

## Teacher's Guide to Streamwalk Survey

### Introduction

The Environmental Protection Agency (EPA) Region 10 office in Seattle was asked by several groups and agencies to create a standardized, easy to use screening tool for monitoring stream corridor health. We responded by developing a Streamwalk Survey. We decided to call it Streamwalk.

Streamwalk is designed to be used by people who are interested in learning more about their streams and rivers. We anticipate the data people collect will be used as a screening tool to focus attention on areas that might be of concern, and to help direct further evaluation by experts. If all goes as we hope, and enough good data is collected, we should be able to make comparisons and evaluate trends, over time, for rivers and streams.

Our objectives in developing Streamwalk are to:

- develop a screening tool to identify potential problem areas
- provide a standardized data collection method so regional and trend comparisons can be made
- focus experts' limited resources on suspected problem areas
- encourage citizen commitment to protecting streams
- educate people about the relationship between streams and watersheds

The following is a recommended list of items to have along on your Streamwalk:

- Photocopies of topo map of stream to be walked
- Comfortable rubber boots
- Snag and thorn-proof clothing that is appropriate for the weather
- Clip board with waterproof cover
- Streamwalk data forms
- Two pencils
- Folding ruler or tape measure
- Camera in waterproof bag
- Whistle
- Extra clothes in a waterproof bag
- Small First Aid kit

### Documentation

#### *Survey data sheets*

Please keep your original data sheet and topo map. You may want to use the information you have generated to note trends and changes. The information may also be of use to your local environmental organization or government.

*Now it's Time to Begin:*

### The Streamwalk Site Survey Data Sheet

#### Instructions

Below are directions on how to fill out the Streamwalk Survey Data Sheet. Please read these thoroughly before you begin your Walk.

### Documentation

#### 1. **Weather**

The concern with weather relates to amount of rainfall which potentially can affect flow, clarity and amount of water in a stream. Weather/rainfall reports are available in the daily newspaper or by calling the local weather service. Definitions of weather conditions established by the Weather Service are:

**Rain** – 1/3" in 24 hours – light steady rainfall.

**Showers** – 1/3" – 1" in 24 hours, intermittent and variable in intensity.

**Storm** – 1" or more rain in 24 hours, usually accompanied by winds.

## 2. **Stream Description**

This information will give a description of the stream water at your site. Please indicate if your response is estimated or measured. Remember, it is best to estimate if taking measurements will disturb habitat, require that you wade in deep water or disturb stream banks. Do not attempt to cross in high flows. If it feels even mildly unsafe, do not try it at all. Remember, this is a screening tool, not the last word.

### **Water Clarity**

The clearness of the water is observed to determine if sediment pollution is entering the stream. Cloudy or different colored water can be a result of natural processes or of land use in the surrounding watershed. Sediments can adversely affect habitat conditions such as food, health of fish, and breeding environment for macroinvertebrates. In some areas grey or white water can be a result of natural processes such as glacial sources for streams.

## 3. **Water Flow: Pools, Riffles and Runs**

The variety of flow in relation to depth creates habitat to support fish and invertebrate life. This variety can be seen by looking for pools and riffles. Pools are deeper than adjacent areas. They provide feeding, resting, and spawning areas for fish. Riffles and/or runs are flows swift in comparison to surrounding areas. Riffles are shallow and fast water, runs are deep and fast water and pools are slow and deep water.

## 4. **Stream Bottom (Substrate)**

Indicate the most common type of material on the stream bottom.

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

**Sand (up to .1inch):** Sand is made up of tiny particles of rock.

**Gravel (.1 – 2 inches):** A gravel stream bottom is made up of stones ranging from tiny quarter inch pebbles to rocks of about 2 inches.

**Cobbles (2 – 10 inches):** The majority of rocks on this type of stream bottom are between 2 and 10 inches. The average size is about the size of a grapefruit.

