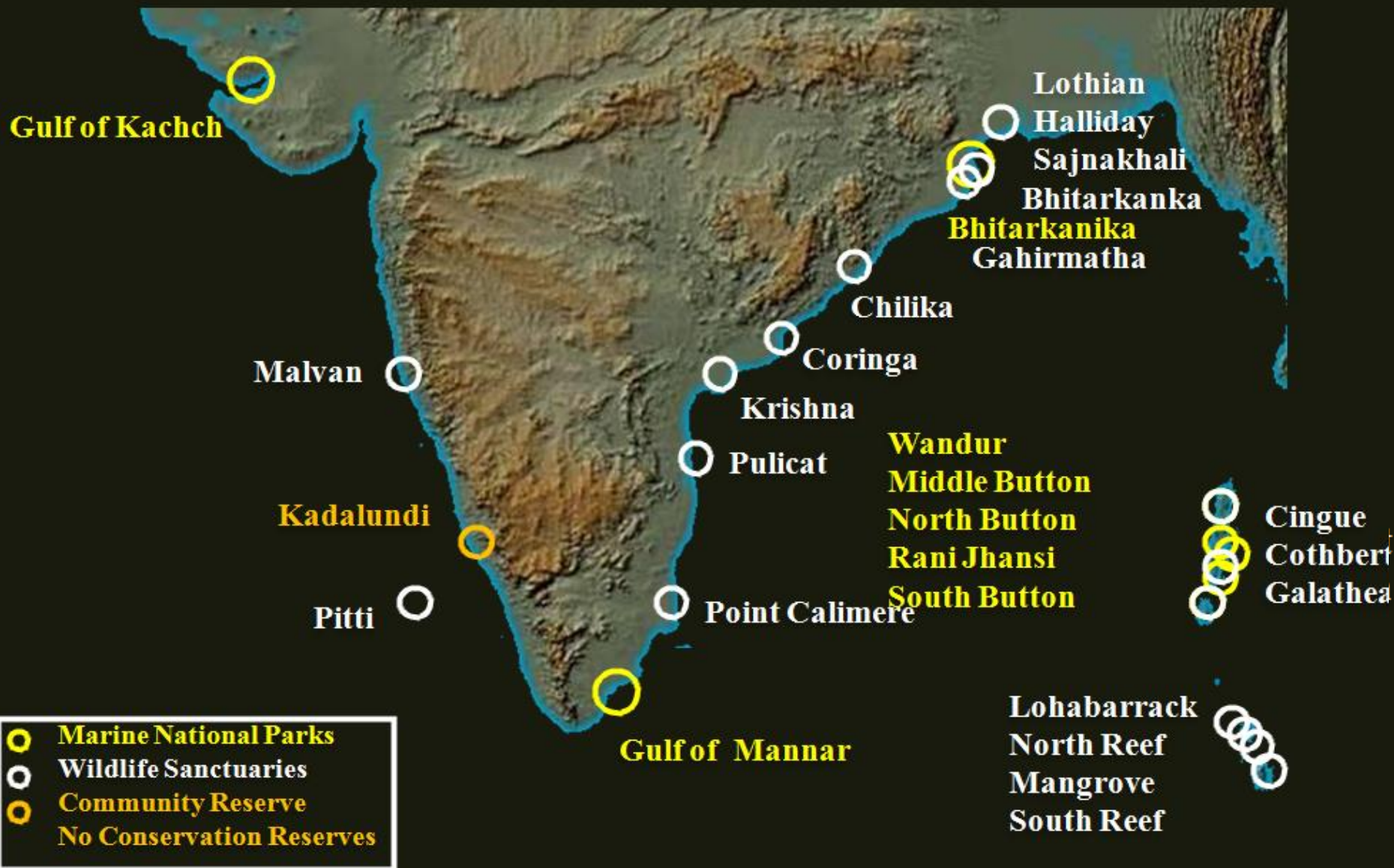
Wetland status in India

- Wetlands are amongst the most productive of the world's ecosystems.
- It provide essential services for people such as water, food, transport, coastline protection – as well as a place for tourism and recreation.
- Worldwide, wetlands offer significant opportunities for tourism and recreation, generating income for governments, for the tourism industry itself, and for local communities as well.



State-wise number of wetlands in India.

Existing Marine Protected Areas in India



23 MPA cover 6158 km² in peninsular India

106 MPAs in islands

MPAs form 3.85% of total area under PAs in India and 4.97% of coastal zone of peninsular India

Coastal and Marine Zone of India

- India has a coastline of about 7,517 km
- Nearly 250 million people live within a distance of 50 km from the coast
- High Population density in coastal districts @ of 455 persons per sq. km against the national average of 324)
- Subjected to natural disasters – climate change
- Closely associated with Livelihood (3600 fishing villages / 12 major port & 185 minor ports / 4120 sq. km of mangroves)

Coastal States: 9
Coastal UTs: 4



Coast line :7517 Km

mainland coast line : 5423 Km

Offshore Islands : 2094

Km[1962 (ANI)+132 (LAK)]

Total Islands :1382

*Mainland islands:- 514
(421W+93E)*

Lakshadweep: 32

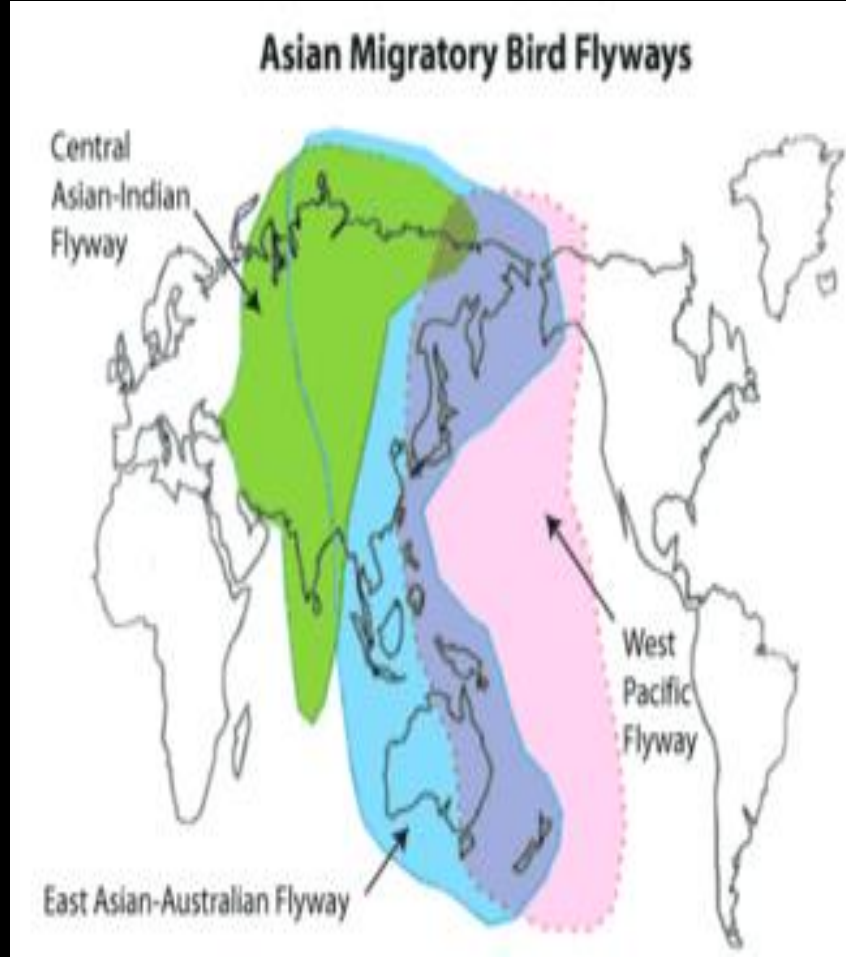
Andaman & Nicobar: 836

Tourism – Community – poverty alleviation – Linkages

1. Employment of the poor in tourism enterprises
2. Supply of goods and services to tourism enterprises by the poor or by enterprises
3. Direct sales of goods and services to visitors by the poor (informal economy)
4. establishment and running of small, micro or community-based tourism enterprises or joint ventures by the poor (formal economy)
5. Redistribution of proceeds from taxes or charges on tourists or tourism enterprises
6. Voluntary giving and support by tourists and tourism enterprises
7. Investment in infrastructure stimulated by tourism also benefitting the poor in the locality, directly or through support to other sectors.

