

Chapter-1

Bhitarkanika Mangroves Ecosystem- An Overview

The Indian coastline of about 5,700 km long can be divided into the east and west coasts and island chains. The east coast covers the maritime states like Tamil Nadu, Andhra Pradesh, Orissa, West Bengal and Andaman-Nicobar Islands. The West coast extends from Kerala, Karnataka, Goa, Maharashtra, Gujarat and also includes the coral atolls of Lakshadweep Islands. The total mangrove area along the Indian coast is estimated to be approximately 700,000 ha. The mangroves along the east coast of India is more (80%) than that of west coast (20%) because the terrain of the east coast has a gradual slope as plains compared with the steep gradient along the west coast.

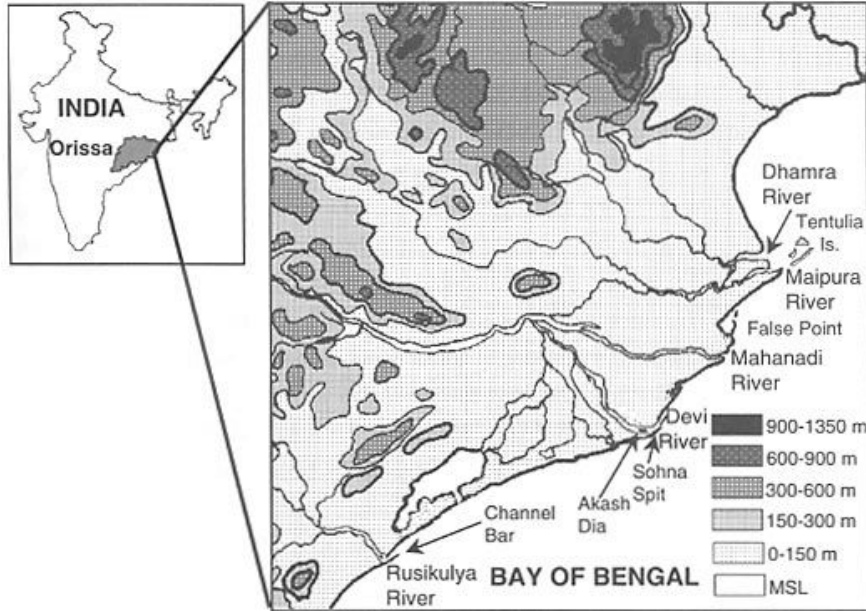


Map of India's Ecologically Important Areas (EIA) showing Bhitarkanika among others
 [Source: iomenvis.nic.in/Bhitharkanika.htm]

Geographic Location of Orissa coast:

Orissa coast is mainly depositional in nature, formed by the Mahanadi and the Brahmani-Baitarani deltas. The State has a long coastline (480 kms), lagoons and offshore islands on the eastern part along the Bay of Bengal, while on the western part it has large areas of hilly

forests. The coastal plains of the State extend from Subarnarekha River in the north to the Rushikulya in the south and are narrow in the north. Mahanadi and Subarnarekha are the major estuaries, while Rushikulya, Bahuda, Devi, Balijhori, Ghalia, Kharnasi, Jambu, etc are the minor estuaries. Chilka Lake is the largest brackish water lagoon in Asia and stretches over an area of 1100km. Bhitarkanika is the second largest mangrove ecosystem of India, next to Sundarbans mangroves. Gahirmatha is the largest breeding ground for Olive Ridley Sea Turtles in the world.



