

Wetlands [Amrit Dharohar & MISHTI Schemes]

Wetlands are those areas where the soil is covered with water or can be present near the ground throughout the year. It supports both terrestrial and aquatic species. They vary widely depending on the climate, soil, vegetation, hydrology, chemistry, and human disturbance. These areas can be found from the tundra to the tropics apart from Antarctica. The water found in the wetland is of two types. It is either brackish, saltwater, or freshwater.

From types to climate and hydrology of wetland, everything has been discussed below to create a clear concept about what is a wetland.

IAS aspirants must also learn about [Wetlands International](#), a global not-for-profit organisation for conservation and restoration of marshlands.

Wetlands Latest News

Two schemes, the Amrit Dharohar Scheme and the MISHTI Scheme have been announced in the latest 2023 Union Budget. Aspirants can read about these schemes related to wetlands and mangroves in this article.

What are the different types of wetlands?

There are four main types of wetlands: marsh, swamp, fen and bog. All of these wetlands have been briefly described below:

Marsh

These are the kind of wetlands that are frequently flooded with water and have vegetation from saturated soil conditions. Marshes are of various kinds, such as coastal, inland, saltwater, freshwater, everglades and prairie potholes. Some of these marshes are fed by groundwater, and some are provided by water beneath the surface.

Swamp

Wetlands that are covered by woody plants are referred to as swamp. Swamps are of various kinds based on the quality of the saturated soil during season growth. Numerous rare species are dependent on this ecosystem. Two major types of swamps are forest swamps and shrub swamps.

Fen

This wetland receives nutrients from precipitation. This comes from upslope sources like drainage and groundwater movement. Thus, this form of wetland has a higher nutrient level than that of the bogs. When fen starts receiving lesser nutrients, it turns into a bog. One can find these wetland forms in the north-eastern parts of the United States, Canada, Rocky Mountains and places with a short growing season and low temperature.

Bogs

This is a unique form of wetlands found in North America. They can be recognised through thick sphagnum moss and acidic waters. These forms of wetlands in India and elsewhere are low in nutrients and hence cannot support plant growth. They have a significant contribution towards preventing downstream flooding through the absorption of precipitation.

Also, read:

Wetland Conservation and Management Rules, 2017	International Union for Conservation of Nature (IUCN)
How many wetlands are in India?	What are wetlands plants?
What is the purpose of wetland conservation?	Eco Sensitive Zone

How are wetlands formed?

When saturated conditions prevail for a significant time in an area during the growing season, it makes the area anaerobic and it gives birth to wetlands. Some wetlands are formed over a period of time, and some form very quickly. Some of the creators of wetlands include

- Glacier
- Flooding of coastal lowlands
- River floodplains
- Beavers
- Different forces of nature

Some wetlands are artificially made for the restoration process and its development. Consistent high water tables and frequent flooding lead to the formation of wetlands. Wetlands formed by beavers may last more than a hundred years and some for a little less.

What is wetland hydrology?

Wetland hydrology means the extent and timing of soil saturation. It is one of the most fundamental reasons for the formation of wetlands. Hydrology is regarded as the most important amongst the other parameters of wetlands. Still, it can also be difficult to ensure appropriate determination of the field due to the level of the water which frequently varies.

Benefits of Wetlands

- The wetlands are a major source of water resources for a lot of the population. The people depend on dams, ponds, lakes or rivers for water.
- The wetlands apart from preventing droughts by acting as a sponge and absorbing rainfall also help in preventing floods and act as a storm buffer. For example, during the tsunami of 2004 and during the Odisha super cyclone of 1999, the areas sheltered by mangroves (a type of wetland), experienced a lot less damage compared to the areas which did not have any mangrove cover.
- Also, wetlands provide us with a lot of products: almost two-thirds of the fish are obtained from the coastal wetlands, and 3/4th of the rice production of Asia takes place in the wetlands. Apart from that honey is also collected from many mangroves, for example, from the Sundarbans. Wetlands are also important for many medicinal plants that we get from them.
- They also assist in the purification of water. The high level of nutrients like nitrogen and phosphorus in agriculture runoff can be reduced by the wetlands. Also, many plants in the wetlands have adapted themselves to be able to remove toxic substances like pesticides or substances from industrial discharge from the water.
- Wetlands are also very important sites for recreation, and tourism including boating, bird watching and many other such activities.
- The diversity both in flora and fauna that the wetlands provide makes them very important sites for education and research purposes.
- The wetlands are also very important carbon stores. They lock the atmospheric carbon within themselves in the soils or in the plants.
- They are also very important sites for the migratory birds who use such wetlands as stop-over sites for feeding themselves, resting as well as breeding. Nearly 2000 bird species are migratory birds, and for them, wetlands are a very important habitat.
- The wetlands are also very important biodiversity hotspots for many threatened or nearly threatened species. They survive in wetland areas, for example, the Irrawaddy dolphin in the [Chilika Lake](#), the Bro-antlered deer in the Loktak lake, and the gharials in rivers like Son, Girwa and Chambal.

When is World Wetland Day?

[World Wetlands Day](#) is observed on 2nd February. It was first observed in 1971. For a detailed background and history about this day, aspirants can visit the linked article.

Amrit Dharohar Scheme

This scheme was announced in the [2023-24 budget](#) for a period of 3 years. The scheme, identifying the importance of the wetlands, aims to promote their optimal use. Under this scheme, the communities will be at the centre stage with regard to wetland protection. This scheme will focus on enhancing the biodiversity in the wetlands, preserving and increasing their carbon stock, building upon their eco-tourism potential, and enabling the local communities to optimally use the wetlands for employment generation.

MISHTI Scheme

Mangroves are very important coastal wetlands that occur in intertidal zones. According to the latest available India State of Forest report 2021, India has 4992 sq. km. of mangroves in the country. This figure has shown a rise of 17 sq. km since the 2019 report.

This scheme is "Mangrove Initiative for Shoreline Habitats and Tangible Incomes". Under this scheme the MGNREGA and the CAMPA funds, both will be used to increase provide gainful employment to the people while simultaneously increasing the mangrove plantations in the country along the coastlines and the salt pans.

Frequently Asked Questions about Wetlands

Q. How does salinity impact wetlands?

Ans. Climate changes are the fundamental factor for wetland salinity. Natural resources problems also create salinity like vegetation, water quality, climate regulation etc. This salinity, in turn, impacts the wetland by decreasing the amount of inorganic nitrogen removal. This further leads to the development of physiological stress in the wetland biota. Not only this, but the composition and productivity of wetland species will also go through major alteration causing a hindrance towards interspecific interaction.

Q. What are the different factors responsible for wetland hydrology?

Ans. The several factors that are responsible for the hydrology of wetland include landscape's position, rainfall, form of vegetation and use of surrounding land. Soil permeability is also an important contributor.

Q. What are the benefits of wetlands?

Ans. From food habitat to wildlife and fish to prevention of endangered species, there are quite a few collective benefits that wetlands offer. They help in maintaining the natural cycles and supports huge biodiversity.