PA based Wet land Tourism

केवलादेव राष्ट्रीय उद्यान KEOLADEV NATIONAL PARK

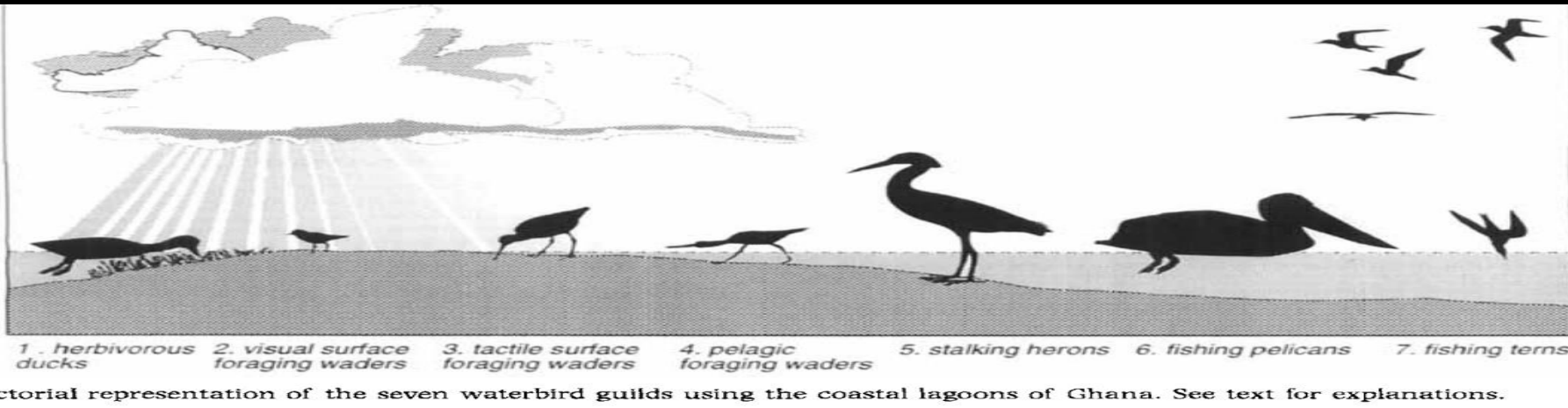
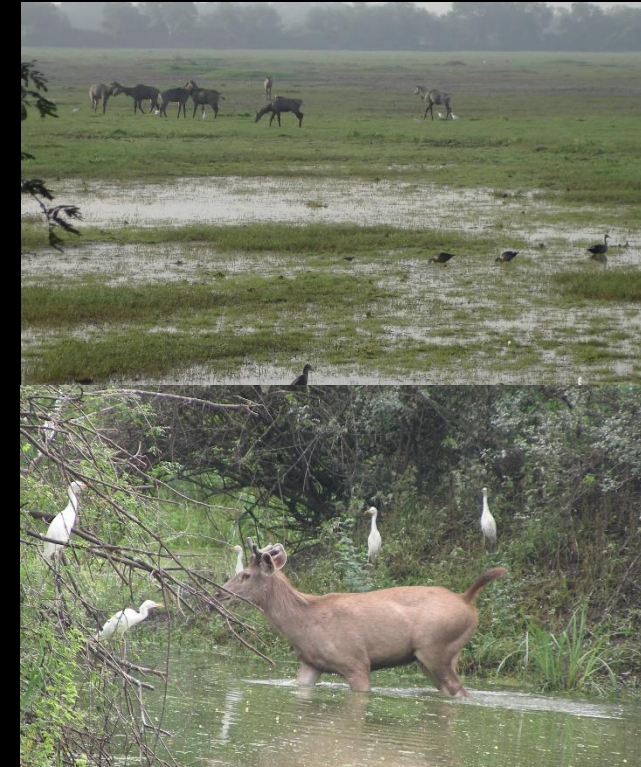


Breeding Birds

A World Heritage Site & Heart of Central Asian Flyway

Hydrological Interventions – to have bird population

- Minimum hydrological Level
- Fulfill requirement of different types of birds visit Ghana (Shallow to Deep water bodies) - Compartmentalization
- Clean water but with nutrient rich
- Catchment Area Treatment
- Proper inlets and outlets



Landscaping

- ❖ **Mounds construction (for rest, roost and nesting birds)**
- ❖ **Native tree plantation (smaller in number)**
- ❖ **Compartmentalization**
- ❖ **Creation of additional foraging grounds (e.g. Geese, Grebe etc)**
- ❖ **Satisfy requirement of all birds and other wildlife**

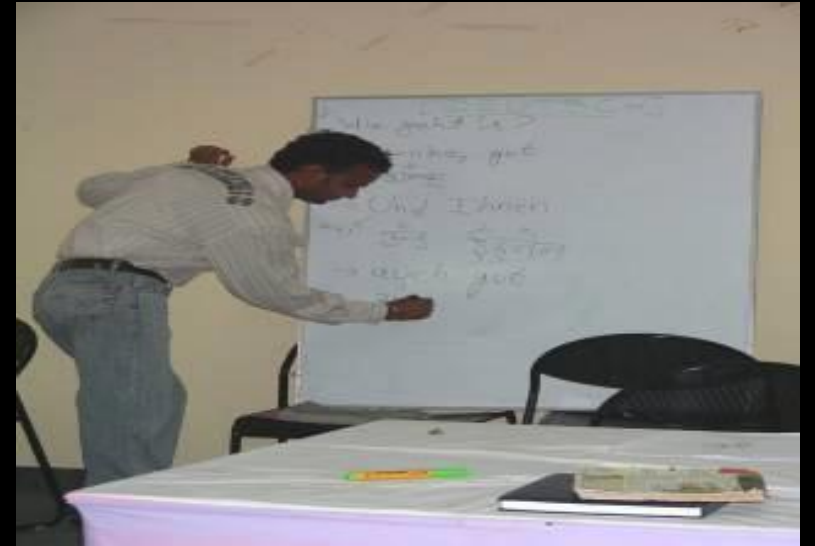




More Birds – More visitors – More livelihood support

Helping local communities

- ◆ A unique training programme in 'German Language' skills has been initiated in Keoladeo National Park under which select '*Nature Guides*' and 'Rickshaw Pullers' are being taught 'German Language Speaking skills'.



- ◆ This helped in not only providing better visitor experience to a large number of German speaking tourist who visit the park but also allowed these people to earn additional livelihoods through their



French Language Courses

- ◆ Feedback of German language course encouraged to conduct French Language course for the Nature Guides and Rickshaw Pullers and enhanced their profiles as Tourist Guides



WHS Ambassadors

- ◆ 'World Heritage Biodiversity Scholarships' has received greater appreciation from local people and created enormous awareness among people who live around the Park towards conservation.
- ◆ The scholarship recipients are regularly participating in conservation awareness and solid waste management activities in the PAs.
- ◆ 150 Ambassadors.



A World Heritage Biodiversity Scholarship Programme, Keoladeo National Park, Bharatpur As part of the WII-UNESCO Project '**Building Partnerships to Support World Heritage Programme in India**' unique programme of providing 'World Heritage Biodiversity Scholarships' has been implemented in Keoladeo NP under which 50 school going children of park staff and local communities have been selected on a competitive basis to receive a scholarship of Rs. 500/-month. This site has become the first World Heritage Site in the world to conceive and implement such a programme. The scholarship recipients are regularly participating in conservation awareness and solid waste management activities in the PAs.

