What are Freshwater Ecosystems?

This guideline explains what freshwater ecosystems are and why it is important to take action to protect, restore and sustain them. This information may be useful to better understand what Community Action for Fresh Water (CAFW) is and to help communicate to the community and other stakeholders the importance of freshwater ecosystems and taking action now.

Freshwater Ecosystems

Freshwater ecosystems are naturally occurring collections of water that have littleto-no salt in comparison to the sea. Freshwater ecosystems refer to rivers, streams, lakes, wetlands, springs, estuaries and include not only the water, but also the plants, animals and other organisms that live on, in, or around that water. CAFW also uses the terms 'waterbodies' and 'waterways' to refer to freshwater ecosystems. Freshwaters may also encompass frozen and meltwater in ice sheets, glaciers and icebergs, precipitation such as rainfall and snow and surface runoff that forms inland waterbodies, as well as groundwater contained in aquifers.

A catchment area, or watershed, is an area of land where water collects and drains into a water body when it rains, often bounded by hills. As the water flows over the landscape it finds its way into streams and down into the soil, eventually leading to the freshwater body.

Freshwater ecosystems cover only about 1% of the planet's surface but are home to over 10% of the species of the planet. Humans, other mammals, waterfowl, fish, frogs, aquatic plants, phytoplankton, zooplankton, and microorganisms like bacteria, depend on healthy, freshwater ecosystems. Freshwater ecosystems strongly influence the health of terrestrial and marine ecosystems as well.



Community Action for Fresh Water



Likewise, the health of freshwater ecosystems is directly related and influenced by human activities in its catchment. Freshwater ecosystems are interconnected either by streams or rivers between lakes and wetlands or through underlying groundwater aquifers. As such, individual freshwater ecosystems are strongly affected by neighboring freshwater ecosystems and by what happens on the land around them. Human activities in the catchment are often reflected in the quality of the water carried into the freshwater body, for example, fertilizers from agricultural fields and silt from degraded areas.

The health of a freshwater ecosystem is influenced by the quantity and quality of water. This can be negatively impacted by increased turbidity (suspended particles in the water), high nutrient levels, toxic chemicals and solid waste (such as rubbish or litter). Over-extraction and damming of waterways can impact the quantity and timing of water flows and changes to the banks of rivers and lakes can have a major impact on the whole freshwater ecosystem. Over-extraction can negatively impact the life of animals and plants in the freshwater ecosystem.



Water is essential to the health and survival of humans and other species. Freshwater ecosystems provide water for drinking, irrigation and industrial processes and are a major source of food and medicine. For centuries, communities have enjoyed the benefits these ecosystems provide including their recreational, aesthetic and cultural value. Protecting and restoring them now will ensure that future generations can continue to enjoy them.

A few reasons to take action, include:

- Freshwater ecosystems are biodiversity hotspots hosting over 140,000 species and more than half of all fish species.
- Freshwater ecosystems are the most threatened and degraded ecosystems on the planet.
- Freshwater species populations have declined globally by 83%. This is twice the rate of decline of biodiversity in terrestrial or marine ecosystems.



- About 85% of wetlands have been lost globally over the past 300 years [1].
- Climate change is intensifying water challenges, with floods, droughts, rising sea levels, and the consequent salinization of groundwater bodies increasingly threatening people's health and livelihoods worldwide.
- By 2050, an estimated 1.6 billion people will be at risk of flooding, and 2.7 to 3.2 billion people will live in areas that could face severe water scarcity.
- Recent studies show freshwater ecosystems, like marshes and river floodplains, are critical for slowing climate change and adapting to climate change impacts.
- Freshwater ecosystems are responsible for flood mitigation while supplying the underground water storage systems (aquifers) with water.
- 42% of household wastewater and 73% of industrial wastewater is not properly treated [2][3]. By 2030, without improvements in water quality monitoring, the health and livelihoods of 4.8 billion people could be at risk[4].
- Incidences of waterborne diseases, such as cholera, typhoid fever, and diarrhea, continue to increase worldwide due to inadequate access to clean water and sanitation facilities [5].

The **good news** is that conservation, restoration and awareness raising efforts can reverse these trends. Although freshwater ecosystems are complex and fragile, they are also resilient and able to recover if threats are removed.

By **joining the CAFW initiative** and helping to protect, restore and sustain a freshwater ecosystem, you can support and strengthen nature and the community that depends on it.



For Further Information

- <u>Mid-term Status on SDG 6 Indicators: 6.3.2, 6.5.1, & 6.6.1</u> (UNEP, 2024)
- <u>The Economics of Water: Valuing the Hydrological Cycle as a Global Common</u> <u>Good</u> (Global Commission on the Economics of Water, 2024)

References

[1] (<u>UNEP, 2022</u>)

- [2] (<u>UN-Water, 2023</u>)
- [3] (<u>UN-Water, 2024</u>)
- [4] (UN-Water, 2024)

[5] WHO, 2024. Cholera Annual Report 2023. Weekly Epidemiological Record, 9 September 2024, Vol 99 (36), (pp 481– 496).

