Stream Characteristics

Water Appearance

Clear – colorless or transparent

Milky – cloudy-white or gray, not transparent, might be natural or due to pollution

Foamy – might be natural or due to pollution, generally detergents or nutrients (foam that is several inches high and does not brush apart easily is generally due to some sort of pollution)

Turbid – cloudy brown due to suspended silt or organic material

Dark brown – might indicate that acids are being released into the stream due to decaying plants

Oily sheen – multicolored reflection might indicate oil floating in the stream, although some sheens are natural

Orange – might indicate acid drainage

Green – might indicate excess nutrients being released into the stream

Water Odor

No smell or natural odor

Sewage – might indicate the release of human waste material

Chlorine – might indicate over-chlorinated sewage treatment/water treatment plant or swimming pool discharges

Fishy – might indicate the presence of excessive algal growth or dead fish

Rotten eggs – might indicated sewage pollution (the present of hydrogen sulfide from anaerobic conditions

Temperature

Place thermometer in water, read temperature with thermometer tip under water. When checking the water temperature, make sure the temperature has stabilized before reading. Be aware that if the thermometer has been left in a hot car or in the sun, the temperature will take longer to stabilize.

Land Uses

Clearly having an impact *(2)* – This statement means that the land use is having some sort of detrimental effect on the stream.

Some examples

Land use	*Present (1)*	*Clearly having an impact (2)*
single family housing	grass/riparian area along bank	rip rap along bank, no vegetation
paved roads/bridges	typical lawn	Can tell it is very fertilized, many aquatic plants present along that portion of stream bank
unpaved roads		water runoff directly entering stream–road is so close to stream it will become eroded and collapse into stream
hiking paths		erosion caused by storm water, can tell water is directly entering stream
grazing land	cows present, but fenced	cows not fenced and causing damage/erosion

Stream Bottom

The material on the stream bottom. Substrate types include:

Silt/clay/mud – This substrate has a sticky, cohesive feeling. The particles are fine. The spaces between particles hold a lot of water, making the sediments behave like ooze.

Sand *(up to 0.1 inch)* – A sandy bottom is made up of tiny, gritty particles of rock that are smaller that gravel but coarser than silt (gritty up to pea size).

Gravel *(0.1 to 2 inches)* – A gravel bottom is made up of stones ranging from tiny ¼ inch pebbles to rocks of about 2 inches (fine gravel – pea size to marble size; coarse gravel – marble to tennis ball size).

Cobbles *(2 to 10 inches)* – Most rocks on this type of stream are between 2 and 10 inches (between a tennis ball and a basketball).

Boulders *(greater than 10 inches)* – Most of the rocks on the bottom are greater than 10 inches (between a basketball and a car in size).

Bedrock – This kind of stream is solid rock (rocks bigger than a car).

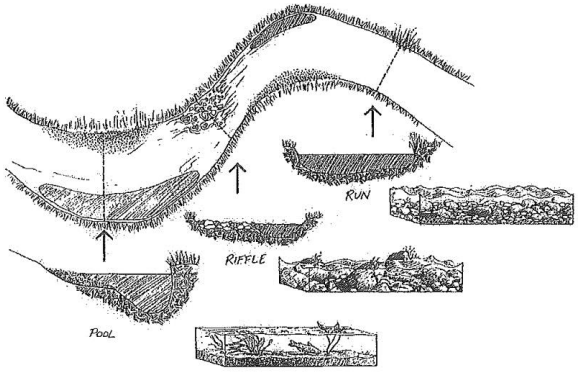
Pools, Riffles, Runs

A mixture or flows and depth creates a variety of habitats to support fish and invertebrate life.

Pools – deep with slow water

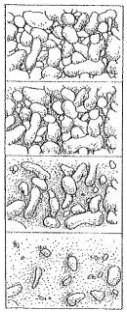
Riffles – shallow with fast, turbulent water running over rocks

Runs – deeps with fast water and little or no turbulence



Embeddedness

The extent to which rock (gravel, cobbles, and boulders) are sunken into the silt, sand or mud of the stream bottom. Generally, the more the rocks are embedded, the less rock surface or space between rocks is available as habitat for macro-invertebrates and for fish spawning. Excessive silty runoff from erosion can increase a stream's embeddedness. To estimate embeddedness, observe the amount of silt or finer sediments overlying, in between, and surrounding the rocks.



A representation of a rocky bottom stream embedded with sand and silt. As silt settles, the rocks are filled in and becomes more embedded.

Bank Cover

Streamside vegetation – Determine the extent and quality of the stream's riparian zone. This information is important at the stream bank itself and for a distance away from the stream bank. For example, trees, bushes, and tall grass can contribute shade and cover for fish and wildlife and can provide the stream with needed organic material such as leaves and twigs. Lawns indicate that the stream's riparian zone has been altered, that pesticides and grass clippings are a possible problem, and that little habitat and shading are available. Bare soil and pavement might indicate problems with erosion and runoff. Looking downstream, provide this information for the left and right banks of the stream.

Evergreen trees *(confers)* – cone-bearing trees that do not lose their leaves in winter

Hardwood trees *(deciduous)* – in general, trees that shed their leaves at the end of the growing season

Bushes, shrubs – conifers or deciduous trees less than 15 feet high

Tall grass, ferns, etc. – includes tall natural grasses, ferns, vines and mosses

Lawn – cultivated and maintained grass

Boulders – rocks larger than 10 inches

Gravel/cobbles/sand – rocks smaller than 10 inches, sand

Bare soil

Pavement structure – any structures or paved areas, including paths, roads, bridges, houses, etc.

EPA Streamwalk Notes

EPA Streamwalk was initially conducted quarterly, but since summer 1999 has been completed once a year in the last summer or early fall. Below are listed the attributes for each score:

% Score	*Habitat Quality Category*	*General Attributes*
>90%	Excellent	Comparable to the best situation to be expected within and ecoregion. Excellent overall habitat structure conducive to supporting healthy biological community.
75-88%	Good	Habitat structure slightly impaired. Diverse instream habitat generally well developed. Some degredationof riparian zone and banks. A small amount of channel alteration may be present.
60-73%	Fair	Loss of habitat compared to reference. Habitat is a major limiting factor to supporting a healthy biological community.
<58%	Poor	Severe habitat alteration at all levels.