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Conserving river biodiversity in the Ganges-Brahmaputra-Meghna river basin in the Indian sub-continent

Ravindra Kumar Sinha
Patna University, India

Rivers have played a critical role in the growth of human civilizations across the globe and have been well-known as habitats of thousands of biota including turtles, crocodiles as well as mammals such as dolphins and otters. The Ganges-Brahmaputra-Meghna (GBM) River Basin has 0.12% of the world's land mass where more than 10% of the world's human population resides. Most of the rivers in the basin originate from the Himalayas. The biodiversity of these rivers is characterised by high species richness, by the occurrence of many rare, endangered, threatened species, many endemics and charismatic species of great interest (Ganges River dolphin, Gaviialis, Otter). Most of the studies on riverine biodiversity have focussed mostly on fishes and occasionally on benthic macro-invertebrates; phyto and zooplankton, and few on higher vertebrates (dolphin, otter, Gaviialis and turtles). Similarly birds entirely dependent upon the rivers have received little attention. Though the biodiversity of the GBM Basin has been documented to some extent but their role in functioning of river ecosystems have not been adequately understood or investigated. Practically all components of biodiversity contribute to waste processing function, and thereby result in maintaining high water quality and productivity. Biodiversity is threatened mainly by the loss or degradation of the habitats mostly due to ever-increasing storage, diversion and abstraction of water to meet the growing and divergent human needs through a variety of engineering interventions (dams, barrages, tunnels, embankments, canals) which have altered the flow drastically to the extent that many stretches of even large rivers remain dry for most of the year; loss of longitudinal and lateral connectivity due to constructions of dams/barrages and embankments, respectively; as well as discharge of both domestic and industrial waste waters. Other major threats are man-made changes in land-use pattern, intensive agriculture, urbanization and industrialization, mining etc. which contribute to flow alteration, pollution and sediment load. The paper deals with conservation of riverine biodiversity in the GBM Basin with special efforts to understand the structure and functioning of the river system and factors which govern and regulate the biodiversity as well as a proper assessment of the threats with measures to address the threats.

Biography

Ravindra Kumar Sinha has been carrying out researches for conservation of the faunal diversity of the Ganges River system in Indian sub-continent since last over three decades, with special focus on the Ganges River dolphin. The dolphin has been given status of National Aquatic Animal of India. Prof. Sinha has over one hundred publications to his credit. He is member of Species Survival Commission of IUCN. His Royal Highness Prince Bernhard of The Netherlands awarded Prof. Sinha with The Order of the Golden Ark of The Netherlands in 1999 as an international recognition of his efforts to conserve the Ganges biodiversity in general and the Ganges River dolphin in particular.

rksinha.pu@gmail.com

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