PRIOR LAKE
SPRING LAKE
WATERSHED DISTRICT

Fact Sheet:

Streambank erosion is a natural process, but excessive erosion can cause problems for landowners and for the environment. A well-functioning stream will balance its water flow with its shape and will wind as needed. Meanders and plants growing on the banks can help reduce the erosive energy of a stream and keep sediment in place. Streambank stabilization includes human-induced practices, which assist in protecting the soil and water resources.

Steam meandering (winding) is a natural process which reduces water energy, and therefore erosion. By allowing streams to meander, we promote their longevity and protect property surrounding the stream.
Photo credit: Simon Ledingham.

FAST FACTS

- ***You can stabilize soil on your property.***

  Individual urban or rural landowners, can protect their property by installing stabilization practices. PLSLWD staff would be happy to help you get started.

- ***Permits may be required.***

  If you are working in or around water, you will probably need a permit from a local, state, and/or federal agency. Every situation will be different.

- ***Buffers Work.***

  There are many options for stabilizing streambanks, each with its own benefits and costs. However, a buffer is considered the most cost-effective long-term solution for stabilizing streambanks.

What Causes Streambank Erosion?

Any change in the watershed surrounding and feeding the stream can upset the balance of water energy and stream shape. The three major causes for increased streambank erosion are:

- **Land Use Changes.** When we develop land, changing it from vegetated surfaces to streets, houses, and sidewalks, we reduce the amount of water that can enter the ground. This water gets transported through our sewer systems into local waterbodies such as streams and lakes. As a result, the streams become deeper, move faster, and have more erosive energy.

  This is also a problem when we convert natural areas into agricultural land. Drain tiles transport water from fields, just like sewer drains, and removing vegetation next to a stream exposes the soil to erosion.

- **Dams.** Changing water levels and lack of streamside vegetation leads to increased erosion around dams. Additionally, sediment is often trapped by dams, which blocks downstream dispersal of seeds, and affects which plants grow downstream.

- **Straightening streams.** In the past, many streams were channeled (straightened) to move water more quickly through flood-prone areas. Unfortunately, this design can cause increased erosion, because the straight line intensifies water energy. Meanders reduce the erosive power of water, so removing them can lead to severe erosion problems downstream.

Vegetation surrounding streambanks can limit erosion and protect streams. While some erosion is natural, too much can cause problems for landowners and the environment.

The PLSLWD offers cost shares for landowners who want to install a buffer on their property to protect streambanks or lake shores. To get apply, visit our Cost Share page at: www.plslwd.org/cost-share/

What is Streambank Stabilization?

Streambank stabilization includes a suite of options to protect the soil and water. Each option has its own advantages and disadvantages, and oftentimes the more long-term solutions will cost more money. Some streambank stabilization options include:

- Changing land use or management
- Planting vegetation along a streambank
- Reshaping the streambank slope to make it less steep
- Installing bank cover (i.e. bundles of brush, roots, trees, or rocks)
- Redirecting water with a pier or landing
- Relocating the stream to restore its function

Map of the Prior Lake Outlet Channel (PLOC). The PLOC receives water from Lower Prior Lake and the surrounding watershed and discharges into the Minnesota River. The District will be completing streambank stabilization on the PLOC in 2017.

Buffers to the Rescue!

A buffer is one of the most cost-effective long-term protection practices. Buffers are strips of undisturbed vegetation at the edge of a stream, lake, or wetland. In addition to protecting banks, buffers have many benefits, including:

- Slowing floodwaters
- Blocking flood debris from entering fields
- Filtering overland pollutants
- Providing wildlife habitat

Buffers can be placed adjacent to streams on urban or rural lands. They protect banks from erosion and filtering overland pollutants which would otherwise enter the water. *Photo Credit: MPCA.*

Streambank Stabilization on the Prior Lake Outlet Channel (PLOC)

The Prior Lake Outlet Channel (PLOC) is a stormwater conveyance channel that transports water from Prior Lake and the surrounding watershed to the Minnesota River floodplain. A major flood occurred in 2014, discharging a great volume of water into the Outlet Channel. This volume, when coupled with the duration of rainfall events, caused extreme water velocity and damage throughout the Outlet Channel. Trees fell, sediment was distributed, and over 20,000 feet of soil erosion occurred.

The Prior Lake-Spring Lake Watershed District has been working with the Federal Emergency Management Administration (FEMA) and received approval for federally-financed repairs. Repair work includes:

- Tree and woody debris removal (completed June 2016)
- Culvert Replacements
- Sediment Removal
- Streambank Stabalization

PRIOR LAKE - SPRING LAKE
WATERSHED DISTRICT

4646 Dakota Street SE, Prior Lake, MN 55372
Phone: 952-447-4166 ♦ Email: info@plslwd.org

Mission: to manage and preserve the water resources of the Prior Lake-Spring Lake Watershed District to the best of our ability using input from our communities, sound engineering practices, and our ability to efficiently fund beneficial projects.