Location map and physiographic features of the Orissa coast. **Source:** STATUS AND CONSERVATION OF SEA TURTLES IN ORISSA, INDIA , S.K. Patnaik, C.S. Kar, www.arbec.com.my/sea-turtles/art2julysept01.htm

Ecologically Important Areas of Orissa coast:

Institute for Ocean Management has identified the following sites under the category of Ecologically Important Areas in Orissa coast:

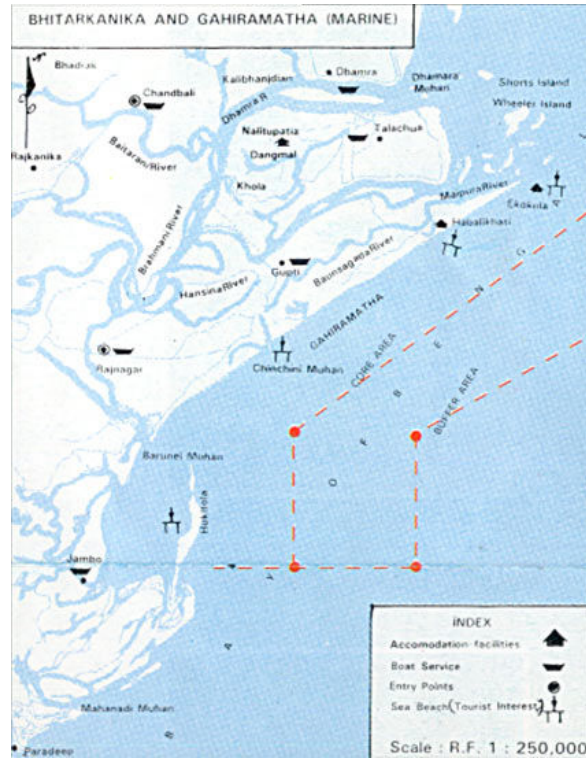
Ecologically Important areas of Orissa coast

District	Site	Ecological Importance	Geographic Location	Area in km ²
Ganjam and Puri	Chilka Lake	Lagoon	19° 28'-19° 54'N 85° 05'- 85 38'E	1165
	Balukhand	Reserve forest, Breeding and spawning ground for reptiles including turtles.	19° 49'-19° 50'N 85° 51'-85° 00'E	9.32
Kendrapara	Rushikulya	Estuary, Breeding and spawning ground for reptiles including turtles.	19° 22'-19° 24'N 85° 02'-85° 05'E	---
	Bhitarkanika	Mangroves, Breeding and spawning ground of reptiles.	20° 4'-20° 8'N 86° 45'-87° 50'E	267.14

Bhitarkanika:

Geographically Bhitarkanika is located between 20°4'-20°8'N Latitudes and 86°45'-87° 50' Longitudes .It is the second largest mangrove ecosystem of India, which has much significance with regard to ecological, geomorphologic and biological background that includes mangrove forests, rivers, creeks, estuaries, backwater, accreted land and mud flats. Bhitarkanika mangrove ecosystem flourishes in the deltaic region, formed by the rich alluvial deposits of Brahmani, Baitarani & the Dhamra River.

The **Bhitarkanika Mangroves** are a mangrove wetland located in north-eastern corner of Kendrapara district of India's Orissa State. It presents a salt tolerant, complex and dynamic eco-system that occurs in tropical and subtropical inter-tidal regions. The rich, lush green, vibrant eco-system lies in the estuarine region of Brahmani and Baitarani. Comprising mangrove forests, rivers, creeks, estuaries, back water, accreted land and mud flats, Bhitarkanika is significant for its unique ecological, geomorphological and biological profile that has evolved over centuries to its present status.



Source: www.orissatourism.gov.in/bhitarka.html

The Bhitarkanika Mangroves cover an area of 650 sq. km and harbors inter alia one of India's largest populations of saltwater crocodiles (*Crocodylus porosus*). The Gahirmatha Beach, which separates the mangroves from the Bay of Bengal, is the world's most important nesting beach for Olive Ridley Sea Turtles (*Lepidochelys olivacea*). The wetland also hosts a large and diverse population of resident and migratory birds from Central Asia and Europe, that congregate in Bagagahan heronry, an area of approximately 4 hectares within the Bhitarkanika Forest Block near Sujore creek during June to October every year. Bhitarkanika also houses endangered wildlife like Indian python, King cobra, black ibis, Spotted deer, Sambar, Wild boar, Jungle cat, fishing cat and darters. It is the best reptile refuge in the country.



