

## **Background**

Scientists collect samples of macroinvertebrates using special nets with a 500 micrometer mesh size. They collect them in certain areas of streams called riffles. Riffles are characterized by having large rocks and or turbulent, fast flowing water. Once a scientist has a sample, he or she will sort the bugs in trays (like ice cube trays) and identify them to the order, family, genus, or species, depending on the expertise of the scientist. Once all the insects in the sample have been identified they are scored depending on how sensitive or tolerant they are to pollution.

In this activity, sensitive animals score a “3”, somewhat tolerant animals score a “2”, and tolerant animals score a “1”. This activity uses the presence/absence scoring method. If there is a mayfly, the score is “3”. If there are 12 mayflies, the score is still a “3”. The scores for the streams in this activity are roughly in line with actual observations by Clark County Water Resources staff. Animals that have a high tolerance for pollution will be found in many kinds of streams, and it is also ok for them to be found in healthy streams. A diversity of macroinvertebrates indicates a healthy stream.

## **Definitions**

**Point source pollution** is caused by a direct source such as a drainage pipe delivering polluted water into a stream.

**Non-point source pollution** is caused from several sources. Runoff from a rainstorm will flow into storm pipes and streams and may take with it fertilizers, soaps, leaky car chemicals, and other pollutants.

Both sources of pollution may cause nitrate and phosphate levels to rise and dissolved oxygen levels to drop. Sensitive macroinvertebrates require high levels of dissolved oxygen and are not often found in streams with high levels of pollutants.

A **watershed** is an area of land where all of the water drains to the same place, the lowest point. Here in Clark County, we live in the Columbia River watershed which is in parts of 7 states and two Canadian provinces. All of the water in this area drains to the Columbia River. Smaller rivers and streams are a part of this watershed as well. We can divide the Columbia River watershed into local watersheds such as the ones we are studying today.