



Wetlands

Why in News?

- World Wetlands Day is celebrated every year on 2nd February.
- This day marks the date of the adoption of the Convention on Wetlands on 2 February 1971, in Ramsar, Iran.
- In 2022 World Wetlands Day was celebrated with a theme - Wetlands Action for People and Nature.

What are Wetlands?

- Wetlands are areas where water is the primary factor controlling the environment and the associated plant and animal life. They occur where the water table is at or near the surface of the land, or where the land is covered by water.
- Wetlands are defined as: "lands transitional between terrestrial and aquatic eco-systems where the water table is usually at or near the surface or the land is covered by shallow water".

What are the Types of Wetlands?

- **Coastal Wetlands:** Coastal wetlands are found in the areas between land and open sea that are not influenced by rivers such as shorelines, beaches, mangroves and coral reefs. A good example is the mangrove swamps found in sheltered tropical coastal areas.
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- **Shallow lakes and ponds:** These wetlands are areas of permanent or semi-permanent water with little flow. They include vernal ponds, spring pools, salt lakes and volcanic crater lakes.
- **Marshes:** These are periodically saturated, flooded, or ponded with water and characterized by herbaceous (non-woody) vegetation adapted to wet soil conditions. Marshes are further characterized as **tidal marshes** and **non-tidal marshes**.
- **Swamps:** These are fed primarily by surface water inputs and are dominated by trees and shrubs. Swamps occur in either freshwater or saltwater floodplains.
- **Bogs:** Bogs are waterlogged peatlands in old lake basins or depressions in the landscape. Almost all water in bogs comes from rainfall.
- **Estuaries:** The area where rivers meet the sea and water changes from fresh to salt can offer an extremely rich mix of biodiversity. These wetlands include **deltas**, **tidal mudflats** and **salt marshes**.

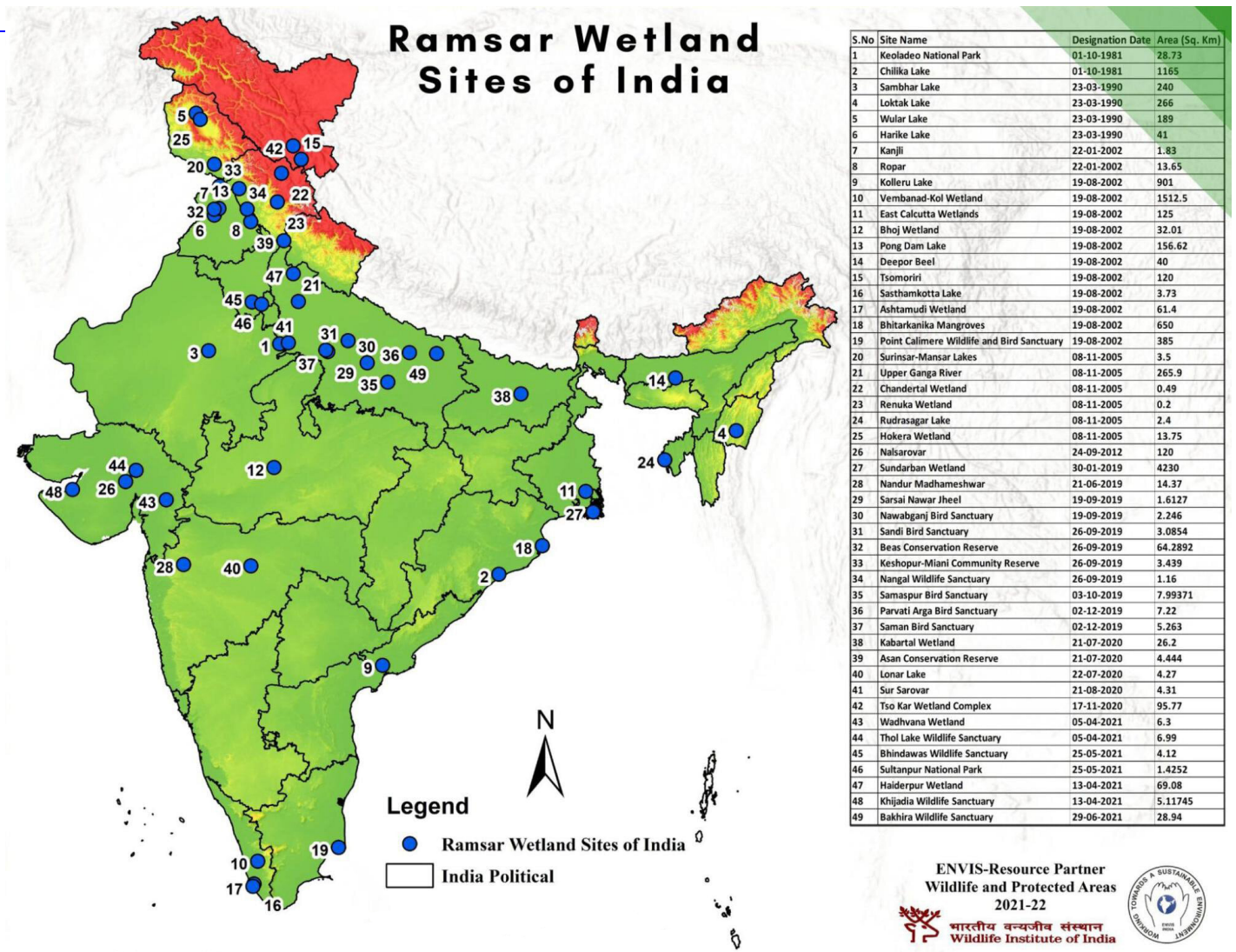
What is the status of Wetlands?

