



# Miller Mail

Updates on the Development of the Miller Creek Total Maximum Daily Load Plan

**Summer is here** and that means the air temperature is finally warming up, much to the delight of our sun-starved skin and empty lonely parks and beaches! Warm summer temps are making those cold northern lakes and streams more comfortable for tubers and skiers, but they are also making our native trout quite **UN**comfortable. As we've shared in previous newsletters and meetings, the native brook trout population in Miller Creek can't survive water temps higher than 75° F. Brook Trout aren't the only fish that are picky about the temperature setting—different species of fish prefer different water temperatures. For example, sunfish, bass, & walleye prefer warmer water (ever caught a bucket full of sunnies up at the cabin on a warm summer day?) while Brook Trout, a native Minnesota species, prefer the cold, clear waters of Miller Creek and the myriad other streams that run through Hermantown, Duluth and other north shore communities on their way down to Lake Superior. In fact, Brook Trout prefer even colder water than other trout species - temperatures between about 52° F & 61° F - so when the creek warms up from sunlight, stormwater inputs, or other factors, Brook Trout can become stressed and even die. During these warm summer days, stretches of Miller creek that have been stripped of shade-providing trees and shrubs will warm up and send warmer water downstream, making our trout friends quite ornery!

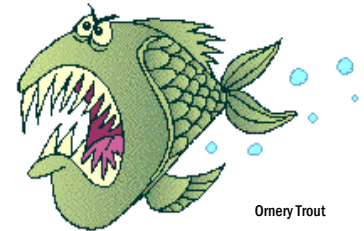


Image source: <http://lesanimos.blogs.sapo.pt/arquivo/>

## **Stream temperature is determined by many factors, including:**

- The air temperature.
- The amount of light hitting the water - Clearing streamside (riparian) vegetation allows more sunlight to reach the stream, warming the water.
- Water depth - Shallow water is warmer than deeper water. In areas like those up by the Miller Hill Mall, there are a lot of impervious surfaces (areas that don't allow water to soak into the ground). As a result, there is less groundwater to feed into the creek, resulting in shallower water levels.
- How dirty the water is - Have you ever seen a really muddy-looking stream after a rain storm? Dirty water absorbs more heat from the sun. Erosion caused by heavy rains can lead to dirty stream water.
- How much groundwater or natural cold springs are feeding the stream.
- Types of land surfaces in the watershed - Have you ever been walking on a parking lot on a hot summer afternoon when it started to rain? Did you notice how steam rose from the parking lot when the raindrops hit it? Impervious surfaces, like parking lots, get very hot from the sun. On a typical 80° summer day, pavement temperatures can be well above 100°! Rain that lands on these hot surfaces runs right to the nearest stream causing stream temps to rise.

## What's happening with the Miller Creek TMDL Study?

The Miller Creek TMDL study is in full swing. This summer, SWCD staff are conducting the second of three years of monitoring that are being done in order to determine the Total Maximum Daily Load that will be allowed for temperature in Miller Creek. The Technical Advisory Group met again this past spring to discuss any changes to the study's methodology and to share information that may be helpful to the study. Also, businesses were formally invited into the process through an invitation to an informational luncheon. Although there was not enough interest to hold the luncheon, several Miller Creek business people who wanted more information met one-on-one with SWCD staff to learn about the process and to provide input.

### What you can do to help:

- If you live on a creek, keep or plant trees and shrubs along the stream to provide shade.
- Reduce runoff from your property by preventing water that runs off your driveway or rooftop from going directly into the sewer or street.
- Collect rainwater from your roof in rain barrels, plant a rain garden in your yard, and make sure your downspouts are draining onto pervious areas, such as your lawn, rather than onto your driveway. This will allow more water to infiltrate, recharging groundwater tables.
- Don't sweep or dump dirt, lawn clippings, or anything else into the gutter or storm drains on your street. Everything we put in the gutter ends up in a creek, & eventually Lake Superior.

## MILLER CREEK WORD FIND

M	B	L	W	E	T	L	A	N	D	S	M	T	G	V	L
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E	A	V	C	I	M	R	N	R	E	D	K	S	V	F	K

### 1.) Miller Creek

### 2.) Miller Hill Mall-

The mall area was named for Miller Creek, which runs through the mall area.

### 3.) Brook Trout-

You can fish for Brook Trout in Miller Creek.

### 4.) Impairment-

Various pollutants can cause streams to become "impaired" or, not as healthy as they should be.

### 5.) Study-

A Total Maximum Daily Load (TMDL) Study, also one component of what is sometimes called a "water clean-up plan," is being done on the Creek right now by the South St. Louis SWCD.

### 6.) Monitoring-

A major component of the TMDL Study is stream monitoring.

### 7.) Cold Water-

Brook Trout like cold clear water. When the water is too warm, they can die.

### 8.) Wetlands-

Miller Creek begins its journey to the Lake in wetlands in Hermantown.

### 9.) Lincoln Park-

Miller Creek comes rushing through Lincoln Park before it empties into the St. Louis River at 26<sup>th</sup> Ave. W.

### 10.) Shade-

Shade helps keep the water temperature of the Creek cool for the Brook Trout. Over the years, many groups have planted trees along the Creek.