Kanika Palace

A Peep into the Past: The Bhitarkanika Mangroves were Zamindari forests until 1952, when the government of Orissa abolished the Zamindari system, and put the Zamindari forests in the control of the State forest department. In 1975, an area of 672 sq. km was declared the Bhitarkanika Wildlife Sanctuary (vide notification No.6958/FF AH Dtd.

22.04.1975). An area of 145 sq. km, the core area of sanctuary was declared Bhitarkanika National Park in September 1998 (vide Notification No.19686/F & E dated 16.9.1998 of Forests & Environment Department). The Gahirmatha Marine Wildlife Sanctuary, which bounds the Bhitarkanika Wildlife Sanctuary to the east, was created in September 1997, and encompasses Gahirmatha Beach and an adjacent portion of

the Bay of Bengal. Bhitarkanika Mangroves were designated a Ramsar Wetland of International Importance in 2002. The area has been proposed to be declared as a Biosphere Reserve too.

Roadmap to Bhitarkanika



Eco-tour

The virgin stretching beaches, lush green mangroves, migrating birds and turtles, the menacing estuarine crocodiles, meandering water courses, tranquil surrounding intercepted by the chirping of birds and the ever embracing nature, enralls visitors from near and far off



creek with overhanging vegetation

places to flock these unique places of tourist importance. Scientists, scholars, nature lovers and tourists have abundant food for thought and exploration. The scope of expanding the tourism is galore but it is to be harnessed. The enormous potential is to be tapped to bring the areas into the tourism map of India. Avenues for water sport, cottages, marine voyages, nature's trail, hotels etc. are

yet to be utilized to its potential. The Bhitarkanika National Park, the Bhitarkanika Wildlife Sanctuary and the Gahirmatha Marine Sanctuary boast of nature's most picturesque sites. The unique bio-diversity, beckons the visitors to the nature's lap.

The Seasons

Summer: March to Mid-June. Sunny mornings, afternoon thunderstorms, windy days and cool nights. Choppy waters most of the time can complicate boat journey in the rivers, confluence area of rivers and river mouth areas. Journey into the sea is risky during this period. The summer temperature goes up to 45°C.

Rains: Mid-June to September. Most of the rainy days fall in the months of July and August. Except in the period of heavy rains boat journey is comparatively safe.

Spring: October to Mid-November. Safe weather for visiting the Park unless there is a depression leading to cyclone.

Winter: Mid-November to February. Normally cool conditions with night temperatures coming down to 10°C. This is the best period to visit the sanctuary.

Entry Points

Bhitarkanika can be approached from several entry points like Rajnagar, Chandbali, Gupti or Dhamara.

- Rajnagar is the headquarters of the Division administering the sanctuary and is approximately 130 Km. from the State Capital, Bhubaneswar. The road passes via Cuttack, Kendrapara and Pattamundai.
- Chandbali is 174 km. from Bhubaneswar, and 55 kms from Bhadrak on the Kolkata-Chennai Railway line.
- Gupti, 25 Km. by road from Rajnagar is also a convenient base for visiting the sanctuary.
- Dhamara (a fishing harbour) is approximately 50 Km. from Basudevpur which is 60 kms from Balesore and 35 kms from Bhadrak, both districts headquarters.

