



Minnesota is home to some fine trout streams. Many streams are spring-fed and run cold and clear, even in the hottest part of summer. Our North and North-Central streams are known for growing brook trout, brown trout, rainbow trout, and splake trout. Some of these streams are a destination for anglers from throughout the region.

The quality of a trout stream depends on suitable streambed geology, adequate groundwater, and compatible land use in the watershed. A good trout stream is a lucky mix ingredients and worth an extra measure of our attention and protection. Trout streams are considered delicate ecosystems because trout themselves are fragile fish that require very specific water conditions to survive, making even small disturbances in their habitat potentially harmful to their populations; this includes factors like water temperature, quality, and the

Forestry & Trout Streams

Streams teeming with fish are a result of forests filled with trees

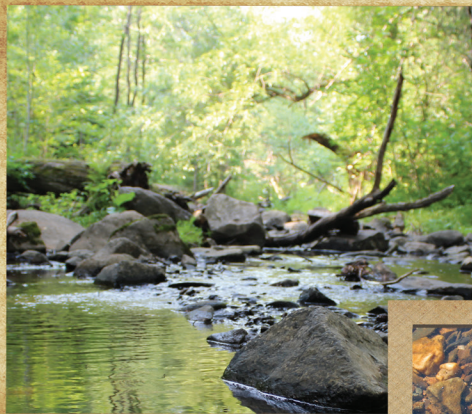
streambed composition, meaning careful management is needed to maintain healthy trout streams. Native trees, shrubs, and grasses are essential to the protection of trout stream banks.



What makes a good trout stream?



Strong forest root systems stabilize the streambanks.



Intact forested riparian areas provide shading to keep water temperatures cool.



Downed trees and boulders create complex habitats for different fish species and sizes.



Clean gravels are crucial for spawning trout. They provide a suitable substrate for female trout to dig nests and deposit their eggs, also allowing for proper water flow and oxygenation to reach the eggs during incubation.

Trout need native trees, shrubs, and native grasses.

Without the protective cover of forests and native vegetation, soils become highly susceptible to erosion. Heavy rains would wash soil from the uplands into valleys and stream channels, leading to the build-up of large amounts of sediment along riverbanks and floodplains.

Other factors of a trout stream



Gradient

The gradient, or steepness, of the streambed influences the swiftness of the current. Current continually moves food through the stream system and mixes oxygen into the water. Slack water can be too warm to support trout. Conversely, continuous cascades and rapids make for poor trout habitat. Between these extremes, however, trout can flourish, depending on other characteristics of the stream.

Streambed

The makeup of the streambed, or "substrate," depends on the geology of the region and the velocity of the current, which sorts fine materials from coarse. A mixture of boulders, cobble and gravel is best for trout and the invertebrates on which they feed. Gravel that is gently bathed by current provides spawning areas. Boulders and coarse substrate break the current, providing places a trout can rest while waiting for food to drift by. Deep pools and undercut banks provide refuge during sunny days and low water. Riffles are food factories, and trout often move into them, especially in low light, to actively feed.

Cool water, stable flows and oxygen

Temperature, more than any other factor, distinguishes trout streams from those inhabited by bass, walleye, northern pike, catfish and other species. Trout need cold water and cannot tolerate temperatures above 75 degrees for long.

Alkalinity, hardness and pH

These characteristics influence productivity—not only of trout, but also of invertebrates. Generally, the best trout streams are hard (plenty of dissolved minerals) and alkaline (dissolved calcium carbonate) and have a pH of 7.5 to 9 (not acidic).

Food pyramids

Moving water does not support the abundance of microscopic plant life that still water does. Consequently, compared to lakes, streams depend less on drifting phytoplankton for their food base, and more on leaves, stream side plants and other plant materials that fall or wash in from the nearby land. Productive streams support lush growths of aquatic plants.



Forming a plan . . .

Conservation management plans

A management plan can help you get the most out of your property and maximize the potential benefits for any trout streams connected to your land. Your local SWCD can help develop a property management plan.

For woodland properties, a Forest Stewardship Plan written by a certified plan writer, such as your local SWCD, the DNR or a private forest planner, qualifies landowners to apply for local or state tax-relief and incentive programs. To qualify for one of these programs, a landowner must generally have at least 20 qualifying acres of land.

The DNR's Forest Stewardship Program helps landowners finalize their own goals and prepare a voluntary management plan for their woodland. This Woodland Stewardship Plan, when written by a certified writer, is a non-binding, written document that lists your land's potential, what you want to accomplish, and specific actions you can take to accomplish those goals within a given time-frame.

**Want to improve trout stream habitat?
Contact us to start on a
Conservation Management Plan**

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HUBBARD COUNTY
Soil & Water Conservation District

