

## CONSERVATION SIGNIFICANCE

### CRITICALLY ENDANGERED

#### Avifauna

Spoon-billed sandpiper *Calidris pygmaea* (Linnaeus, 1758)

White-rumped vulture *Gyps bengalensis* (Gmelin, 1788)

#### Mammal

Chinese pangolin *Manis pentadactyla* (Linnaeus, 1758)

#### Reptile

Northern river terrapin *Batagur baska* (Gray, 1830)

### ENDANGERED

#### Avifauna

Indian skimmer *Rynchops albigollis* (Swainson, 1838)

Great knot *Calidris tenuirostris* (Horsfield, 1821)

Egyptian vulture *Neophron percnopterus* (Linnaeus, 1758)

#### Mammal

Gangetic dolphin *Platanista gangetica* (Lebeck, 1801)

Irrawaddy dolphin *Orcaella brevirostris* (Owen in Gray, 1866)

#### Reptile

Spotted pond turtle *Geoclemys hamiltonii* (Gray, 1830)

Indian softshell turtle *Nilssonina gangetica* (Cuvier, 1825)

Indian peacock softshell turtle *Nilssonina hurum* (Gray, 1830)

Indian narrow-headed softshell turtle *Chitra indica* (Gray, 1830)

#### Fish

Wagur *Clarias magur* (Hamilton, 1822)

### VULNERABLE

#### Avifauna

Broad-billed sandpiper *Calidris falcinellus* (Pontoppidan, 1763)

Curlew sandpiper *Calidris ferruginea* (Pontoppidan, 1763)

Common pochard *Aythya ferina* (Linnaeus, 1758)

River tern *Sterna aurantia* (Gray, 1831)

Black-capped kingfisher *Halcyon pileata* (Boddaert, 1783)

Grey plover *Pluvialis squatarola* (Linnaeus, 1758)

#### Mammal

Smooth-coated otter *Lutrogale perspicillata*

(I. Geoffroy Saint-Hilaire, 1826)

Asian small-clawed otter *Aonyx cinereus* (Illiger, 1815)

Indo-Pacific finless porpoise

*Neophocaena phocaenoides* (G. Cuvier, 1829)

Fishing cat *Prionailurus viverrinus* (Bennett, 1833)

#### Reptile

Indian flapshell turtle *Lissemys punctata* (Lacépède, 1788)

#### Fish

Goonch *Bagarius bagarius* (Hamilton, 1822)

*Wallago attu* (Bloch and Schneider, 1802)

### KEY PROTECTED AREA

Sundarbans National Park

Koderma Wildlife Sanctuary

Gautam Buddha Wildlife Sanctuary

Hazaribagh Wildlife Sanctuary

Parasnath Wildlife Sanctuary

Topchanchi Wildlife Sanctuary

Ballavpur Wildlife Sanctuary

Purbasthali Bird Sanctuary

Bethuadahari Wildlife Sanctuary

Ramnabagan Wildlife Sanctuary

Bibhutibhushan Wildlife Sanctuary

Sajnakhali Wildlife Sanctuary

Lothian Island Wildlife Sanctuary

Chintamani Kar Wildlife Sanctuary

Halliday Island Wildlife Sanctuary

West Sundarban Wildlife Sanctuary

Garpanchkot Conservation Reserve

Mukutmanipur Conservation Reserve

Deul Conservation Reserve

Hijli Conservation Reserve

Northern river terrapin (*Batagur baska*) | ©Anish Biswas



## DRIVERS OF RIVERSCAPE CHANGE

- The basin has five dams, including the Farraka Barrage on the main channel forming the Hooghly. Its operation has led to upstream sedimentation, channel instability, and bank erosion in Malda–Murshidabad, while increasing flood risk. Altered flows have caused major ecological decline, including a near-collapse of migratory fish like Hilsa, while reduced discharge has intensified salinity intrusion into the Padma–Hooghly estuary, degrading agriculture and estuarine ecosystems.
- The Damodar Valley Corporation's flood-control dams in the Damodar basin, especially Maithon (on Barakar River) and Panchet (on Damodar River), have modified the natural flow regime, resulting in reduced and poorly regulated downstream discharge, diminished channel-flushing capacity, and increased sediment accumulation.
- Widespread deforestation in the upper catchments of the Rupnarayan River and adjoining tributaries has intensified surface runoff, accelerated soil erosion, and increased sediment delivery into the Hooghly River system.
- Rapid urban expansion has elevated TDS in Serampore and Dakshineswar, while industrial effluents from Haldia Industrial Area and coal-laden runoff from the Damodar River Basin add chemical loads; untreated sewage from Kolkata–Howrah increases BOD, degrading the Hooghly River.

