BWSR outlines voluntary buffer improvement options

Two years after the final implementation deadline for Minnesota's riparian buffer law, the Minnesota Board of Water and Soil Resources (BWSR) is working to help landowners sustain their buffers for long-term water quality and land management benefits.

In summer 2020, BWSR released Building Better Buffers, a series of five fact sheets centered on voluntary options and advice for landowners looking to maintain or improve their buffers. Topics include improving buffers for increased water quality, enhanced habitat or forestry, plus ideas for buffer maintenance and options for alternative practices.

In 2015, the Minnesota Legislature passed a law requiring perennial vegetative buffers of up to 50 feet along lakes, rivers and streams, and of 16.5 feet along ditches. Riparian buffers help filter out phosphorus, nitrogen and sediment, and are an important conservation practice for helping to keep water clean. Data from the Minnesota Pollution Control Agency show that buffers are critical to protecting and restoring water quality and healthy aquatic life, natural stream functions and aquatic habitat.

The deadline for implementing buffers on public waters was Nov. 1, 2017. The implementation deadline for public ditches was Nov. 1, 2018.

Buffer implementation is strong statewide. Compliance on public waters exceeds 99%. Compliance on all waters is over 98%.

"The success we've seen in implementation is thanks to the landowners and soil and water conservation district staff who have done the heavy lifting to improve water quality statewide," said Tom Gile, BWSR resource conservation section manager.

With buffers in place throughout the state, BWSR and SWCD staff can now focus on providing technical assistance to landowners to maintain their buffers or enhance them for a specific use.

The following summarizes options outlined in the Building Better Buffers series.



From left: *Forested buffers are managed mainly for conservation benefits, but can also be used to produce a harvestable fruit or nut crop. Landowners can plant cool-season grasses such a wheatgrass and Canada wild rye in their buffers to enhance pheasant habitat. Mowing and haying are one option for buffer maintenance.* **Photo Credits:** BWSR

Buffers for wildlife

Buffers can provide critical habitat to a range of wildlife such as deer, pollinators, fish and game birds. Wider buffers planted with a larger diversity of species generally provide more benefits. An effective buffer for wildlife habitat will provide food, shelter, clean water, and breeding and nesting sites. Buffers can act as conservation corridors that connect larger areas of habitat and provide cover.

Landowners can target native plant selections to attract certain species. For example, pheasants benefit from cool-season grasses with thick stems, such as wheatgrass, Canada wild rye, native bromes and sedges. Deer are more likely to be attracted to wide buffers with a mix of hardwoods, brushland and grassland that is adjacent to cropland or pasture. Pollinators need high-value pollen and nectar plants, and access to clean water.

Buffers for water quality

The primary intent of the buffer law is to improve water quality. Buffers expanded beyond the width requirements of the law can offer greater benefits. Wider buffers are better at trapping sediment and nutrients, and reducing erosion. Parcels with steeper slopes or poorly drained soils need wider buffers to adequately treat runoff.

Vegetation plays a central role in water quality improvement. Native perennial vegetation can reduce flow velocity, filter runoff, take up nutrients, stabilize soil and increase soil organic matter. Trees and shrubs planted along riparian corridors can decrease water temperatures, which helps aquatic life. Deep-rooted native prairie plants with stiff stems – such as big bluestem, Indian grass and switchgrass – are effective at slowing surface runoff and intercepting subsurface flow.

Forested buffers

A forested buffer is an area adjacent to a stream, lake, river, ditch or wetland that contains a combination of trees, shrubs and other perennial plants. Forested buffers are managed primarily to provide conservation benefits but can include trees and shrubs that produce a harvestable crop.

In a forested buffer, the area closest to the waterbody provides bank stability and shade, which lowers water temperature. The area farther away from the slopes can be managed for fruit- and nut-bearing trees and shrubs, and can hold large trees for wildlife habitat and cover.

Trees, shrubs and forbs within a forested buffer can yield products including wood from high-value species such as walnut, oak and maple; plants used for medicinal and botanical purposes; food such as berries, nuts and mushrooms; and specialty woods.

Buffer maintenance

Maintenance helps to ensure vegetation establishes successfully and buffers function as intended. A maintenance plan should consider landowners' desired outcome, time, resources and parameters of any conservation-related contracts. If a landowner is receiving a payment for a conservation benefit, some maintenance options may be prohibited.

Buffer maintenance options include mowing and haying, conservation grazing and weed control. In-field conservation practices such as contour farming, no-till and reduced tillage can help control erosion as part of a broader maintenance plan.

Buffer alternative practices

Alternative practices produce water quality benefits comparable to a full-width buffer. The use of alternative practices is determined in consultation with local SWCDs, landowners and drainage authorities. BWSR recommends six alternative practices, including filter strips, grassed waterways and participation in the Minnesota Department of Agriculture's Minnesota Agricultural Water Quality Certification Program (MAWQCP), which aims to improve water quality with a whole-farm approach.

Another resource for landowners considering alternative practices is the Decision Support Tool, developed by the Minnesota Corn Growers Association and the University of Minnesota Extension to recommend an appropriate buffer width for a specific parcel. Based on scientific research, the tool recommends an appropriate buffer width by considering site specifics and best management practices. Find the Decision Support Tool on BWSR's website.