- As of February, 2022, India has a network of **49 Ramsar sites** covering an **area of 10,93,636 hectares**, the **highest in South Asia**.
- India has **nearly 4.6% of its land as wetlands, covering an area of 15.26 million hectares**.
 - Wetlands declared as Ramsar sites are **protected under strict guidelines** of the convention.
- There are currently over 2400 Ramsar sites in the world covering an area of 2.5 million sq. kilometres.

How many Ramsar Sites are there in India?

- India has 49 Ramsar Sites which are the Wetlands of International importance.
- Latest Addition to the list:**
 - Khijadia Wildlife Sanctuary** in Gujarat and **Bakhira Wildlife Sanctuary** in Uttar Pradesh were announced as Ramsar sites on the occasion of World Wetland day 2022 (2nd January 2022) held at Sultanpur National Park, a Ramsar site in Haryana.
 - Haiderpur Wetland** in Uttar Pradesh has been added as the 47th Ramsar Site in December 2021.
 - Four new sites have been added to the list of Ramsar Sites in India in August 2021. These are:
 - Sultanpur National Park** – Gurugram, Haryana
 - Bhindawas Wildlife Sanctuary** – Jhajjar, Haryana
 - Thol Lake Wildlife Sanctuary** – Near Ahmedabad, Gujarat
 - Wadhvana Wetland** – Vadodara, Gujarat
 - In December 2020, The **Tso Kar Wetland Complex** was added to the list of Ramsar sites in India.
 - In November 2020 following sites are listed under Ramsar List:
 - Lonar Lake** in Maharashtra was added to the Ramsar List.
 - Sur Sarovar (Keetham Lake)** in Agra (Uttar Pradesh).
 - Asan Barrage (Uttarakhand).**
 - In July 2020 **Kanwar Lake or Kabal Taal** of Bihar was included in Ramsar List.
 - In February 2020, **Sunderban Reserve Forest (Sunderban Wetlands)** of Kolkata, West Bengal was included in Ramsar List.

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What is the Importance of Wetlands?

- Wetlands are highly productive ecosystems that provide the world with nearly two-thirds of its fish harvest.
- Wetlands play an integral role in the ecology of the watershed. The combination of shallow water, high levels of nutrients is ideal for the development of organisms that form the base of the food web and feed many species of fish, amphibians, shellfish and insects.
- Wetlands' microbes, plants and wildlife are part of global cycles for water, nitrogen and sulphur. Wetlands store carbon within their plant communities and soil instead of releasing it to the atmosphere as carbon dioxide.
- Wetlands function as natural barriers that trap and slowly release surface water, rain, snowmelt, groundwater and flood waters. Wetland vegetation also slow the speed of flood waters lowering flood heights and reduces soil erosion.
- Wetlands are critical to human and planet life. More than one billion people depend on them for a living and 40% of the world's species live and breed in wetlands.
- Wetlands are a vital source for food, raw materials, genetic resources for medicines, and hydropower.
- They play an important role in transport, tourism and the cultural and spiritual well-being of people.
- They provide habitat for animals and plants and many contain a wide diversity of life, supporting plants and animals that are found nowhere else.
- Many wetlands are areas of natural beauty and promote tourism and many are important to Aboriginal people.
- Wetlands also provide important benefits for industry. For example, they form nurseries for fish and other freshwater and marine life and are critical to commercial and recreational fishing industries.

What are the Threats to Wetlands?

