



KAMARAJ IAS ACADEMY
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Freshwater Sponges: Nature's Pollution Sensors

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Background: The Sundarban Delta faces immense pressure from industrial runoff and heavy metal pollution. Researchers at the Bose Institute discovered that native freshwater sponges (*Spongillidae*) serve as excellent Bioindicators.?

Basics:

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- **Bioindicators:** Living organisms that respond to environmental changes. Sponges are "filter feeders"; they pump large volumes of water to get food, effectively "trapping" toxins like Arsenic, Lead, and Chromium in their tissues.
- **Sundarban Ecology:** Known for mangroves, the delta also has unique freshwater pockets where these sponges thrive.

Significance for UPSC:

- **Bioremediation:** If these sponges can sequester toxins, they could be used for "Bio-remediation" projects in the Ganga-Brahmaputra system.
- **Prelims Fact:** Note that sponges are animals (Phylum Porifera), not plants.