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**.