Wenk Associates

Part 1: Stream Habitat Assessment

1.1 Lesson Overview

Lesson Summary

In this activity, students conduct a stream habitat survey and analyze the impacts of humans on the stream system. Before students go to their site, they should be familiar with the definition of a watershed.

If your students have not yet learned about watersheds, prior to conducting the Stream Habitat Assessment, you may wish to start with making a model of a watershed. Carleton College has instructions for making a watershed model. This could be done as a lab or as a demo, depending on the time you have available. Be sure to address the strengths and weaknesses of the model. For example, take into account the model's lack of vegetation or soil that could absorb or slow down water.

Estimated Time

High School: 1-2 45-min class periods
Middle School: 3-4 45-min class periods

Essential Questions

What do the abiotic and biotic components of our streams tell us about their quality?

Necessary Teacher Prior Knowledge

Habitat assessments are opportunities for students to identify quality problems and learn about stream ecosystems and environmental stewardship. During a habitat assessment, students will take measurements and do visual surveys of several biotic and abiotic features of your local stream. Students will use the scores from their measurements/surveys to determine an overall stream habitat score.

If you are not familiar with the features of stream habitats, the **1.2a Stream Physical Characterization** and **the 1.2b Habitat Assessment and Handbook** includes descriptions and importance of the different characteristics.

Habitat surveys may be conducted using various methods. The method suggested in this lesson is based on EPA and the Michigan Department of Environment, Great Lakes, and Energy (EGLE) habitat assessment methods. However, if you feel these are too in-depth/ advanced for your time and/or students there are other options available. Alternates include:

- **Michigan Clean Water Corps Stream Monitoring** (available at: micorps.net/stream-monitoring/stream-documents/). A manual and stream habitat assessment are available. The assessment is qualitative and does not provide an overall quality score at the end. However, it would be good for comparing sites and observing trends over time.
- **Michigan Tech University Stream Habitat Assessment** (available at http://techalive.mtu.edu/meec/module05/HabitatAssessment.htm.) This website is geared towards middle school and younger students.

Materials Needed

- 100m -measuring tape: at least one. You may also want smaller measuring tapes for each group.
- Thermometer
- Stream flow rate sensor or an orange
- Waders: only for students doing instream assessments
- Camera (if available)
- GPS Unit (if available)
- Phones for taking images & getting GPS Coordinates
- **1.2a Stream Physical Characterization and Habitat Assessment Worksheet**
- **1.2b Stream Physical Characterization and Habitat Assessment Handbook**