

ADOPT-A-STREAM MONITORING EQUIPMENT BUILDING INSTRUCTIONS

ARTIFICIAL SUBSTRATE SAMPLERS

PERIPHYTON SAMPLER

Periphyton are organisms associated with a substrate. Their diversity is a good indicator of water quality. The Periphyton Sampler is an artificial substrate placed in the water for a period of time to allow a representative colony of organisms grow on it. The samplers are then collected and analyzed.

To make them, glass microscope slides are attached to a holder (brick or Plexiglas) with a marker (bobber) so that they can be relocated after the colonization period is up.

Materials:

- 4 glass microscope slides
- 1 brick or 4" x 6" colored Plexiglas
- waterproof adhesive (such as "handy-tak")
- fishing line
- bobber

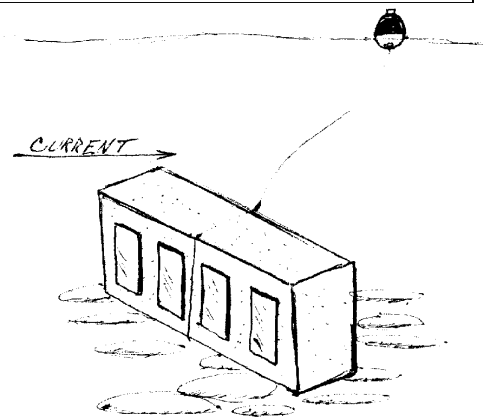
Building Instructions:

1. Tear off eight small pieces of the waterproof adhesive and roll into balls about the size of a pea.
2. To attach microscope slides to the brick or Plexiglas, place two pieces of adhesive onto the brick, spaced so there will be one for each end of the slide. Press a clean, dry slide firmly onto the two pieces of adhesive until it is stuck tightly to the brick. Repeat with the remaining slides.
3. Make a marker for your Periphyton Sampler. Cut a length of fishing line the depth of the stream plus 8". Tie one end to the bobber, the other end around the brick.

To Use:

In relatively clear, shallow waterways, the slides can be placed flat on the bottom. In water with a heavy silt load, the slides need to be held vertically (at right angles to the current flow) so they do not become covered. Either way it may be possible to attach the slides to bricks or flat rocks in the water with the waterproof adhesive. Be prepared for loss; set out more than one substrate.

When retrieving the slides, be sure they are not allowed to dry out. Transfer them immediately to a container of natural water and chill for transport to the laboratory for analysis. For information on analytical methods, refer to the Adopt-A-Stream High School Teacher's Manual Activity 7.2.



from "Homemade sampling Equipment" by Tennessee Valley Authority.