Activities of WHS Ambassadors



Active participation of WHS Ambassadors in education and awareness programmes



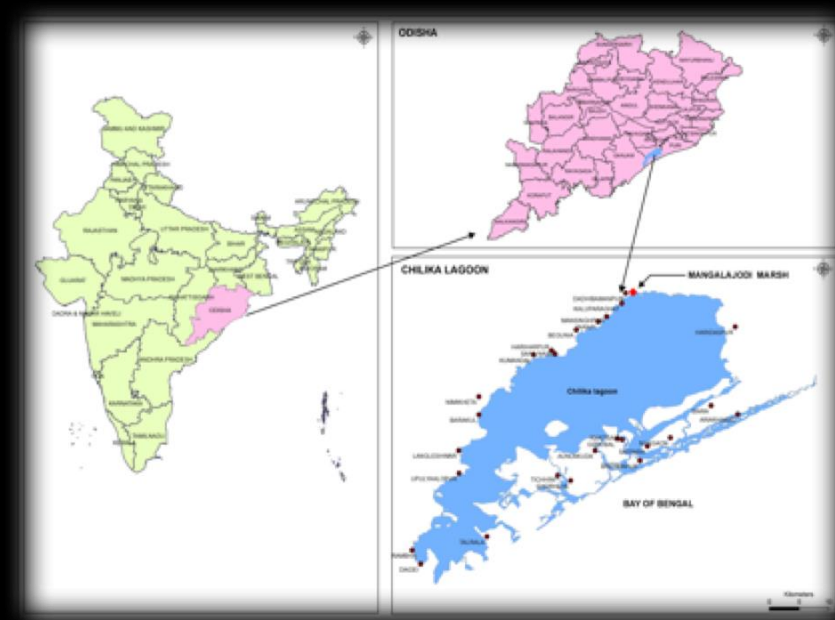
Active participation of WHS Ambassadors in education and awareness programmes



Community based Wetland management

❖ Mangalajodi marshes on the Northern fringes of Chilika Lake, a Ramsar site is a paradise for both resident and migratory birds

❖ Mangalajodi marsh supports 97 species of water birds and 33 wetland dependent birds that includes 30 species which breed here.



❖ Black-tailed godwit, *Limosa limosa* is the flagship species of Mangalajodi. Its conservation status is near threatened (IUCN)

❖ Mangalajodi marsh with floating and emergent vegetation is the most favoured habitats for several species of resident (jacanas, moorhens, whistling ducks, crakes and other rallids) and long migratory species i.e. Northern Pintail and Black-tailed Godwit.



Key species
conserved

The transformation

- In early 1990s, local communities used to indiscriminately hunt, eat and sell the meat and eggs of birds and had adopted it as a means of livelihood.
- 80 professional defiant bird hunters used to rule the area till 1997. With long persuasion by Wild life wing, Orissa, a local NGO, & CDA, these bird hunters abandoned poaching and adopted tourism as a means of livelihood.
- Mangalajodi is now transformed into an endless source of fascination for those with the inclination to enjoy & appreciate nature & biodiversity.
- It has been designated as an Important Bird & Biodiversity Area (IBA).

- Now these reformed bird hunters use non-mechanized small boats with ore, to conduct the tourist through the Mangalajodi marshes.
- Their earnings is now much better than what they used get out of poaching.
- Most importantly now they live with pride & dignity and have left behind their bad image of poachers.



- To take this initiative to the next level, Indian Grameen Services(IGS) a NGO facilitated the constitution of **Mangalajodi Ecotourism Trust (MET) in 2010.**
- **IGS in collaboration with MET** developed cottages, dormitories and tented accommodation with dining facility, interpretation centre cum souvenir shop for the eco-tourist which are **run by the local communities.**
- For marketing and dissemination of information a website “mangalajodiecotourism.com” is developed.



- A conservation team involving the boatmen & guides is constituted within MET.
- The marsh is divided into six zones for regular patrolling and conducting the tourists. During patrolling and birding tours, they also keep a watch on the nesting sites and ensure that the area remain undisturbed.



Indicator of success

- The bird population of Mangalajodi , was just 4277 as per 1998 census.
- Due to protection by community , the number steadily increased and touched 0.15 million in 2016.
- Mangala Jodi has emerged as one of the best site for wildlife photography.
- The average annual income of the local communities increased by 70000 per annum and migration out of the village in search of employment is significantly reduced.



Achievement & Outcomes

- In recognition of their outstanding contribution in the field of conservation of biodiversity, they were conferred with **Pakshi Bandhu Award in 2002**, and prestigious **Biju Patnaik Award in 2007**, by Government of Odisha.
- A first day cover on Mangalajodi has been released by India Post in 2013



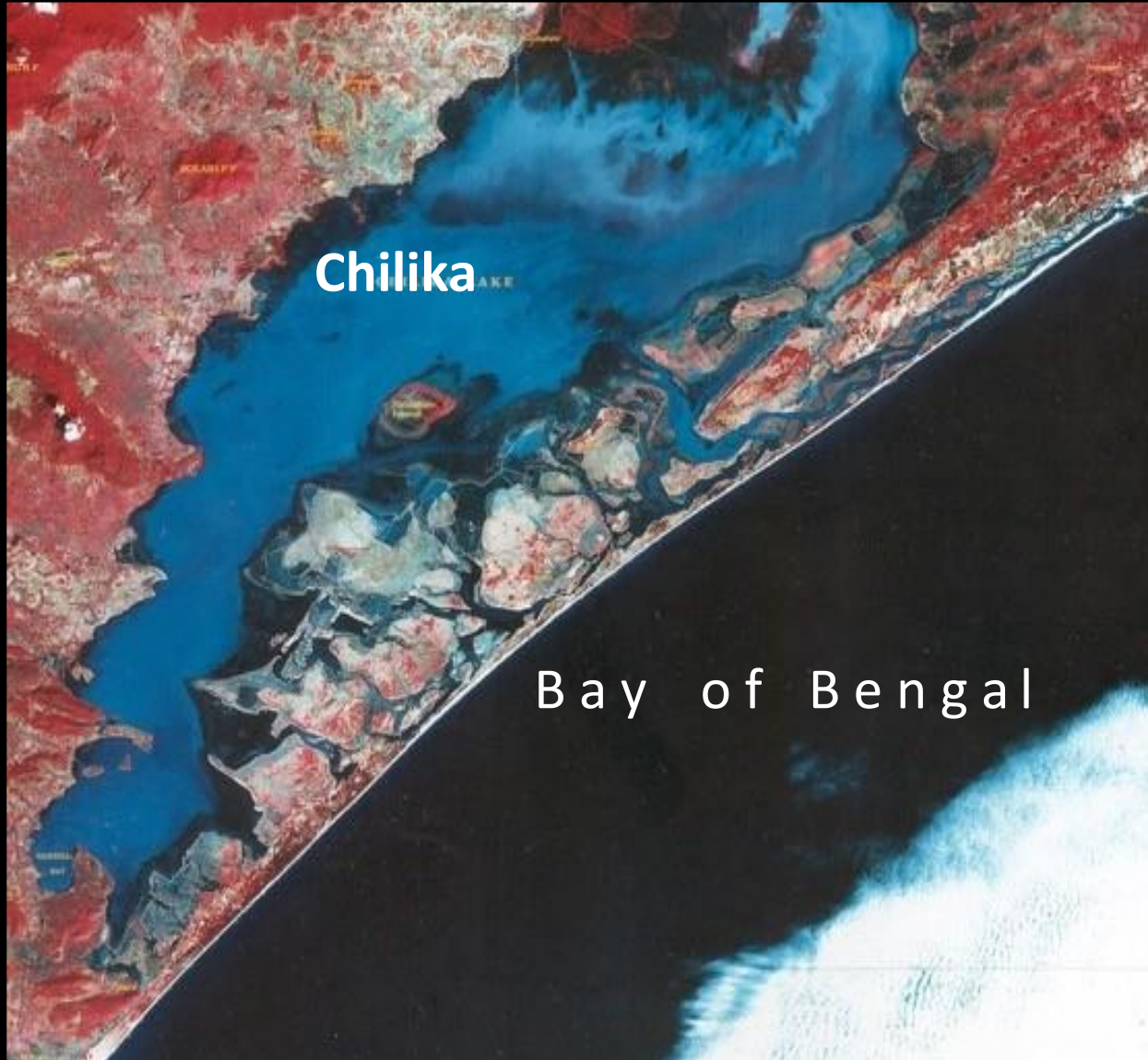
Sustainability indicators

- Mahavir Pakshi Surakhya Samiti has been **the first community based initiative of the state** , which could achieve major success not only in containing poaching and conservation of biodiversity but promotion of responsible tourism .
- The fishers from the village also understand how the bird congregation areas turned in to potential fishery grounds and by which they are benefitted.
- The **community now clearly understand the connect between biodiversity & livelihood , which is key for sustainability** .