## INTERESTING FACTS

- As the westernmost distributary of the Ganga River, the Hooghly River carves the lower deltaic plains before entering the Bay of Bengal, modulating the hydrodynamic processes of the Ganga–Brahmaputra–Meghna Delta, the world's largest active delta system. Its tidal influx shapes the mangrove transition belt north of the Sundarbans, where freshwater–brackish gradients sustain unique estuarine habitats. Near Haldia, dramatic tidal bores and shifting saline fronts transform the estuary into a dynamic sediment–nutrient mixing zone, making the Hooghly one of South Asia's most ecologically vibrant river–sea interfaces.
- Hooghly River functioned as the principal navigation route that supported the establishment of Kolkata (Calcutta during the colonial period) as the administrative base of the East India Company and later of British India. Its course enabled European operational centres, including the Portuguese at Bandel, the French at Chandannagar, and the Danish at Serampore, each contributing to changes in governance and trade networks. The River also facilitated transport systems for indigo and jute, producing long-term economic shifts in eastern India.
- Gangasagar is a major pilgrimage site at the mouth of the Hooghly River, for ritual bathing and worship at Kapil Muni Ashram.
- Traditional boat-building villages, the clay-idol artisans of Kumartuli, and river-centric festivals such as Ganga Utsav are all functionally linked to the Hooghly's seasonal hydrology.
- The Syama Prasad Mookerjee Port—established in 1870 and formerly known as the Kolkata Port Trust—is India's oldest continuously operating port and the country's only major riverine port, functioning directly on the Hooghly River.

VIBRANT GANGA



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# Hooghly

## GENERAL INFORMATION

- Hooghly River is the tidal distributary of the Ganga River. The Ganga River divides into two distributaries— the Bhagirathi and the Padma near Murshidabad, West Bengal. The non-tidal stretch of the Bhagirathi up to Nabadwip is known as the Bhagirathi. After the confluence of the Jalangi River at Nabadwip, the downstream tidal reach is known as the Hooghly River.
- From Farraka Barrage to Gangasagar, the Hooghly River flows for 530 km through the districts of Murshidabad, Purba Bardhaman, Nadia, Hooghly, North 24 Parganas, Howrah, Kolkata, South 24 Parganas, and Purba Medinipur in West Bengal.
- The River completes its course by discharging into the Bay of Bengal at Gangasagar, West Bengal.
- Hooghly River basin spans an area of about 84,707 km<sup>2</sup> in the state of West Bengal (Figure 1).
- The basin lies within the Deccan Peninsula (Chhotanagpur Plateau – 6B), Gangetic Plain (Lower Gangetic Plains – 7B) and Coasts (East Coast – 8B) biogeographic zones.
- Hooghly River basin shows a dendritic drainage pattern in its upper reach (Nadia–Hooghly), where the channel is unstable and frequently shifts across the alluvial plain. In contrast, the

- lower reach is strongly shaped by tidal forces, producing stable meanders, distributaries, tidal creeks, and oscillatory estuarine channels with deep concave-bank flows and sandbar formation along convex banks.
- Hooghly River basin experiences a tropical monsoon climate marked by hot, humid summers, a distinct rainy season, and mild winters. The region exhibits consistently high humidity, especially across the delta and strong seasonal variability, with summer temperatures rising to 38–45°C and winter temperatures falling to around 5–6°C.
- Ajay, Jalangi, Damodar and Rupnarayan are the major tributaries of the Hooghly River.
- The population density along the River is 1551.63 persons/km<sup>2</sup>.
- Decadal LULC transitions in the Hooghly River basin (2008–09 to 2018–19) recorded an increase in area under kharif crop (12.54%), waterbodies (1.06%), built-up (0.40%), plantations (0.04%), littoral swamp (0.07%) and scrub forest (0.03%). No change was observed in deciduous forest. Declines were recorded in double/triple crop (-2.90%), current fallow (-7.44%), wasteland (-2.23%), rabi crop (-0.48%) and zaid crop (-1.90%), indicating a shift towards intensified monsoon-season agriculture and a reduction in multi-season cropping (Figures 2a and 2b).

## BIODIVERSITY VALUE

- Hooghly River basin is dominated by non-forest areas (83.17%), followed by open forest (9.79%), moderately dense forest (4.7%), very dense forest (1.96%) and scrub land (0.38%) (Figure 3).
- Hooghly River basin, encompasses a sequence of Moist Deciduous, Riverine, Estuarine, and Mangrove forest types. The upper stretch, corresponding to parts of Murshidabad–Nadia–Purba Bardhaman, supports Northern Moist Deciduous Forests and Moist Peninsular Sal Forests, represented by *Shorea robusta*, *Terminalia tomentosa*, *Syzygium cumini*, *Dalbergia sissoo*, *Barringtonia acutangula*, and *Ficus* spp., with riparian grasses such as *Saccharum spontaneum*, *Phragmites karka*, and *Typha angustifolia*. The middle stretch, flowing past Hooghly, Howrah, and Kolkata, corresponds to Riverine Forests

