

ADOPT-A-STREAM MONITORING EQUIPMENT BUILDING INSTRUCTIONS PHYSICAL PARAMETER SAMPLING

COMBINATION STAFF GAUGE/CREST GAUGE

Adapted with permission from Adopt a Beach, Seattle, WA

Use to measure water level of a stream and to measure the highest level reached at that stream between the last inspection and the current inspection. The crest gauge is based on the “bathtub ring principle”. It consists of a PVC pipe containing a wooden dowel and granulated cork. As the water rises, so does the powdered cork. When the water goes down, the cork granules remain stuck to the wooden dowel at the level of highest water.

By taking successive staff and crest gauge readings and plotting them on a time graph, you can get a general picture of how a stream behaves in response to rain. Long-term trends can show a correspondence between stream levels and land use changes. For example, the data might show that a new shopping center has caused the stream to crest several inches higher for the same amount of precipitation.

Materials and Building Instructions – see page 2.

Calibration:

Calibrate the gauge by measuring the difference between the lowest point on the streambed and the zero point on the scale marked on the 2”x2”. (Note that the lowest point on the streambed won’t necessarily be the point where the gauge is located, but it must be along the same cross section) This “depth -of-stream factor” must always be added to the gauge readings. Recalibrate the gauge yearly, and also after severe episodes of erosion or deposition.

Reading the crest gauge:

To read the crest gauge, remove the top end cap and take out the dowel. Use the scale on the 2”x2” to measure the level of the cork powder “ring”. Don’t forget to add the depth-of-stream factor (see “calibration”, above). After taking the reading, wipe off the cork powder and replace the dowel. Occasionally you may need to add more cork powder.

ADOPT-A-STREAM MONITORING EQUIPMENT BUILDING INSTRUCTIONS

PHYSICAL PARAMETER SAMPLING

COMBINATION STAFF GAUGE/CREST GAUGE (continued from page 1)

Materials:

- 6-ft fence post or rebar
- PVC pipe, 1" diameter (or wider) 4 or 5 ft long
- 2 end caps for PVC pipe
- 2 or 3 metal clamps or U-bolts
- Section of 2" x 2" wood,
(approximately same length as PVC pipe)
- Wooden dowel, 1/4"- 1/2" diameter,
to fit inside PVC pipe
- Granulated cork

Building instructions:

1. Permanently mark 2" x2" in 1/4" increments.
Alternative: affix length of measuring tape to 2"x2".
2. Glue end cap to bottom of PVC pipe. Drill 3-4 vent holes in section of pipe that will always be immersed in water, to allow water to flow into pipe. Drill one vent hole near top of pipe, to allow air to escape.
3. Drive fence post or rebar into streambed in a location where water flows permanently and where you will be able to reach the gauge without getting wet.
4. Attach 2"x2" to fence post or rebar using clamps or U-bolts.
5. Attach PVC pipe to 2"x2", aligning bottom of pipe with zero point marked on 2"x2".
6. Cut dowel to same length as PVC pipe (dowel should fit snugly so it won't float). Place dowel and granulated cork inside PVC pipe. Place end cap (DO NOT GLUE) on top end of pipe.
Back to page 1 for Calibration and Use Instructions

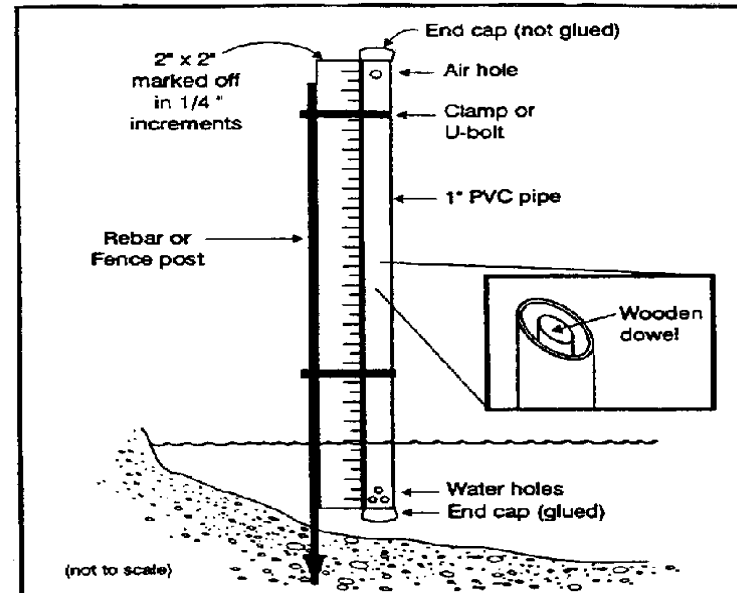


diagram from "The Volunteer Monitor" Fall '95