Villages based coastal wetland management model

Coastal wetland system



Average waterspread: 1065 sq km

Direct basin: 4406 sq kms

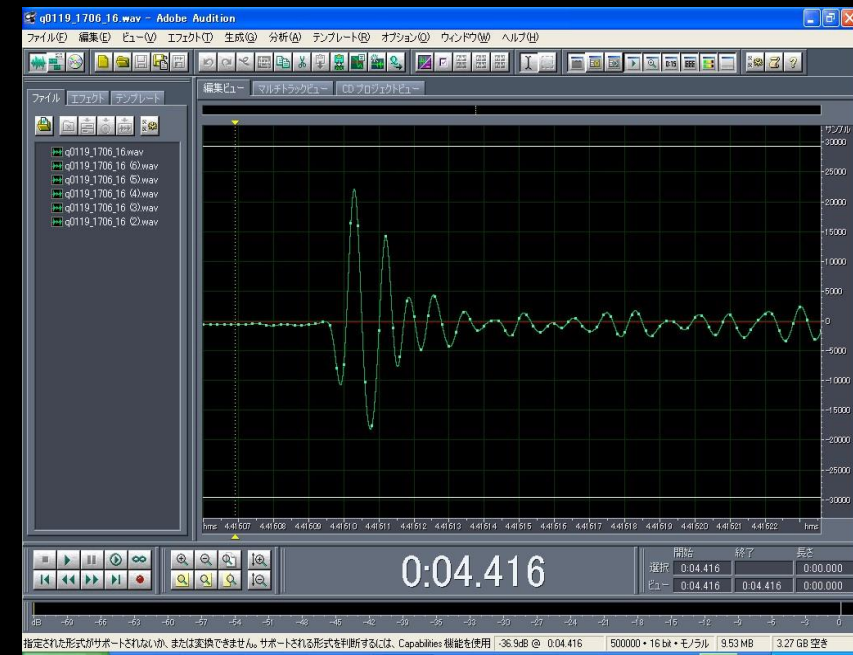
Average depth- 1 mts

- The dolphin based tourism was initiated along outer channel by a group of self-motivated fishermen from 6 villages in 1989 which laid the foundation of community based ecotourism in this region.
- The hydrological intervention by CDA in 2000, resulted in significant improvement in the prey base of dolphin resulting in increase in their population (89-150).
- More than 60% of the population of the dolphin are found along the Outer Channel of the Lake and about 1000 boats depending on the dolphin watch based ecotourism for their livelihood.
- At present 17 fishers villages affiliated to 5 community-based ecotourism centres are conducting the tourist for dolphin watching.



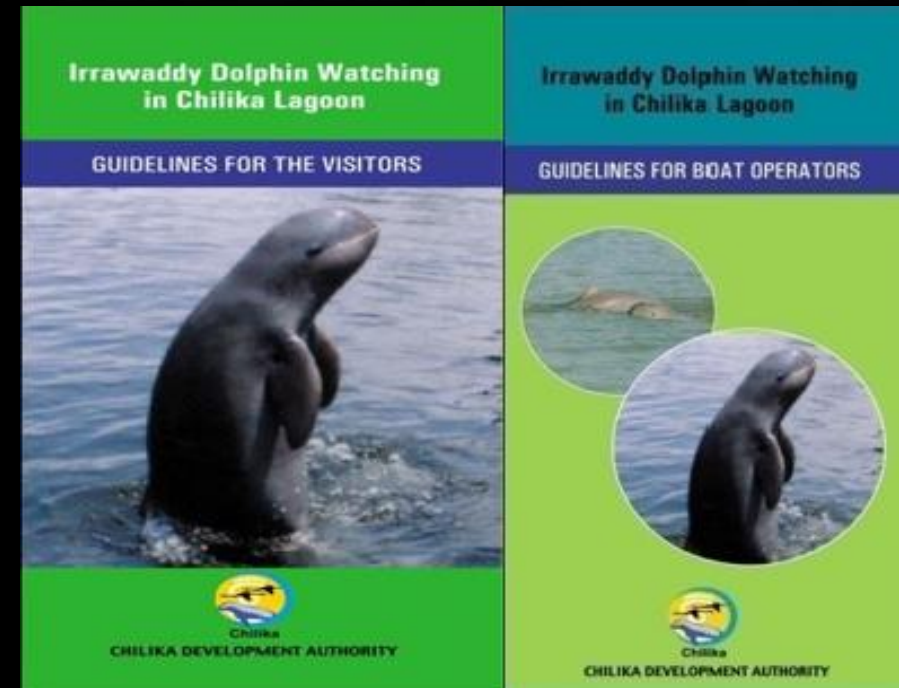
Under Water Acoustic Study

- Due to turbidity of the Lake water there is limitation in study of underwater behavior of Irrawaddy dolphin.
- To overcome the limitation and provide reliable data on the underwater behavior of the dolphin through use of passive non invasive acoustic technology , CDA collaborated with KDDI R&D Lab of Tokyo University and WWF, India
- A customised array of 8 hydrophones was used to capture the clicks of Irrawaddy dolphin. The digital data captured is used to interpret its underwater behaviour by use of the customised software.



Measures to mitigate the threats from boat traffic

- A dolphin watching protocol based on carrying capacity is developed by WII.
- Orientation training to the boatmen, professional nature guide training to educated youth was imparted in collaboration with the IITTM and the state Forest Department, for two weeks.
- Dolphin watching protocol for boat operators and visitors developed. Signage are installed at the visitor entry points.
- An enforcement team of wild life wing of Forest Department is constituted to patrol in routine manner, to ensure that the regulations are being followed.



Visitor center at Chilika

- CDA, have developed a visitor center at Satapada- a gateway to Chilika for dolphin watching.
- A number of educational materials ; like models, exhibits, panels and touch screens on Irrawaddy dolphin are displayed at the visitors centre at Satapada.
- visitors amenities & infrastructures like; public convenience, food court, visitor center, signage & Parking etc. developed at 6 locations considered as gateways to Chilika



Measures to Mitigate the Threats to the Dolphin Population

- Orissa Marine Fishing Regulation Act, 1982, OMFR Rules, 1983 for conservation of Chilika fisheries
- The use of the zero-net (net with fine mesh size) is also banned in the Lake with effect from 2003 by the Fisheries and Animal Resources Department, Government of Odisha.
- Orissa Boat Rules, 2004
- Wildlife (protection) Act 1972
- By sensitization of fishers and boat operators conducting tourists for dolphin watching, the causality due to collision with mechanized boats and drowning by the gill nets is reduced significantly.

| Year | Population | Casualty |
|------|------------|----------|
| 2006 | 131 | 4 |
| 2007 | 135 | 8 |
| 2008 | 138 | 6 |
| 2009 | 146 | 10 |
| 2010 | 158 | 01 |
| 2011 | 156 | 01 |
| 2012 | 145 | 01 |
| 2013 | 152 | 06 |
| 2014 | 158 | 06 |
| 2015 | 144 | 03 |
| 2016 | No census | 01 |
| 2017 | 157 | 01 |

Indicator of success

- Based on a conservative estimate, Rs.14-15 crores per annum is the revenue generated annually, out of boat hiring charges, guide fees, parking, ancillary business which is an additional income for the communities.
- 5% of total revenue generated goes towards development funds which is spent for community development, maintenance of visitor amenities , sponsoring students from poor families for higher studies, etc.
- 100% literacy is achieved in all 17 villages.

