

Tracking India's Aquatic Heritage

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Tracking India's Aquatic Heritage: The First Comprehensive Dolphin Survey

Context

- Riverine dolphins are **indicator species**, reflecting the health of freshwater ecosystems.
- The Gangetic dolphin (Platanista gangetica gangetica) is India's National Aquatic Animal and plays a crucial role in maintaining ecological balance.
- Both the Gangetic dolphin and Indus River dolphin are classified as Endangered under the IUCN Red List and are legally protected under Schedule I of the Wildlife Protection Act, 1972.
- The survey (2021-2023) provides the first-ever comprehensive estimation of India's riverine dolphin population, aiding in evidence-based conservation efforts.

Key Findings of the Riverine Dolphin Survey (2021-2023)

Survey Overview

- Conducted by the Wildlife Institute of India (WII) under the Union Ministry of Environment, Forest, and Climate Change (MoEFCC).
- Covered 28 rivers by boat and 30 rivers by road, spanning the Ganga, Brahmaputra, and Beas river basins.
- Total river stretch surveyed: 8,507 km
 - Ganga and tributaries: 7,109 km
 - Brahmaputra system: 1,297 km
 - Beas River: 101 km

Dolphin Population Estimates

Gangetic Dolphin Population: 6,324 (Estimated Range: 5,977 - 6,688)

- Ganga River (Main Stem) 3,275 dolphins
- Ganga Tributaries 2,414 dolphins
- Brahmaputra River (Main Stem) 584 dolphins
- Brahmaputra Tributaries 51 dolphins

Indus River Dolphin Population: 3

• Found only in the Beas River, Punjab, indicating severe population decline.

State-Wise Distribution of Gangetic Dolphins

- Uttar Pradesh 2,397 (Highest population)
- Bihar 2,220
- West Bengal 815
- Jharkhand 162
- Rajasthan & Madhya Pradesh 95
- Punjab 3

Challenges in Dolphin Population Estimation

- Turbid Waters River dolphins inhabit murky waters, making visual detection difficult.
- Brief Surface Time Dolphins surface for 1.26 seconds before diving for 107 seconds, leading to:
 - **Observer Error** Some dolphins may be missed.
 - Availability Error Some dolphins may remain underwater throughout the survey period.

Survey Methodology

- **1. Visual Survey Methods**
 - Double Observer Method (for deep and wide river channels)
 - Two teams scan both sides of the vessel.
 - Boat speed maintained at 8-10 km/hour to prevent double counting.
 - Tandem Method (for narrow channels <600m wide, <3m deep).
 - Single Boat Method (for very narrow channels <300m wide, <2m deep).

2. Acoustic Surveys

- Uses hydrophones to detect dolphin echolocation clicks.
- Helps in triangulating dolphin locations and reducing observer error.

Dolphin Distribution: Hotspots vs. Coldspots

Coldspots - Areas with Low or No Dolphin Presence

- Ganga River:
 - Narora to Kanpur (366 km) Extremely low encounter rate (0.1 dolphins/km).
 - Farukkhabad-Kannauj Another critical coldspot.

- Other Coldspots:
 - Yamuna River (Kaushambi-Chitrakoot)
 - Sharda River (Pilibhit)
 - Rapti River (Balrampur-Siddharth Nagar)
 - Barak River (Assam)
 - Subansiri and Kulsi Rivers (Assam) Dolphin population declining.

Hotspots - Areas with High Dolphin Population

- Uttar Pradesh Encounter rate: 0.62 dolphins/km
- Bihar Highest encounter rate: 1.62 dolphins/km, due to deeper river channels and tributary confluences (Ghaghara, Gandak, Kosi, Son).
- Densely Populated Stretches:
 - Chausa-Manihar (590 km) 2.20 dolphins/km
 - Manihari (Bihar) to Rajmahal (Jharkhand) 2.75 dolphins/km (highest density)

Conservation Implications and Challenges

Threats to Riverine Dolphins

- Pollution Industrial effluents, pesticides, and plastic waste degrade dolphin habitats.
- Habitat Fragmentation Dams and barrages disrupt river flow and impact prey availability.
- Overfishing Declining fish populations due to unsustainable fishing practices.
- **Climate Change** Erratic rainfall and altered river dynamics affect dolphin breeding patterns.
- Accidental Entanglement Dolphins get trapped in fishing nets, leading to injuries and fatalities.

Government Initiatives for Dolphin Conservation

- Project Dolphin (2020) Launched under the Namami Gange Programme, focusing on dolphin conservation in the Ganga and its tributaries.
- National Ganga River Dolphin Conservation Action Plan (2010-2020) Outlined protection measures for Gangetic dolphins.
- Biosphere Reserves & Protected Areas Vikramshila Gangetic Dolphin Sanctuary (Bihar) is a critical dolphin habitat.
- Community Participation Efforts to involve local communities in conservation and awareness programs.

Way Forward

- Strengthening Pollution Control Measures Enforcing strict environmental regulations on industries and urban sewage.
- Restoring River Ecosystems Ensuring adequate water flow, reducing sand mining, and controlling illegal fishing.

- Scientific Monitoring & Research Expanding acoustic survey techniques for better population estimation.
- Sustainable Development Strategies Balancing infrastructure projects with wildlife conservation.
- International Collaboration Learning from conservation models in Nepal and Bangladesh, which share dolphin habitats.

Conclusion

- The 2021-2023 dolphin survey provides crucial insights into the status of India's riverine dolphins.
- The presence of over 6,000 Gangetic dolphins is encouraging, but the critically low Indus River dolphin population is alarming.
- Dolphins are indicators of river health—protecting them ensures sustainable freshwater ecosystems.
- Urgent conservation efforts are needed to address habitat degradation, pollution, and human-induced threats.
- Strengthening Project Dolphin and enhancing community-based conservation programs will be essential in ensuring long-term protection of India's National Aquatic Animal.

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