- **Urbanization:** Wetlands near urban centres are under increasing developmental pressure for residential, industrial and commercial facilities. Urban wetlands are essential for preserving public water supplies.
- **Agriculture:** Vast stretches of wetlands have been converted to paddy fields. Construction of a large number of reservoirs, canals and dams to provide for irrigation significantly altered the hydrology of the associated wetlands.
- **Pollution:** Wetlands act as natural water filters. However, they can only clean up the fertilizers and pesticides from agricultural runoff but not mercury from industrial sources and other types of pollution.
 - There is growing concern about the effect of industrial pollution on drinking water supplies and the biological diversity of wetlands.
- **Climate Change:** Increased air temperature; shifts in precipitation; increased frequency of storms, droughts, and floods; increased atmospheric carbon dioxide concentration; and sea level rise could also affect wetlands.
- **Dredging:** The removal of material from a wetland or river bed. Dredging of streams lowers the surrounding water table and dries up adjacent wetlands.
- **Draining:** Water is drained from wetlands by cutting ditches into the ground which collect and transport water out of the wetland. This lowers the water table and dries out the wetland.
- **Introduced Species:** Indian wetlands are threatened by exotic introduced plant species such as water hyacinth and salvinia. They clog waterways and compete with native vegetation.
- **Salinization:** Over withdrawal of groundwater has led to salinisation.

What are the Efforts towards Wetlands Conservation?

- **Ramsar Convention:** The Convention came in to force in 1975.
 - The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".
 - **Three pillars of the Convention are:**

- Work towards the wise use of all their wetlands.
 - Designate suitable wetlands for the list of Wetlands of International Importance (the “Ramsar List”) and ensure their effective management.
 - Cooperate internationally on transboundary wetlands, shared wetland systems and shared species.
- **Montreux Record:** It is maintained as part of the Ramsar List.
 - Montreux Record is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference.
 - **Two wetlands of India are in Montreux Record:** Keoladeo National Park (Rajasthan) and Loktak Lake (Manipur). Chilka lake (Odisha) was placed in the record but was later removed from it.
 - **Regulations of Wetlands in India:** Wetlands are regulated under the [Wetlands \(Conservation and Management\) Rules, 2017](#).
 - The 2010 version of the Rules provided for a Central Wetland Regulatory Authority, but new Rules of 2017 replaced it with state-level bodies and created a National Wetland Committee, which functions in an advisory role.
 - The newer regulations removed some items from the definition of “wetlands” including backwaters, lagoons, creeks, and estuaries.
 - Under the 2017 regulations, the process to identify the wetlands has been delegated to the States.

Conclusion

- To counter unplanned urbanization and a growing population, management of wetlands has to be an integrated approach in terms of planning, execution and monitoring.
- Effective collaborations among academicians and professionals, including ecologists, watershed management specialists, planners and decision makers for overall management of wetlands.
- Spreading awareness by initiating awareness programs about the importance of wetlands and constant monitoring of wetlands for their water quality would provide vital inputs to safeguard the wetlands from further deterioration.

Mains Question

Q. What is wetland? Explain the Ramsar concept of ‘wise use’ in the context of wetland conservation. Cite two examples of Ramsar sites from India.

Q. Wetlands hold a significant place as an ecosystem in our environment. In the light of this statement explain the functions of wetlands and discuss the threats causing their depletion.

Prelims Question

Q. Consider the following statements

1. Under Ramsar Convention, it is mandatory on the part of the Government of India to protect and conserve all the wetlands in the territory of India.
2. The Wetlands (Conservation and Management) Rules, 2010 were framed by the Government of India based on the recommendations of Ramsar Convention.
3. The Wetlands (Conservation and Management) Rules, 2010 also encompass the drainage area or catchment regions of the wetlands as determined by the authority.

Which of the statements given above is/ are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 3 only

(d) 1, 2 and 3

Q. If a wetland of international importance is brought under the 'Montreux Record', what does it imply?

A. Changes in ecological character have occurred, are occurring or are likely to occur in the wetland as a result of human interference.

B. The country in which the wetland is located should enact a law to prohibit any human activity within five kilometers from the edge of the wetland

C. The survival of the wetland depends on the cultural practices and traditions of certain communities living in its vicinity and therefore the cultural diversity therein should not be destroyed.

D. It is given the status of 'World Heritage Site'

Q. If you want to see gharials in their natural habitat, which one of the following is the best place to visit?

A. Bhitarkanika Mangroves

B. Chambal River

C. Pulicat Lake

D. Deepor Beel

Q. Which of the following National Parks is unique in being a swamp with floating vegetation that supports a rich biodiversity?

A. Bhitarkanika National Park

B. Keibul Lamjao National Park

C. Keoladeo Ghana National park

D. Sultanpur National park

Q. Which one of the following is an artificial lake?

(a) Kodaikanal (Tamil Nadu)

(b) Kolleru (Andhra Pradesh)

(c) Nainital (Uttarakhand)

(d) Renuka (Himachal Pradesh)