- and Wet Alluvial Grasslands, characterised by *Terminalia arjuna*, *Syzygium cumini*, *Ficus benghalensis*, *F. religiosa*, *Salix tetrasperma*, *Tamarix dioica*, and extensive marsh–reed beds. The lower stretch, extending through South 24 Parganas toward the Bay of Bengal, transitions into Tidal Swamp Forests and Mangrove Forests, dominated by *Avicennia officinalis*, *A. marina*, *Sonneratia apetala*, *Excoecaria agallocha*, *Heritiera fomes*, and *Nypa fruticans*, interspersed with mudflat, estuarine, and saline–aquatic assemblages.
- East Calcutta Wetlands and Sundarbans Wetlands are designated as a Wetland of International Importance under the Ramsar Convention.
- 49 mammal species from Sundarbans Tiger Reserve have been reported, including Critically

- Endangered Chinese pangolin (*Manis pentadactyla*); Endangered Gangetic dolphin (*Platanista gangetica*), Irrawaddy dolphin (*Orcaella brevirostris*), and tiger (*Panthera tigris*) and Vulnerable smooth-coated otter (*Lutrogale perspicillata*), Asian small-clawed otter (*Aonyx cinereus*), fishing cat (*Prionailurus viverrinus*) and Indo-Pacific finless porpoise (*Neophocaena phocaenoides*).
- 262 bird species have been recorded from Hooghly River including the Critically Endangered spoon-billed sandpiper (*Calidris pygmaea*) and white-rumped vulture (*Gyps bengalensis*), and Endangered Indian skimmer (*Rynchops albicollis*), great knot (*Calidris tenuirostris*) and Egyptian vulture (*Neophron percnopterus*).
- 21 species of herpetofauna has been reported from the Hooghly River basin, including Critically Endangered Northern river terrapin (*Batagur baska*); Endangered Spotted pond turtle (*Geoclemys hamiltonii*), Indian softshell turtle (*Nilssonina gangetica*), Indian peacock softshell turtle (*Nilssonina hurum*), and Indian narrow-headed softshell turtle (*Chitra indica*), and Vulnerable Indian roofed turtle (*Pangshura*

- *tecta*) and Indian flapshell turtle (*Lissemys punctata*). The Hooghly River basin also supports the saltwater crocodile (*Crocodylus porosus*).
- 267 fish species belonging to 28 orders, 84 families, and 187 genera have been recorded from the Hooghly River, including Endangered wagur (*Clarias magur*), Vulnerable goonch (*Bagarius bagarius*) and *Wallago attu*. Hooghly's freshwater–tidal interface supports the upstream migration and spawning cycle of Hilsa (*Tenualosa ilisha*).

Figure 1: Map of Hooghly River basin

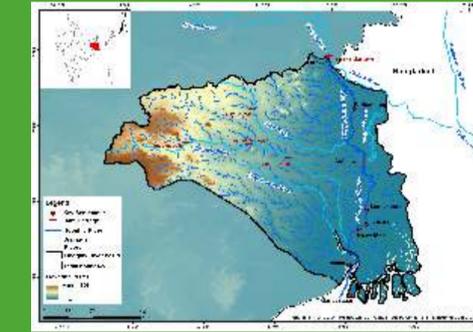


Figure 2a: LULC map of Hooghly River basin (2008–09)

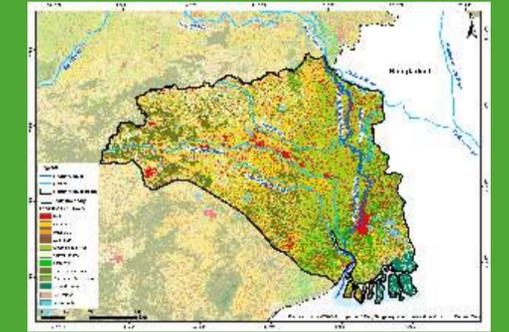


Figure 2b: LULC map of Hooghly River basin (2018–19)

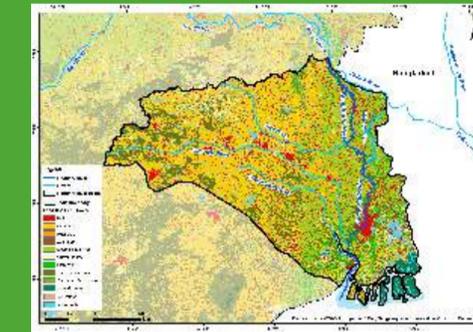


Figure 3: Forest cover of Hooghly River basin (2019)



Saltwater Crocodile (*Crocodylus porosus*) | ©Arpan Saha

