

Tracking India's Aquatic Heritage

Posted at: 06/03/2025

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.
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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
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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.
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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**.
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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**).
 - **Farukhabad-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.
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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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