**Boulders (greater than 10 inches):** Most of the rocks on the bottom will be large, greater than 10 inches.

**Bedrock:** This kind of stream bottom is solid rock.

## 5. **Streamside Vegetation**

A description of the presence and type of streamside vegetation provides much information about the stream due to its important role in molding the stream environment. Vegetation acts as a filter for sediment and pollution coming in from nearby land activities. It provides habitat for the many creatures that are dependent on and influence the stream. Branches, logs and leaves enter the stream from this region. **Vegetation also provides shade, which keeps the water cool.** On the data sheet mark all the categories that apply.

**Conifer:** A cone bearing, evergreen tree or shrub

**Deciduous:** A tree which sheds it's foliage at the end of the growing season.

**Small trees or Shrubs:** Either conifers or deciduous bushes less than 20 feet high.

**Grasses:** Any of numerous plants with narrow leaves, jointed stems and spikes or clusters of inconspicuous flowers.

**Invasive:** Note any non-native invasive species such as Japanese Knotweed, Himalyan Blackberry, etc.

## 6. **Width of Natural Streamside Corridor**

The streamside corridor, riparian area or zone of influence are terms that describes the **natural** vegetated area on either side of the stream. It, along with the stream, forms the habitat of the river. It includes vegetation that shades the water, holds the soil in place, adds nutrients to the stream in the form of leaves and during flooding, and provides habitat for streamside wildlife. Estimate as best you can width of the corridor at your site. **Indicate with an "x" on the bar graph the width. Note: Left and right are based on looking down stream.** If the vegetation is pasture, lawn barked or landscaped, this is not a natural state so mark "o".

**7. Overhead Canopy (Stream Cover)**

This is the amount of vegetation that overhangs the stream. It focuses on several important values of streamside vegetation: offering protection and refuge areas for fish and other organisms, shading the stream and keeping the water cool, and providing "launching" areas for insects that might fall into the river. Estimate as best as you can, about how much of the river is overhung by vegetation, whether it be grasses, shrubs or trees. Please check the category that is appropriate for the current condition of your site. For example, if in the winter there are no leaves on the trees in your segment you might check 0-25%. However, in the summer when the trees have leaves, you might check 50-75%.

**8. Presence of logs or woody debris in stream**

Logs and woody debris (not twigs and leaves) can slow or divert water to provide important fish habitat such as pools and hiding places. So please mark the general amount of logs and woody debris in the stream.

**9. Stream Conditions: Stream Banks**

**Natural plant cover degraded:** Indicate if streamside vegetation is trampled, missing, or replaced by landscaping or cultivation.

**Banks collapsed/eroded:** Note if banks or parts of banks have been washed away or worn down.

**Banks artificially modified:** Indicate if banks have been artificially modified by construction or placement of rocks, wood or cement supports or lining.

**Debris/Trash adjacent to stream:** Indicate if human made materials are present.

**10. Stream Channel**

**Mud/silt/sand on bottom/entering stream:** Excessive mud or silt entering the stream and clouding the water can interfere with fishes' ability to sight potential prey. It can also clog fish gills and smother fish eggs in spawning areas on the stream bottom. Mud/silt/sand can be an indication of poor construction practices in the watershed; where runoff coming off the site is not adequately contained. It can also be a perfectly normal occurrence, especially if, for example, a muddy bottom is found along a very slow-moving segment or wetland. Use your best judgment.

**Artificial Stream modifications:** Please note if the stream water has been dammed, dredged, filled, or channelized through culverts or if other large scale activities such as log removal are apparent.

**Excessive vegetation in stream (Algae/Canary Grass):** Evidence of algae (very tiny plants that can color the water green or can resemble seaweed can point to a problem such as an upstream source adding too much nutrient (fertilizer) to the water. This is your chance to point out litter problems: tires, hot water heaters, car bodies, and garbage dumps.

**11. Other**

**12. Adjacent land uses:**

Adjacent land use has a great impact on the quality and state of the stream and riparian areas. Enter a "1" if the land use is present and a "2" if it is **clearly** impacting the stream. If you cannot determine the type of housing, industry or development, please make your best estimate.

**13. Agricultural:**

**14. Roads/Pavement**

**15. Construction Activity**

**16. Observations: (fish, weather, recreational activities, odors, scum, etc.)**