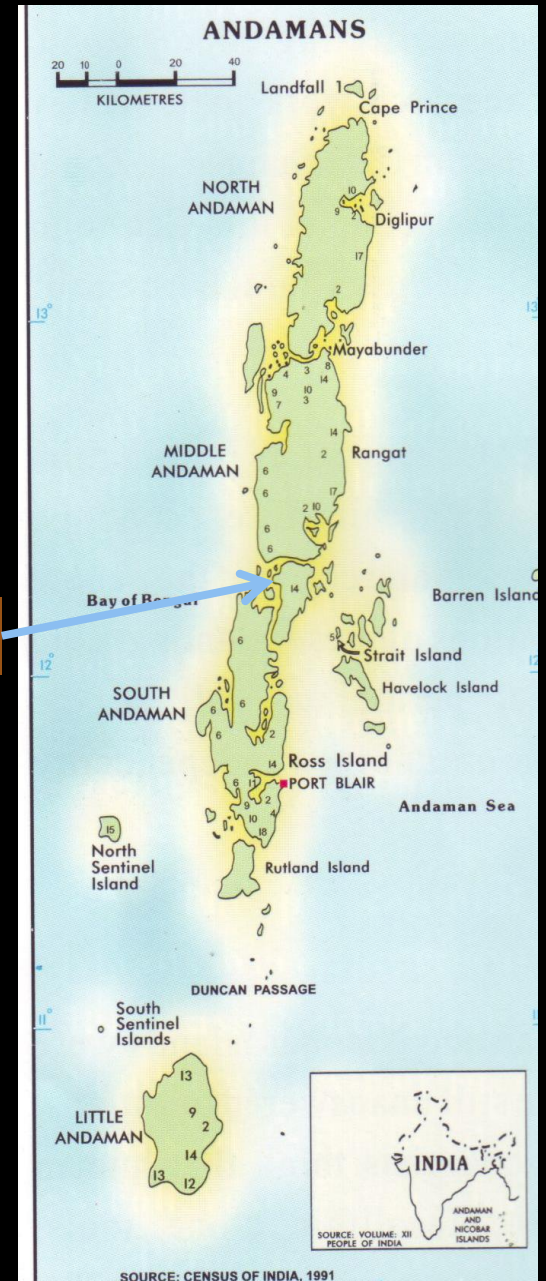
Coastal Tourism

Baratang Island Statistics

- Area – 297.80 sq. km
- Forest area – 282.20 sq. km (94.76%)
- Total no. of villages – 24
- Population – 6062 (2001 census)

Baratang

| Occupation – Main Workers (2001 Census) | |
|---|-----|
| Cultivators | 463 |
| Agricultural Labourers | 29 |
| Household Industries | 28 |
| Other Workers | 980 |



Major attractions



<https://andamanholidays.com/blog/about-andaman-islands/baludera-beach-in-andaman/>

Baratang - Major Issues

- Land tenure problem - Adajig, Nilambur and 9 other villages – 1970 land issue
- Illegal felling – Halting point for transit to Port Blair
- Poaching – Access to Port Blair – venison
- Lack of revenue land for developments - forest cover
- Limited window of activities – Transit island – ferry timings
- Strained relation with the FD – Boats – main mode of transport

Ecotourism initiatives

- Recognition of unique sites (lime stone caves, Mud volcano, Baludera beach, Parrot island)
- Ecotourism scheme / Enabling atmosphere
 - Public consultation
 - Opening of sites for ecotourism
 - Development of approach paths
 - Development of amenities

FD Initiatives

- informal capacity building
- Regulation of access to sites through permits
- Development of onsite signage
- Strict enforcement of law

Baratang Ecotourism model (By FD)

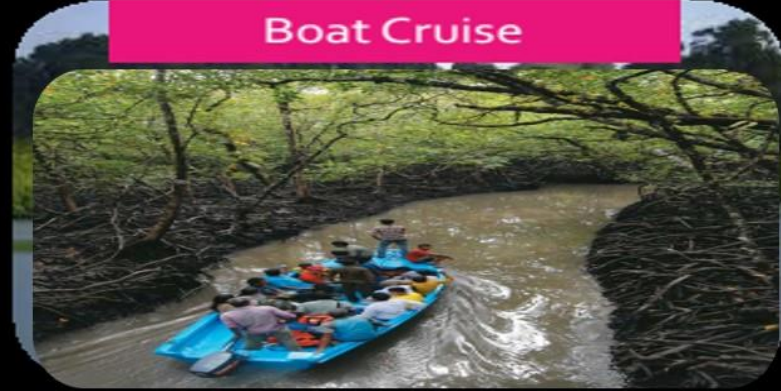
Eco huts



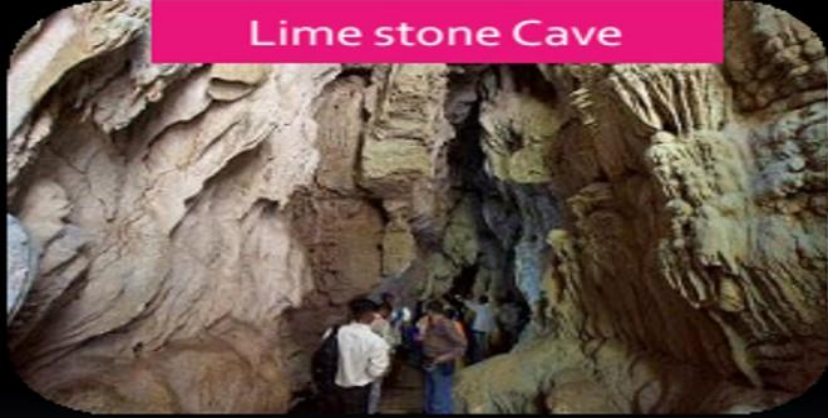
Mangrove Tunnel



Boat Cruise



Lime stone Cave



Mud Volcano



Nature Trail



Mangrove Board walk



Eco friendly bridges

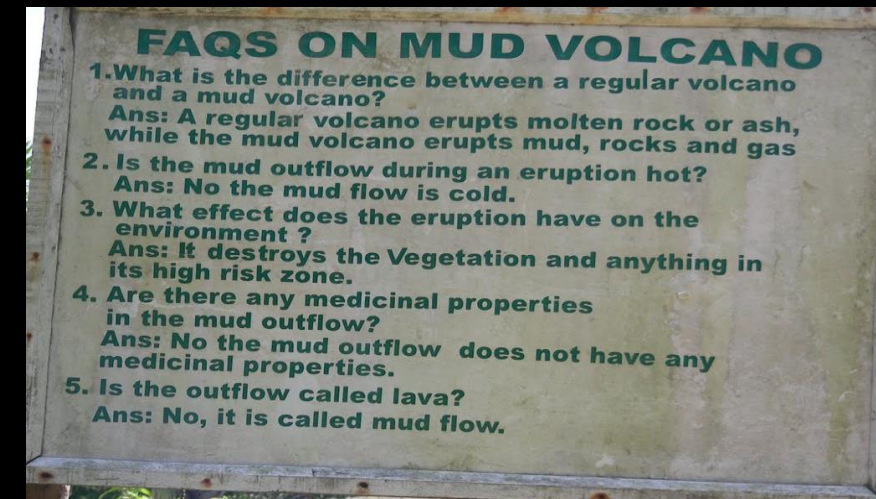


SW Crocodile



Community Initiatives

- Diversion of fishing boat for ferrying tourists
- Handling of tourists - Tour operators
- Self regulation on boat movements
- Garbage management
- Pricing structures
- Diversification in tourism industry (hotels, tour guides, transporters, booking agents, shop owners , support agencies)



Out come of initiatives

- Phenomenal change in island livelihood options
(per family income Rs.3600/ day)
- Increase of tourist influx from 10263 (in 2004)to 2.5 lakhs permits issued by the FD in 2019
- Increase in no. of boats from 14 to 110
- Increase in gas connections, concrete buildings, hotels
- Reduction in forest offences to minimal extent
- Good will with the FD

WELCOME TO THE LAND OF NATURAL WONDERS

BARATANG

Baratang Island in the A & N Islands is truly a land of natural wonders. These wonders starts from mud volcanoes, natural lime stone caves, lesser known exotic beaches, under water marine life to tropical rain forest. Baratang Island is the gateway to the Rural district of North & Middle Andaman.

What to see when in Baratang

NATURAL LIME STONE CAVES

The lime stone caves, full of splendid stalagmites, stalactites and pillar rocks, can be accessed by a 40-minute boat ride through the crooks from the Nilambar Jetty. And about 15-minute trek further through village and forest. It gives an immense sense of adventure to the tourist.

