

* wetland type found in West Metro Area from Wetlands Conservation Plan Version 1, 1997.

I live on a lake so why should I worry about wetlands?

Wetlands help maintain and improve the water quality of our nation's streams, rivers, and lakes. Many can intercept runoff from the land before it reaches open water. As runoff and surface water pass through, wetlands remove or transform pollutants through physical, chemical, and biological processes. Wetlands are vital to cleansing the water in your watershed, trapping sediment and capturing nutrients from waters that flow through them. Wetlands save communities millions every year that otherwise would be spent on drinking water treatment plants.

Here are some specifics:

Nutrient removal

Wetlands may remove between 70% and 90% of entering nitrogen. The estimated mean retention of phosphorus by wetlands is 45%.

Removal of biological oxygen demand from surface water

Biological oxygen demand (BOD) is a measure of the oxygen required for the decomposition of organic matter and oxidation of inorganics such as sulfide. BOD is introduced into surface water through inputs of organic matter such as sewage effluent, surface runoff, and decomposition. If BOD is high, low dissolved oxygen levels result. Low dissolved oxygen levels can lead to mortality of aquatic life. Wetlands remove BOD from surface water through decomposition of organic matter or oxidation of inorganics. BOD removal by wetlands may approach 100%.

Removal of suspended solids and associated pollutants from surface water

Suspended solids (such as sediment and organic matter) may enter wetlands in runoff, as particulate litterfall, or with inflow from adjacent water bodies. Sediment deposition in wetlands prevents a source of turbidity from entering downstream ecosystems. Typically wetland vegetation traps 80-90% of sediment from runoff. Less than 65% of the sediment eroded from uplands exits watersheds that contain wetlands.

Removal of metals

Certain wetlands play an important role in removing metals from other water resources, runoff, and ground water. Wetlands remove 20% - 100% of metals in the water, depending on the specific metal and the individual wetland. Forested wetlands play a critical role in removing metals downstream of urbanized areas. A study of wetlands and water quality in the Twin Cities metro area showed that lakes in watersheds with less than 18 % wetland area are predicted to have levels of lead that exceed EPA aquatic life criteria for this metal. (Detenbeck et al 1991)

Removal of pathogens

Fecal coliform bacteria and protozoans, which are indicators of threats to human health, enter wetlands through municipal sewage, urban stormwater, leaking septic tanks, and agricultural runoff. Bacteria attach to suspended solids that are then trapped by wetland vegetation. These organisms die: after remaining outside their host organisms, through degradation by sunlight, from the low pH of wetlands, by protozoan consumption, and from toxins excreted from the roots of some wetland plants. In this way wetlands have an important role in removing pathogens from surface water.

Water supply

Wetlands act as reservoirs for the watershed. Wetlands release the water they retain (from precipitation, surface water, and ground water) into associated surface water and ground water. In Wisconsin watersheds composed of 40% lakes and wetlands, spring stream outflows from the watersheds were 140% of those in watersheds without any wetlands or lakes. Forested wetlands, kettle lakes and prairie potholes have significant water storage and ground water recharge.

Ground water can be adversely affected by activities that alter wetlands. Drainage of wetlands lowers the water table and reduces the hydraulic head providing the force for ground water discharge. If a recharge wetland is drained, the water resources into which ground water discharges will receive less inflow, potentially changing the hydrology of a watershed

Flood protection

Wetlands help protect adjacent and downstream properties from potential flood damage. The value of flood control by wetlands increases with: (1) wetland area, (2) proximity of the wetland to flood waters, (3) location of the wetland (along a river, lake, or stream), (4) amount of flooding that would occur without the presence of the wetlands, and, (5) lack of other upstream storage areas such as ponds, lakes, and reservoirs.

Wetlands within and upstream of urban areas are particularly valuable for flood protection. The impervious surface in urban areas greatly increases the rate and volume of runoff, thereby increasing the risk of flood damage. The drainage of wetlands, the diversion of the Mississippi and Missouri Rivers from their original floodplains, and the development allowed in the floodplains over the past 100 years were partly responsible for the billions of dollars in damage to businesses, homes, crops, and property that occurred as a result of the Midwest flood of 1993.

Erosion control

Marshes located at the margin of lakes protect shorelines and streambanks against erosion. Wetland plants hold the soil in place with their roots, absorb wave energy, and reduce the velocity of stream or river currents.

Fish and wildlife habitat

Diverse species of plants, insects, amphibians, reptiles, birds, fish, and mammals depend on wetlands for food, habitat, or temporary shelter. Although wetlands make up only about 3.5 percent of U.S. land area, more than one third of the United States' threatened and endangered species live only in wetlands. An additional 20% of the United States' threatened and endangered species use or inhabit wetlands at some time in their life.

Many of America's bird species utilize wetlands as sources of food, water, nesting material, or shelter. Migratory waterbirds rely on wetlands for staging areas, resting, feeding, breeding, or nesting grounds.

Up to one-half of North American bird species nest, feed, or rest in wetlands. As our wetlands have been destroyed, bird populations have slowly declined. Nearly half of all federally threatened and endangered species rely on wetlands. A majority of fish and many species of amphibians, insects and plants are wetland dependent.

Adapted from:

[National Audubon Society's Wetlands Campaign](#)

[North Carolina State University Water Quality Group](#)

[Marjut H. Turner and Richard Gannon](#)

[Kathryn A. Bartenhagen, Marjut H. Turner, and Deanna L. Osmond](#)

[Detenbeck, N.E., C.A. Johnston, and G.J. Niemi. 1993. Wetland effects on lake water quality in the Minneapolis/St.](#)

[Paul metropolitan area. Landscape Ecology, vol 8 no. 1 pp 39-61](#)

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