Travel routes within the sanctuary

1. Rajnagar-Khola-Dangmal by river route (3 hrs. by boat)
 2. Rajnagar-Gupti-Dangmal by land/river route (1 hour, by road 3 hour by boat)
 3. Rajnagar-Gupti-Ekakula by land / river route (1 hour by land and 4 hours by boat)
 4. Rajnagar-Gupti-Habalikhati by land / river route (4 1/2 hrs by boat and 1 hour by land)
 5. Rajnagar-Khola-Dhamra by river route (4 hrs)
 6. Rajnagar-Khola-Talchua by river route (4 hours)
 7. Rajnagar-Khola-Kalibhanjadia (4 hrs by boat)
 8. Dangmal-Gupti-Ekakula (4 hrs by boat)
 9. Dangmal-Gupti-Habalikhati (4 hrs by boat)
 10. Dangmal-Khola-Dhamra (3 hrs by boat)
 11. Dangmal-Khola-Kalibhanjadia (3 hrs by boat)
 12. Chandbali-Khola- Dangmal-Habalikhati-Ekakula (8 hrs by boat)
 13. Chandbali-Talchua-Ekakula-Habalikhati (8 hrs by boat)
 14. Dhamra-Kalibhanjadia-Talchua (1 1/2 hrs. by boat)
 15. Dhamra-Khola-Dangmal (3 1/2 hrs by boat)
 16. Dhamra-Habalikhati-Ekakula (4 hrs by boat)
 17. Dhamra-Rajnagar-Barunei- Hukitola (8 hrs by boat)
- The travel times mentioned above are only indicative. These are influenced to a great extent by prevailing wind, tides, water current and type of boat.
 - Private vendors ply mechanised boats on many of these routes to cater to the visitors.

- Such river routes are inhabited by Crocodiles (Khola creek, Suajora creek, Thanapati creek, Mahisamada creek, Pathsala river, Bhitarkanika river, Dhamra river, Mantei river, Baunsagarh river and Hansina creek.)

DANGMAL

The serenity of the atmosphere at Dangmal makes it one of the most sought after place for tourists. Other attractions at Dangmal are Captive breeding & Research Centre for estuarine crocodile; Huge female crocodiles - Gauri & Hydrabadi; Rare sight of Python and King Cobra staying together without harming each other in an enclosure; Interpretation Hall; also Film shows on Bhitarkanika on request.



Forest Rest House at Dangmal



Landing jetty at Dangmal

How to reach: It can be approached by road from Rajnagar via Khola Check gate. It is about 30 Kms. from Rajnagar by road. Dangmal can also be approached from Gupti by boat through Patsala river & then Bhitarkanika nala in that order. Gupti is about 25 Kms. from Rajnagar and Dangmal is 1 Hr. 15 minutes journey by boat from Gupti. Moreover Dangmal can also be approached from Chandbali by boat in Baitarani, Brahmani & the Khola creek in the Bhitarkanika Nala in that order. Travelling by boat is advisable as it entails a thrilling experience.

Where to Stay: 4 no Suites, 2 no. Annexe rooms, 1 no. Dormitory (16 beds) & 2 no. Community Halls (4 beds each) are available at Dangmal for accommodation

BHITARKANIKA FOREST BLOCK :

A nature's trail in Bhitarkanika Forest Block over a stretch of 4.0 Kms. is a thrilling experience and a must for all nature lovers. Mangrove species give way to its associates like Kochila, Mankada Kendu as we move away from the creeks. A number of meadows, fresh water ponds are the ideal places, one can look for chittals, water monitor lizard, migratory & resident birds.



Erstwhile shooting tower



Ancient Shiva temple

An ancient Siva temple, a silted white lotus pond & collapsed shooting block of King of Kanika brings back the memory of history of the place.

EKAKULA



Ekakula during tide



FRH at Ekakula

Gahirmatha on one side and Maipura river on the other. The F.R.H amidst the Casuarina plantation is a lovely place to stay. Jackles, Hyena, Red jungle fowl, Chittals, Wild Boar abound the area. It is a paradise for bird watchers. Coconut Island, Wheeler Island, Nasi-I Island, Nasi-II Island, Babubali Island can be sighted from the place. Lots of fresh air, exclusive space for morning walk under natural beauty of mangrove, Casuarina plantation and pristine sea beaches. If one is lucky, river dolphins may be sighted on the river coast. **Where to Stay:** Two no. of suites are available at Ekakula for accommodation.