MUD VOLCANO

A mud volcano is created by natural gases emitted by decaying organic matter underground. As the mud is pushed upwards by the gas, it deposits and hardens above ground. As more mud oozes out and spills over the edge it grows in size, gradually forming what you can see today - a miniature volcano with a rich, creamy mud crater at the top.

MESMERIZING PARROT ISLAND

Parrot Island is a tiny island situated near Baratang. It is home to thousands of parrots. During sunset, thousands of parrots come in groups to settle in that island. The landing of parrots can be viewed from boats and it's an incredible experience to watch such a huge number of parrots landing there.

BALUDERA BEACH

Baludera Beach is an unpolluted shallow and isolated beach in Baratang Island. During low tide one can wade through for almost a kilometer.

MERK BAY BEACH

Merk Bay beach in North Passage Island offers an excellent sandy beach with unpolluted environment and evergreen forests. Merk Bay is famous for coral, white sandy, shallow beach suitable for Snorkeling, Swimming and Sun Basking. The sea around the island is famous for playful Dolphins.

Enjoy comfortable stay with great food at Dew Dale Resorts, Baratang
www.dewdaleresorts.com

facebook BaratangIsland

Evolution of social capital

- Boat owners association
- Regulation of pricing
- Mass protest to ease administrative issues
- Political millage to keep the ecotourism activities (PAT issue)
- CSR model (thanks giving initiatives)

YOU ARE HERE: [HOME](#) / [CITY](#) / BARATANG FIBER BOAT OWNERS' ASSOCIATION BEGINS INDEFINITE HUNGER STRIKE

Baratang Fiber Boat Owners' Association begins Indefinite Hunger Strike

AUGUST 10, 2015 BY [SANJIB](#) — [LEAVE A COMMENT](#)

Ganeshan

Port Blair, Aug 10: The Baratang Fiber Boat Owners' Association today started indefinite hunger strike against the stringent safety norms of Administration, which makes IRS survey compulsory, even for small fiber boats.

According to Baratang fiber boat owners if a IRS survey is done the capacity of all boats will

Andaman Chronicle
THE DAILY DIARY OF THE ISLANDS

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Fibre Boat Operators of Baratang Grateful to PCC President

LAST UPDATED ON 25 JANUARY 2015 • BY DENIS GILES • HITS: 897

Port Blair, Jan 25: The Fibre Boat Operators Association of Baratang Island has expressed their gratitude to the Administration. On 14th Jan 2015, the Boat Operators had approached the PCC President as their licence period was getting close to expiry, which would result in huge losses to them especially during this peak tourist season in the islands.

Having understood the situation of the Boat Operators, Kuldeep had approached the A&N Administration and submitted their request. The Administration has extended the time for plying the boats upto 31st March, 2015.

Social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions

Marine based tourism activities models - Species Centric

Turtles

Sea Turtle Life Cycle

Mother turtles come on the beach at night to lay a nest of 100-200 eggs.

Laying Eggs

Nests will hatch in 40-60 days. Baby turtles are completely independent at birth and never see their mothers.

Adult

Hatchling

After few years, immature turtles will settle close to the shore where it may take them more than 30 years to reach adulthood. Female turtles will swim back to the beach on which they were born to lay eggs every 2-3 years.

Way to the Ocean

After emerging from the nests, hatchlings crawl as quickly as possible to the sea and swim towards the open ocean. Young turtles spend several years drifting with the currents, feeding on small animals living in algae.

Coastal villagers thrive on turtle tourism

TNN | Updated: Mar 1, 2017, 06:25 IST



A-

A+



Representative image

KOLHAPUR: A small remote village located to the north of Ratnagiri district in Mandangad tehsil, Velas would have remained an unknown virgin beach had it not achieved international attention for the turtles that visit to lay their eggs here.

As per the count, 40% of the total turtle hatchlings found on the west coast of India are spotted here. Since the turtle

conservation efforts began in 2002, Velas now draws nearly 5,000 tourists every weekend who come to watch the turtles make their way back to the sea.

<https://www.responsibletravel.com/holidays/turtle-conservation/travel-guide/sea-turtle-hatcheries>

Legalizing of Private Turtle Hatcheries

- More than 25 private hatcheries operated in south & south western part of Sri Lanka
- They buy eggs & hatch in their premises, keep hatchlings and live turtles also.
- Mainly for tourism purposes
- Stopping private hatcheries will make a social issue/ loss of employments/ income source



Coral Reefs

Value of coral reefs –

Coral reefs, considered as wetlands under the Ramsar Convention, are major attractions for tourists. Studies estimate the economic benefits of coral reefs at nearly USD 30 billion each year, generated mostly from nature based tourism, including scuba diving and snorkelling.

- *Millennium Ecosystem Assessment, 2005*



 alamy stock photo FC8307
www.alamy.com





Whale Sharks

Gujarat to develop whale shark tourism

Press Trust Of India | Mumbai/ Ahmedabad
Last Updated at January 20, 2013 01:04 IST



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Gujarat unable to provide power to state

To woo tourists to coastal Gujarat, the state is planning to introduce an Australian concept in which expert spotters and air planes will be used to locate whale sharks in the sea.

"Australia has developed a kind of system in which they use air planes and expert spotters to identify places where the whale shark are present at that stage in the sea which is very effective," Principal chief conservator of forests of Gujarat Pradeep Khanna said. A scheduled I animal under the Indian Wildlife (Protection) Act 1972, there are about 500 whale sharks in Indian waters and most of them are spotted largely on the coast of Gujarat.

A team of state forest department, headed by Khanna along with representative of NGO, Wildlife Trust of India, had gone to Australia recently to study satellite

tagging of whale shark and also to learn about tourism concerning the mammal to help kick-start a similar process at home.

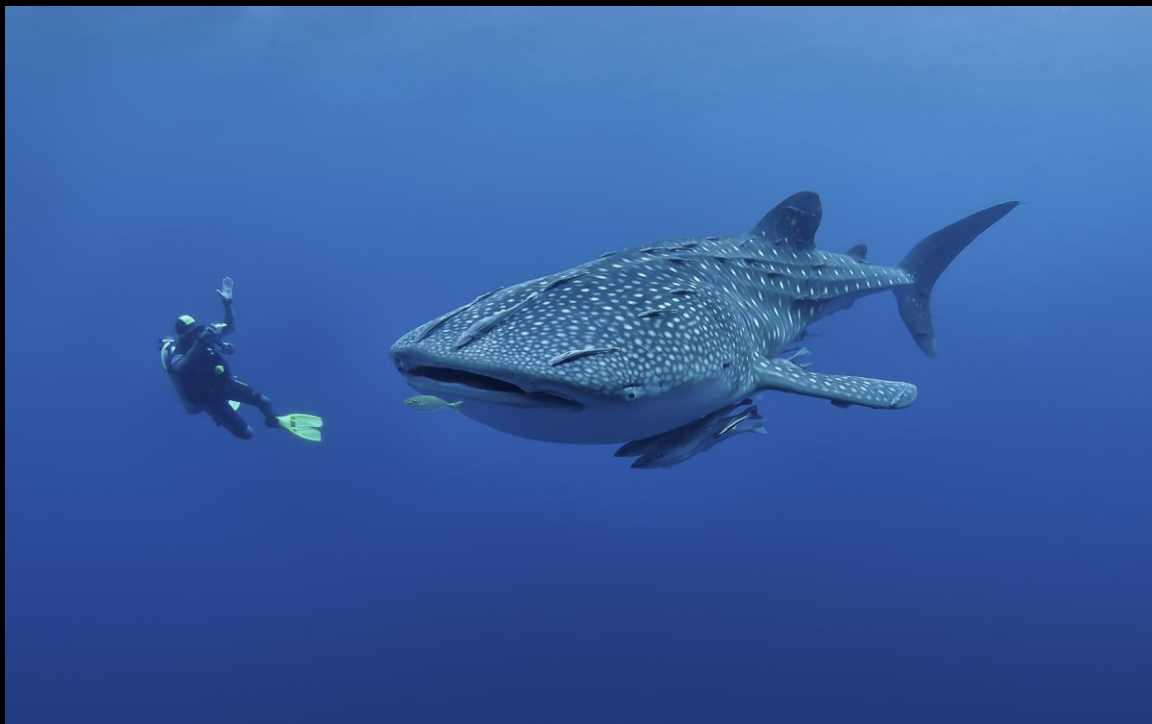
"We liked the system developed by Australia and it can be implemented here," Khanna said adding "but for it, pilot and spotters are required to be trained." Tourists can be guided to those areas where whale sharks are found by spotters, he said.

