

# Transparency Tube Procedure

(vers. 4/12/2006)

## Sample Collection

### **General**

Collect the sample away from the stream bank in the main flow (well-mixed) area. Be careful not to disturb the stream bottom when you collect the water sample. If you get sediment from bottom disturbances, dump out the sample and try again. For the observer, consistency is the key. If you initially wear your eyeglasses when you take the reading, then always wear your eyeglasses to take this measurement. Never wear sunglasses when you take this reading.

### **In Stream**

- Walk into the water downstream from the sampling location. Be careful not to stir up the bottom sediment upstream of your sampling location.
- Face upstream (into the current) in the middle of the stream or in a well-mixed area off-shore.
- Collect your water sample by plunging your bucket or tube 8-12 inches beneath the surface or halfway down from the surface. Scoop away from your body and into the current.
- Return to shore with the sample.

### **From Shore**

- To collect a sample while standing on the shore, use a bucket or sample bottle attached to a pole so that you can reach off-shore. Scoop from below the surface in the upstream direction. Be careful not to stir up the sediment upstream of your sample.

## Reading the Transparency Tube

1. If you scooped up large objects (e.g. leaves) from the water sample either collect another sample or filter through nylon stocking if necessary.
2. You may want to wait a few (less than 5) seconds for bubbles to dissipate from the tube, but it is important to read promptly to minimize suspended sediment from settling in the tube or bucket. If settling occurs, use a stirring stick, or agitate the water in the tube to re-suspend all materials.
3. Read the tube out of direct sunlight. If you cannot get to a shady place, use your body to cast a shadow on the tube (Figure 1).
4. Slowly release the water using the petcock on the bottom of the tube until the disk is *just* visible (Figure 2). {Alternatively, you can add incremental amount of water from your bucket via a bottle until the disk just disappears (Figure 3)}.
5. Read level of water (in cm) from the graduations on the side of the tube.
6. Record measurement on data sheet.
7. Empty contents of tube.
8. Collect another sample and repeat the steps above to obtain a second measurement.
9. Record the second measurement (in cm) on the data sheet.
10. Add both of the readings; divide by 2, and record the average transparency value in cm.

\* Note – Record 3 numbers on the data sheet - the two separate Transparency Tube readings and the average value.

Figure 1. Transparency tube shaded by observer.



Figure 2. Slowly releasing water with the petcock until the disk is just visible.



Figure 3. Add small amounts of water to the Transparency Tube until the disk just disappears

