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Wetland Restorations in the Sandusky River Watershed

Presence of hydric soils, hydric vegetation, and water collectively determine if a site is considered a wetland. Likewise, potential for these three to occur simultaneously also determines whether a drained and altered site can be restored back to its natural wetland ecosystem. Varying percentages of water and vegetation determine common wetland classes within the Sandusky River Watershed, with open water marsh and deep water marsh having the most water followed by shallow hemi-marsh, moist soil habitat, shrub-scrub, and wet meadow. In an ideal situation, a mixture of all these components in close proximity to each other will yield the most productive and diverse habitat.

Ohio has lost greater than 90% of its historical wetlands. Increased urban sprawl and past clearing from agriculture have the largest impacts to our region's wetlands. Northwest Ohio historically was home to the 300,000 acres of lake plain wetlands stretching from Sandusky, Ohio to Fort Wayne, Indiana which was named the Great Black Swamp. Beginning in 1859, the swamp was drained using clay tiling and ditches to reveal some of the most productive cropland in the Corn Belt.

With the loss of wetlands, we have also lost the diversity of wildlife that wetlands host and we have lost the ability those wetlands to reduce non-point source pollution. The water quality benefits of wetlands are often overlooked. The major causes of nonpoint source pollution impairment in the Sandusky Bay include organic enrichment, dissolved oxygen depletion, habitat alteration, flow alteration, and siltation. Siltation is a major concern with 235-700 metric tons of sediment annually loaded to this watershed. Compared to 6 other major Ohio rivers, the Sandusky River is highest in suspended solids, according to Sandusky River Watershed Coalition's summary reports. Sediment plums from the river have been repeatedly photographed. Without wetlands and other best management practices to aid in the flood water storage, groundwater recharge, and filtering ability, non point pollution continues to be a problem in the bay and Lake Erie. Wetlands have been documented to remove 80% of nitrates, 92% of phosphorus, and 90% of coliform bacteria passing through them. They are also functioning to filter sediments and dissipate pesticides from the water. A good summary of the wetland water quality benefits mentioned here is the *Beyond the Pipe* report produced by Ducks Unlimited Canada (www.ducanada.org). A variety of before and after photos from restoration projects throughout the Sandusky river watershed will be displayed showing the improved water clarity in restored sites.

The Seneca SWCD/ NRCS office and our conservation partners work with clients daily to educate them on federal, state, and local programs available to help with the financial burden of restoring wetlands. Contract terms range to permanent easements in the Wetlands Reserve Program, to 30 year contracts in CREP, 20 year contracts in ODNR-DU programs, to 10 year contracts in continuous CRP and Habitat For Healthy Water Program grants... Most of these programs include at least 50% cost-sharing to the landowner or greater, while some also offer rental and bonus payments dependent on number of years enrolled into the program.

In order to restore an area back to its full wetland potential, there are many facets to consider including soil type, hydrology, watershed, current vegetation, invasive species

concerns, and various types of restoration designs dependent upon these site conditions. Potential sites can sometimes be easily identified after a spring rain as the hydric soils tend to retain the water and make these areas difficult to access with farm equipment. Other inland sites may simply be bowl shaped depressions that are not so easily identified without the use of a soils survey or test hole data. All sites are fully evaluated by biologists or NRCS/SWCD technicians to gain the best design knowledge possible including topographical surveys, AutoCAD analysis, permits submissions, construction management, and follow-up management care for the landowner to follow. Basic restoration techniques include breaking or rerouting tile, excavating depressions to create macrotopography, and building low level berms with shallow slopes to pool water. Amazingly, hydric soil sites do not have to be seeded as with only the addition of water, wetland vegetation germinates naturally within a few months from the natural seed bank that has been laying dormant in the soils. Once this vegetation starts, diverse bird, insect, mammal, amphibian and reptile communities begin to return to the site. With the successful installation of grassland buffers around the wetland, the area should also be able to host nesting sites for wildlife also.

In conclusion, landowners want programs and technical advice to restore wetlands both in coastal areas and inland sites upstream on the Sandusky River. There are various conservation partners working collaboratively to assist with restoration techniques to assure the area reaches its full potential for both water quality and wildlife values. The wetland water quality values are often overlooked. More research needs to be conducted to better understand the full functional values of wetlands. Partnerships are key to accomplishing common wetland goals, and continued collaborations on grants and programs will continue to improve the quantity and quality of wetlands in our state.