"Australia has shown deep interest in developing ties with India for whale shark conservation, satellite tagging and development of tourism related to the mammal," Khanna said.



Whale shark watching in Yucatan, Mexico

- The aim - first to support the fishers in developing an alternative economic activity, and second, to reduce the fishing activities, giving a much needed respite to the marine resources of the area.
- Having a diverse income source gives the community more stability to fishers .
- There is a maximum of 160 permits (the estimated carrying capacity), one for each boat (8 passengers) to take tourists to watch and swim.



Dolphins

- **Dolphins and Porpoises watching guidelines -**
- Viewing dolphins in their natural habitat is an educational and enriching experience if done safely and responsibly. As human interactions with wild dolphins increase, the risk of disturbing or injuring them also increases. Never feed a dolphin—it's harmful and illegal. Always stay at least 50 yards away from dolphins (1/2 a football field) when viewing from watercraft. In some locations, the minimum distance may be 100 yards—know before you go.

-National Oceanic And Atmospheric Administration, USA



<https://goatoursplanner.com/goa-day-trips/dolphin-trip-go/>

Whales

Mirissa Whale watching activities

- license issued to all marine mammal watching boats.
- fee and issue permits to passengers going whale watching. (marine mammal observation regulations under FFPO)
- **Fisheries harbor provides** infra structure facilities (harbor, ticketing & visitor center, visitor facilities)
- **SL coast guards-** checks certificates of whales watching vessels. This includes boat inspections, seaworthiness of vessels, safety equipment on board, licenses of skippers and training given to boat crews etc





Manta Rays

Maldives Marine Protected Areas


Hanifaru Bay for Diving with Manta Rays and Whale Sharks



Hanifaru Bay in Baa Atoll, Maldives, is famous for being a nursery ground for grey sharks, and sting rays. It is also one of the very few places in the world where whale sharks congregate to mate. However it is best known for its concentration of the enigmatic, graceful, inquisitive and charismatic reef manta rays (*Manta alfredi*).

Hundreds of these large, graceful, cartilaginous elasmobranch fish congregate to gorge themselves in the plankton rich waters. Not surprisingly, another species flocks here to dive Maldives' amazing bay - underwater photographers.

When time and tide align, fortunate snorkelers get to observe and capture a roiling, whirling feast. Generally manta feeding is akin to a coral-reef ballet. However, due to the confined space and sheer numbers, the status quo is all but forgotten. Their natural feeding patterns are replaced by feeding frenzy behaviour which results in a disorganised, bumper-car like performance.

Want to dive here?:
 [Inquire Now](#)

What's so special about Hanifaru Bay?

Hanifaru in Baa Atoll, is an uninhabited island of the Maldives with a small, enclosed, underwater bay approximately the size of a football field, locally known as 'Vandhumaafaru Adi'.

Observing the manta feeding freezy in Hanifaru Bay is a spectacle to behold. Guy Stevens, a British marine biologist and director of the Manta Trust, shares his experiences, "Just after high tide you'll see a few manta rays turn up, then poof, a whole group will move in, and you'll get as many as 200 feeding for 2 to 4 hours in a bay no bigger than a soccer field". This small area coupled with the rich plankton-filled soup has altered the natural feeding habits of these graceful creatures whose wingspan can reach up to 3.5m.

Hanifaru Protection and Preservation Reserve



A detailed study of one manta dive site (Hanifaru in Baa Atoll) in 2009 estimated total seasonal revenue of about US\$330,000 (Stevens, unpublished data). Estimated Annual Extent and Value (US\$) estimate of US\$241,000 per year

Source: <http://www.whale-and-dolphin.com/Media/PDF/Manta.pdf>

Crocodiles

CROCODILES

The Last of Dinosaurs



As custodians of the planet, it is our responsibility to deal with all species with kindness, love and compassion - Richard Gere



WHAT ARE CROCODILES?

Crocodiles are one of the oldest living creatures in the world. They are large lizard-like animals that can grow up to 5 meters in length.

HOW DO THEY BEHAVE?

They are shy animals and active at night. They retreat or submerge in water at the slightest disturbance. However, if cornered or attacked, they may attack in defence. During the breeding season (March to August), the females tend to be aggressive.



WHERE ARE THEY FOUND?



There are 21 species of Crocodiles found in Tropic and Subtropical regions of the world. There is only one species found in Andamans, the Salt Water Crocodiles (*Crocodylus porosus*). The species range from Indian mainland,

western coast of Australia and Papua New Guinea in the East. It is found in creeks and nallahs adjoining mangrove forest and at times migrate in nallah or in sea in search of new territory, breeding site or for food.

WHAT DO THEY EAT?

Crocodiles are opportunistic feeders and have no food preference. The adult crocodiles eat fishes, snakes and other small animals. The young crocodiles feed on insects, snails and fishes. If food is difficult to find, the adult crocodiles will scavenge through garbage dumped along the nallahs, in wet land and beaches and may attack stray dogs or domestic animals present near the garbage site.

FACTS YOU NEED TO KNOW ABOUT

DO CROCODILES HAVE BABIES?

Crocodiles breed and nest from March to August in the grass patches, vegetation along the nallah or creeks. During this period they may be moving from place to place in search of nesting sites above the water area.



After laying eggs, the mother will guard the nest from intruders and predators.

ARE CROCODILES IMPORTANT?

Being at the top of the food chain of the mangrove ecosystem, the crocodiles maintain the integrity of their ecosystem. They eat dead and dying animals, thus keeping our waters free of disease.

WHAT ARE THE STATUS OF CROCODILES IN ANDAMANS?

Crocodiles are an endangered species worldwide and have been protected by Wildlife Protection Act, 1972 in India. Therefore, no crocodile should be hunted, captured, killed or harassed. The penalty for disobeying this law may lead to a minimum 3 years and up to 7 years of imprisonment.

WHAT IS BEING DONE FOR CROCODILES IN ANDAMANS?

The Department of Environment and Forest (DoEF) is responsible for managing the crocodile in Andaman and Nicobar Islands by protecting the mangrove forests and formulating strategies and policies for management of Crocodiles. It also takes care of crocodile-related problems by capture and relocation of dangerous animals.

For your safety against crocodiles

Never fish near edge of Nallahs or Creeks



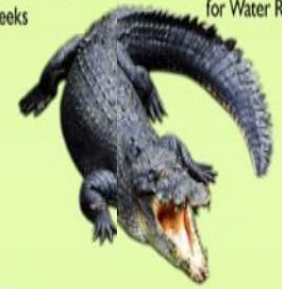
Never Clean Fish / Chicken / Meat Near Water



