



Smith Creek  
Water Quality Monitoring Group

## **Visual Stream Diagnosis**

“How can I tell what is wrong with my stream?” Just like diagnosing a person or pet that is sick, you take all the symptoms and signs together and try to hazard a guess. These tables are to help you know what kind of problems you might have in your area and the obvious signs of those problems. Read each table several times allowing you to get a feel for threats to streams. You may want to take these tables with you when you visit your stream.

### **Characteristics of Surrounding Area Draining Into Stream**

Forests	Check for sedimentation (cloudy or muddy water) from erosion caused by logging, road building, or any clearcutting.
Farmland (crops, pastures, feedlots)	Check for excessive algae growth caused by fertilizer or manure draining into stream. Also watch for sedimentation caused by poor farming practices and possible pesticides.
Urban Settings	Urban run-off can carry with it all sorts of pollution including metals, salts, chemicals, and oil. Insect counts may indicate the presence of one of the above, but chemical analysis may be needed to pinpoint it.
Industries	Because the variety of by-products of industry, the stream should be tested for both organic and toxic substances. Keep an eye out for excessive algae and absence of animal life, such as insects and fish.
Sewage (treatment plants or pipelines)	Look for organic pollution indicated by absence of some aquatic organisms and/or extreme abundance of others.
Mining	Check for sedimentation and acid drainage. Acid drainage can be detected by a low pH. A yellowish-orange deposit may be present on bottom.
Construction	Land disturbing activities such as development and road building are the leading cause of erosion and sedimentation, so watch for cloudy or dirty water.

Residential (homes)                      Lawn fertilizer, detergents used for washing clothes or cars, oils drained from autos and grass clippings are common forms of residential pollution. Keep an eye open for excessive algae growth, white foam greater than 3 inches high, color sheet on surface or absence of organisms in select counts.

### **Physical Indicators of Water Pollution**

#### *Color of Stream*

Green                                      If the stream is excessively green, this could be an indication of nutrients being released into stream, feeding algae.

What To Do: Check watershed for possible fertilizer or manure run-off areas.

Orange-red                              Orange to red deposits could be cause by acid drainage.

What To Do: Check watershed for mining and watch for industrial waste draining into the stream.

Light brown (muddy or cloudy)                      Sedimentation deposition caused by erosion.

What To Do: Search upstream for disturbed ground left open to rainfall. Remember, if the source is a drainpipe, don't stop there.

Yellow coating on stream bed                      Indication of sulfur entering the stream.

What To Do: Check upstream for industrial waste or coal-using operation.

Multi-color reflection                      Indicates oil floating in stream.

What To Do: Check closely upstream for source – waste oil may have been dumped along the stream.

Yellow-brown to dark-brown water                      Acids released from decaying plants

What To Do: Naturally occurs each fall when dead leaves collect in the stream. Also common in stream draining marsh or swampland.

White, cottony masses on stream bed                      Could be "sewage fungus"

What To Do: The presence of this growth indicates sewage or other organic pollution.

### **Stream Odor:**

Rotten egg odor	Indicates sewage pollution. Odor may also be present in marsh or swampy land.
Musky odor	May indicate presence of untreated sewage, livestock waste, algae or other conditions.
Chlorine	This may mean that a sewage treatment plant is over chlorinated their effluent.
Chemical	May indicate the presence of an industrial plant or the spraying on nearby agricultural land.
Foaming	When white and greater than 3 inches high, it may be due to detergents.  What To Do: Check upstream for industrial or residential waste entering the stream.

### **Fish as Biological Indicators of Water Quality**

Odd Behavior	Jumping out or non-responsive action of fish may indicate toxic substance in the stream.  What To Do: Chemical analysis is needed to find the source, but check upstream to see where it begins.
Absence of Fish	This is a good indication of a badly stressed stream. The cause could be urban run-off, sewage seepage or toxics entering the stream.  What To Do: Chemical analysis is needed to find the source. Again, check upstream to find where it begins.