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WETLANDS ROLE IN WATER QUALITY

Wetlands are vital for safeguarding and improving water quality. A **wetland** is a place where the land is inundated or saturated with water seasonally or year-round. Because they exist at the intersection of land and water, wetlands provide numerous environmental benefits, including **filtering, storing, and purifying water**. Wetlands are the **final barrier between pollutants and waterbodies**, providing natural filtration through soils, microbes, and plants.

Wetland Water Quality Function

- Wetlands play a critical role in **purifying water** and **preserving water quality**.
- They provide critically important **ecosystem services** such as **water filtration, storage, purification, and flood control**.
- Wetlands' ability to maintain and improve water quality depends on **healthy, functioning ecosystems**.

Riparian & Coastal Wetlands are extremely important in protecting and enhancing water quality because they are located directly adjacent to waterbodies.

- **Riparian wetlands** ^{1,2,3} - **Headwater Forests, Riverine Swamps, Bottomland Hardwoods**:
 - Protect watershed stream systems.
 - Filter sediment, nutrients, heavy metals, pathogens, and suspended materials.

- Reduce flooding by storing water.
- Biodiversity, water clarity, and public health benefit through healthy riparian wetlands.
- **Coastal wetlands** ^{4,5} - **Tidal Marshes, Estuarine Woody Wetlands, Estuaries**:
 - Filter sediments and other contaminants.
 - Protect shorelines from erosion during storms.
 - Mitigate the effects of hurricanes by absorbing floodwaters.
 - Serve as fish nurseries and migratory bird feeding and resting grounds.

Threats to Wetlands and Water Quality Function: ⁶

- Degradation of wetlands reduces their ability to maintain water quality and biodiversity.

- Historically drained or destroyed for **settlement, agriculture, and forestry**.
- Today, **land development** and **impervious surfaces** disrupt natural water flows, nutrient balance, and biodiversity.
- **Extreme events (droughts, hurricanes, wildfires)** further threaten wetland health.

Wetland Protection and Restoration Solutions :

- **Prioritize wetland preservation** and **restoration** to enhance water quality functions.
- Focus especially on **riparian** and **coastal wetlands** to protect waterways from stormwater runoff.
- Strengthen **federal, state, and local legal protections** for wetlands.



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