

Science Lesson 1 1: Stream Ecology— Habitat Survey

Hawaii DOE Content Standards:

Science Standard 1: **Scientific investigation:** Discover, invent, and investigate using the skills necessary to engage in the scientific process. Standard 2: **Nature of Science:** Understand that science, technology and society are interrelated. Standard 3: **Organisms and the Environment:** Understand the unity diversity and interrelationships of organisms including their relationships to cycles of matter and energy in the environment.

Key concepts:

Biological habitat, community structure, diversity, health

Performance indicators: After completing this lesson, students will survey a Hawaiian streambed and record habitat characteristics on a data sheet

Note to the Student:

“When you have completed this lesson you will be able to survey a Hawaiian stream habitat.”

Activity at a glance:

Students will measure channel width, water flow and describe bottom type of the stream at various points.

Time: A habitat survey of one transect will take a group of four fifteen minutes.

Prerequisite skills: None

Skills to be introduced: measurement of stream bed and stream flow, characterization of benthic habitat

Assessment:

Data sheets, data compilation, journal entry and observational data

Vocabulary:

wetted channel, bank full channel, flow rate, benthic substrate

Materials:

Twenty meter tape, flow meter, data sheet and clip board

Activity Overview

1. Lay transect across the streambed from water edge to water edge to measure the wetted channel width. Note the measurement and secure measuring tape. Indicate if the stream habitat is a riffle, run, or pool.



2. At three points across the stream equidistant from the banks and each other record: the meter point on the measuring tape, water flow rate at one sixth of the depth of the channel, and the substrate type at that point, either rock, boulder, small boulder, large gravel, small gravel, sand, or silt.
3. Measure the bank full width of the channel by estimating the high water mark on either side of the bank.

Cultural Values

Pono

Correct doing

Malama

Respect, reciprocity, relationships, and responsibility

Laulima

Working together

Kokua

Taking initiative, doing service, clean up, maintenance

Lokahi

Unity, harmony, leadership skills

Adaptations/ Extensions

Additional habitat parameters include bank slope, bank height, clinometer measurements, and run heading.

Connections to other curricula or lessons:

Water quality, mapping, weather observation, stream invertebrate survey

Safety

Hawaiian streams are prone to flash flooding. Check weather forecasts and exercise caution during rain events. If the stream is swollen with rain or discolored by runoff, postpone the stream survey activity. Hawaii streams are contaminated by leptospirosis bacteria; do not drink the stream water or expose a cut or skin abrasion to the stream water. Wash with antibacterial soap after contact with the stream water.