HABALIKHATI

It can be approached from Ekakula in about 30 minutes along Baunsagarh Nala & is an experience one ought to under-take to believe. The 2.54 Kms. trail from jetty across Baunsagarh nala to tourists cottage is a thrilling experience. Red jungle fowl, fishing cat, chital, wild boar and monitor lizard are the faunal species to look out for. The exclusivity of the area and the lonely sea beaches make it one of the finest places in Bhitarkanika. **Where to Stay:** Two no. of suites (partition - 4 rooms) and one Log Cabin is available at Habalikahti for accommodation.

KALIBHANJADIA

It is a beautiful Island surrounded by Sapua river on one side, Dhamra river another side and the Bay of Bengal on the other side. The cottage is situated about ½ kms. away from the jetty with a huge meadow in front. Lots of rhesus monkeys, chittal, wild boar, python and king cobra inhabitate this island. Exocoecaria species is the principal species. **How to reach:** It is easily approachable from Chandbali and Dangmal.

HUKITOLA



One has to sail with a boat from Atharbanki nala jetty at Paradeep and move into Mahanadi river and then to back water of Jamboo to reach this picturesque island. An old and historic palace existing in broken form is the attraction.

KRISHNAPRIYAPUR

Those who want to have the feel of mangrove forest, creeks and nallahs without actually entering into any of them this is the right place to visit. It is about 20 Kms. from Rajnagar by

road and there is an excellent awareness center with almost 30 species of mangrove species. The Baunsagarh nallah the beautiful Phoenix forest sighted from the roof top of the rest shed is a sight to remember for ever. It is also entry point for Habalikhati.

Where to Stay: One suite is available at Krishnapriyapur for accommodation

BATIGHAR :



Batighar or False Point is approachable from Paradeep which is 1 ½ hrs. boat journey from Atharabanki. The confluence point of river Mahanadi was used as a port in the British period. The light house which is 120' high is still functioning to ward off the sailing ships from approaching the shores. This highly skilled engineering monument was built in the year 1838 for navigational purpose. The magnificent structure has held its head aloft in spite of many catastrophic effects of the nature. It is being maintained by the Directorate of Light Houses and Light Ships, Calcutta.

GAHIRMATHA BEACH



Turtle nesting at Gahirmatha



Bushy vegetation on the beach

The stretch of virgin beach from Barunei mouth to Ekakula is a treat for the eye. The vast expanse of Bay of Bengal and the pollution free beach, beckons the tourists. The serene surrounding and the whistling breeze through the casuarinas trees cannot but enthrall a visitor. The cottages and the rest houses of Habalikhati and Ekakula built by Forest Department provide the accommodation for the tourists.

RAJNAGAR:

This is the nerve point for management of Gahirmatha Marine Sanctuary. The Divisional headquarters is located at this place. It is the Tahasil and Block headquarters. Rajnagar is gateway to Gahirmatha Marine Sanctuary.

BARUNEI PENTHA:

This is a potential site for developing turtle tourism. Penth beach is known for regular nesting of ridleys. Easy approachability of Penth/ Barunei beach is sure to attract foreign visitors for an enthralling encounter with ridleys in a serene atmosphere.

Periods of Breeding activities of some selected Wildlife species:

Crocodile nesting: (May-July)

Seaturtle mating: (October-February)

Seaturtle nesting: (Nov./Dec. to May)

Colonial nesting of wetland birds in the heronry (June to November)

Periods of wildlife population estimation of some selected wildlife species:

Crocodiles: (December-January)

Seaturtles: (November- May)

Wetland Birds at Roosting site: (July- October)

Winter migrants (South-East Asia mid-winter

water fowl census): (January) ;

A RESUME ON HOW TO AVAIL A TRIP TO BHITARKANIKA:

Nearest Airport: Bhubaneswar.

Nearest Railway Station : Cuttack and Bhadrak

Paradeep to turtle congregation zone 4 hrs. by mechanised vessels in river and sea.

Rajnagar to Pentha 1 ½ hrs. by road

Rajnagar to Barunei 1 ½ hrs. by road.

Sources:

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- *Status and Conservation of Sea Turtles in Orissa, India by S.K. Patnaik, C.S. Kar, www.arbec.com.my/sea-turtles/art2julysept01.htm*
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