Never dispose animal wastes near Nallahs or Creeks



Never Use Same Spot for Water Related Activities



Be vigilant while handling boats in Creeks



Never dangle hands or legs during boat rides





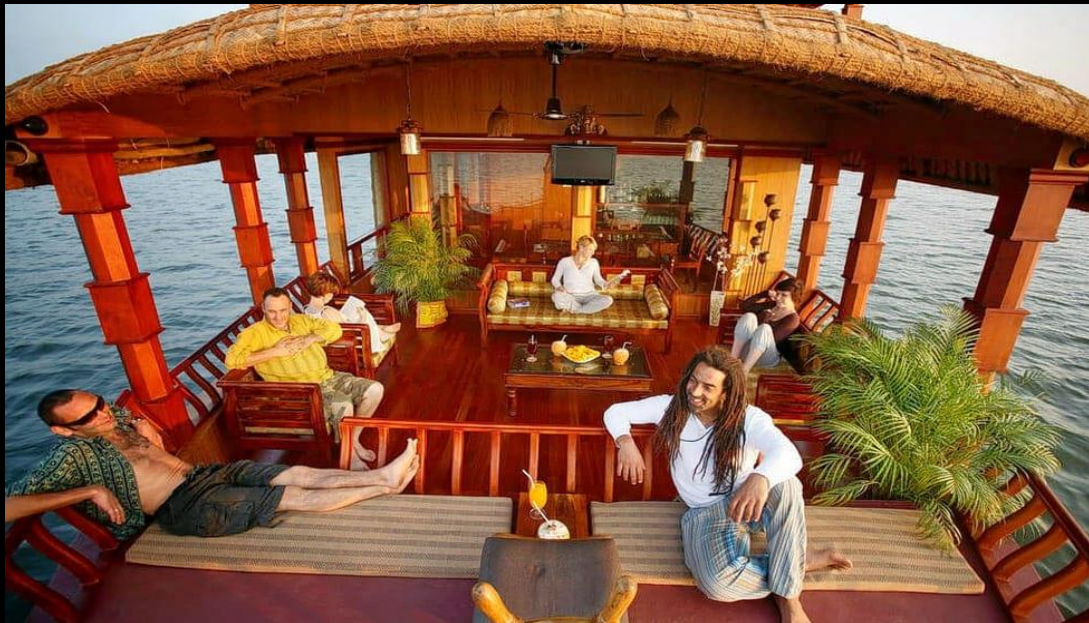
The Cage of Death at Crocosaurus Cove is a popular tourist attraction / AAP Source:AAP

ADVENTURERS are flocking to experience 15 minutes in a Cage of Death, sharing a large glass tank with a 700kg crocodile at Crocosaurus Cove in downtown Darwin.

https://www.youtube.com/watch?app=desktop&v=uWPh8AIVLaA&ab_channel=WonderWorld

Staying in marine systems

House boat system of Kerala



Maldives model of tourism



<https://all.accor.com/hotel/9923/index.en.shtml>



THE ONLY ACCOMMODATION IN CORON ISLAND

KAYANGAN LAKE

TWIN PEAKS
CORAL GARDEN

BARRACUDA LAKE

TWINS LAGOONS

PAOLYN HOUSEBOAT



BAMBOO HOUSEBOAT



PAOLYN HOUSEBOAT

PAOLYN HOUSEBOAT

marine recreation

Examples of marine recreation/tourism activities:

- SCUBA diving,
- snorkelling,
- yachting,
- water-skiing,
- wake-boarding,
- boat based fishing,
- wildlife watching,
- scenic boat cruising,
- sea-kayaking,
- surfing,
- surf-ski paddling,
- swimming



Common ingredients in all the case studies

Common ingredients in all the case studies

- Landscape based approach - No major modifications – Ecotourism
- Use of Science & management interventions
- Inclusion of community
- Sustainability / social capital / economic upliftment
- Win- win situation

Approaches

- Integration – with management plans / working plans / national guidelines
- Authenticity – Site importance - Landscape based approach
- Distinctiveness – Interpretation facilities – Briefing, handholding and exposure
- Market realism – Viability analysis – cluster approach
- Sustainability – Site ability to survive – Carrying capacity, regulations – Institutionalization of community involvement

Essentials ... Community issues

- Inclusiveness - at planning
- Partnership – Capacity building of community
- Commitment – institutional commitment – enabling environment – Legal aspects
- Spill over effects – On forest management – Species conservation/ ethical issues – multi stake holder interests

Essentials ... consumer issues

- Consumer orientation – Understand the consumer and educate them Bharatpur model
- Attention to detail - Facilities for the visitors and site specific impacts – Yakutan model
- Rationalization – Justify actions (ban on playing music, Garbage disposal etc)
- Outreach – Pamphlets / websites/ reading materials

Execution

- Demarcation of site - How to demarcate boundary in seas
- On sight vigil – water Currents, animal attacks, health issues – sea snakes etc
- Safety nets – Barriers – Crocodile in the crocodile barrier case of ANI
- Sensitization of visitors - FLAGS, First Aids
- Boat management – Coral impacts
- Garbage collection - Plastic waste disposal from ANI
- CRZ issues – Rule limitations
- Conflict resolution mechanisms
- Regulations, Floating jetties, certifications for boat and trainers, Blue flag beach certification





Modern Interpretation centers



Dioramas – Immersive experiences – Application of Game theory – Gulf of Cutch model

Safety Guidelines for Swimming / Snorkelling / Diving in Andaman and Nicobar Islands

Andaman and Nicobar Islands have many sandy beaches and coral reefs. Though Andaman water are generally safe for swimming, snorkelling and diving, they also have few potentially dangerous marine animals, which may come in conflict due to mistaken identity such as a prey or to defend their territory. Though such incidents are extremely rare, visitors are advised to observe following precautions for a safe and enriching swimming experience.

Remember these FLAGS



- FIND** Safe swimming / diving locations from Tourism Department Information Centres / local Tour operators / Life guard and Forest staff.
- LOOK** at the safety signs - they help you identify potential dangers.
- ASK** the lifeguard on duty for some good advice - Swimming conditions (local currents, tides, visibility, presence of dangerous marine creatures etc.) can change quickly. So talk to a lifesaver / man on guard before entering the water. In an unpatrolled area, seek prior advice.
- GET** a friend to swim with you - You can look out for each other's safety and get help if needed. Children should always be supervised by an adult. Avoid swimming in dark.
- STICK** your hand up for help - If you get into trouble in the water, stay calm, wave your arm to signal for help.

General Precautions



- Do not dangle your arms or legs in the water during boat rides.
- Do not swim under the influence of drugs or alcohol.
- Shiny jewellery or bright coloured clothes resemble the fins of small fish and may attract predatory fish. Avoid such accessories or clothing while swimming.
- If you have an open wound, please avoid swimming. Many predatory fish are attracted to the smell of blood.
- Avoid swimming among a shoal of fishes while diving, to avoid attack by predatory fish such as sharks.

Potentially harmful marine animals found in Andaman and Nicobar Islands

The warm tropical waters of these Islands are rich in marine life. Most of them are harmless and beautiful but few of them can be dangerous due to their size or predatory nature or both. Some of these animals are described below;

Jelly Fishes - Their sting may cause pain and giddiness.



Don't touch or play with them. Get ashore if you see a large shoal of jelly fish. In case of a sting, apply vinegar/ Ice packs on it and do not rub.

Stone Fish - Present in shallow coral and rocks or camouflaged in mud and sand. They have venomous dorsal spines and the sting could be lethal. To avoid them never walk on coral reef area and never lift



rocks or corals. Wear sturdy sandals while walking in shallow coastal waters.

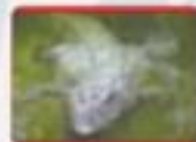
Sea Snakes - They are highly poisonous and are usually recognised by their paddle like tail. They can be aggressive if handled or stepped on. Stay well away from them.



Sharks - Normally present in the open sea and some parts of coral reef areas (reef shark). Avoid swimming or diving alone and don't enter the water with open wounds.



Salt Water Crocodile - They are normally present in creeks, Mangrove areas, sheltered waters and mouths of the creeks. Please avoid swimming or diving in these areas. If you notice a crocodile in the water, immediately go ashore and alert the authorities. Crocodiles move large distances in open sea and can be found in coral reefs also.



For more information contact

- Chief Wildlife Warden, ANI, Vansadan, Haddo
Ph. 03192 - 233270
- Dy. Conservator of Forests, Wildlife, Haddo.
Ph. 03192 - 232816
- Director (Tourism), A&N Admn., Port Blair
Ph. 03192 - 230933
- Police Control Room : 100



Enabling environment – CRZ 2019 - ESA management activities

1. Mangroves - Afforestation, buffer.
2. Corals - Regeneration.
3. NP - Management Plan.
4. Salt marsh - fishing/temporary tourism/salt extraction.
5. Turtle - Management Plan/ No light/ sound pollution.
6. Sea grass buds - Propagation .
7. Nesting grounds - no overhead lines.
8. Sand dunes - native flora afforestation.
9. Archaeological structures and heritage sites - by concerned agency.

Thank YOU

Ref: https://www.ramsar.org/sites/default/files/documents/library/ramsar_unwto_tourism_e_sept2012.pdf