

Wetland Conservation

Indiana identifies nonpoint source (NPS) pollution as the state's leading source of surface water and ground water quality impairment. A wetland, a land area where water saturation is the dominant factor, can help prevent NPS pollution from degrading water quality.

Acting like a coffee filter, wetlands intercept runoff and capture NPS pollutants. Wetland vegetation helps keep stream channels intact by reducing the velocity of runoff thus reducing stream bank erosion during periods of high flow. Wetland vegetation also reduces stream temperature by providing streamside shading.

Data recorded from the 1981 National Wetlands Inventory, shows Indiana's Lake Michigan coastal region contains approximately 7,240 wetlands covering more than 11 percent of the total coastal land area.

However, development or excessive pollutant loads can damage wetlands. Once degraded, a damaged wetland cannot provide the same water quality benefits and often becomes a significant source of NPS pollution. For example, excessive amounts of decaying wetland vegetation can reduce the amount of available dissolved oxygen for fish and other aquatic life. In addition, degraded wetlands also release stored nutrients and other chemicals into surface water and ground water.

Three management strategies can be used to maintain water quality benefits provided by wetlands and riparian areas:

- preservation of existing wetlands
- restoration
- construction of engineered systems

Riparian areas, or stream corridors are defined as vegetated ecosystems along a water body through which water and materials pass. Characteristically, riparian areas have high water tables and are subject to periodic natural flooding.

Wetland Preservation

As the first of three strategies, wetland preservation protects the full range of wetland functions by discouraging development activity in and around wetlands. Simultaneously, this strategy encourages proper management of upstream activities, including agriculture, forestry, and urban development.

Wetland and Riparian Restoration

The second strategy, wetland and riparian restoration, promotes the restoration of degraded wetlands and riparian areas with NPS pollution control potential. Wetlands that have been filled and drained retain their characteristic soil and hydrology, allowing their natural functions to be reclaimed. Restoration is a complex process that requires planning, implementation, monitoring, and management. It involves renewing natural and historical wetlands that have been lost or degraded and reclaiming their functions and values as vital ecosystems.

Wetland and riparian restoration activities which factor in ecological principles include replanting degraded wetlands with native plant species and constructing structural devices to control water flows.

Construction of Engineered Systems

The third strategy recommended promotes the use of engineered vegetated treatment systems (VTS). Designed to remove suspended sediments from NPS pollution before the runoff reaches a natural wetland, VTS have proved especially effective in the restoration of degraded wetlands.

One example of a VTS is the vegetated filter strip. A vegetated filter strip is a swath of land planted with grasses and trees to intercept uniform sheet flows of runoff before reaching a wetland. Vegetated filter strips are most effective at sediment removal, with removal rates usually greater than 70 percent.

Another type of VTS, constructed wetlands is an engineered complex of water, plants, and animals that simulate naturally occurring wetlands. Studies indicate that constructed wetlands can achieve sediment removal rates greater than 90 percent. Like vegetated filter strips, constructed wetlands offer an alternative to other systems that are more structural in design.

Healthy wetlands benefit plants, animals, and humans because they protect many different natural resources, only one of which is clean water. Unfortunately, an estimated 85 percent of wetlands in Indiana were lost between the late 1700's and the mid 1980's, and undisturbed wetlands still face threats today. To help prevent NPS pollution from further degrading Indiana's waters, and to protect many other State natural resources, wetlands protection must remain a focal point for Indiana education campaigns, watershed protection plans, and community conservation efforts.

