



Flow Monitoring Procedures

Equipment Needed: Two stakes, a tape measure, a Marsh McBirney Flow-Mate Flow meter, & flow rod.

Flow Monitoring Instructions

1. Establish a transect across the width of the river or stream with the tape measure. Use stakes to secure the transect in place on the banks or tie the tape measure to a tree or shrub.
NOTE: Be sure to find a straight section of the stream with both banks accessible that is not impacted by dams or other blockages. Avoid setting up your transect downstream of fallen logs, large rocks, or other places that disrupt stream flow.)
2. Assemble the flow meter by loosening the thumbscrew on the sensor bulb, sliding it completely onto the peg at the bottom of the flow rod, and tightening it.
NOTE: Avoid handling the end of the sensor bulb, since oils from your palm can disrupt the sensors.
3. Prior to taking your measurements, turn on the Flow Meter and confirm the correct settings. First, ensure the meter is set to average readings over a 15 second period by pressing the up arrow. Also, ensure the meter is set to feet per second by pressing the up and down arrow buttons simultaneously. Second, confirm the meter is set to FPA by pressing the up and down arrows simultaneously.
4. Record the time and height of the staff gauge (if present) on the flow datasheet.
5. Record on the flow datasheet the edge of water, which is the spot at which the water meets the stream bank. Note the edge of water for both sides of the stream. Try to observe the edge from directly above it.
6. Determine the minimum of ten equal size transects across the stream, or, if you're at a Huron River site, please take at least 15-20 transects. To do this, calculate the stream width and divide this by 10 or 20, then round down. For example, if the stream width is twenty-three feet, take flow measurements every two feet – or less – more measures are better.
7. Before you start, make sure you're begin taking measurements on the side of the stream or river where your tape measure starts, or has lower numbers.
8. Position yourself and the equipment upstream, so the current is flowing parallel and into the bulb of the sensor. If you're confused which direction is upstream, take a few measurements to ensure you're getting positive numbers.
9. Take your first flow measurement at the spot closest to the edge where the flow sensor is completely submerged in water, which must be at least 0.2 ft. Record that distance along the tape measure on your datasheet.

10. Measure the water depth at that location using the tick marks on the flow rod. Single tick marks indicate 1/10th of a foot, whereas double tick marks indicate a 1/2 of a foot and triple tick marks are full feet. Record the water depth on the flow datasheet, then adjust the flow sensor to the appropriate depth using the gauge at the top of the flow rod.
NOTE: When adjusting the flow sensor, position the full foot mark on the sliding rod to the tenth marks on the top of the flow rod.
11. Once the flow sensor is properly positioned according to the depth, stand back from the flow rod at an arm's length as to not interfere with the reading.
12. Let the Flow Mate meter load for 15 seconds, as indicated by the arrows that tick each second. Once the arrows meet the leftward facing arrow, record the reading displayed on the screen of the Flow Mate on your datasheet.
13. Move the flow rod to the next position along the transect and repeat the process until you have your required number of equally-spaced intervals or reach the other bank.
14. Following the in-stream flow monitoring, please record on your flow datasheet which side of the stream your started recording flow measurement relative to looking downstream as well as the concluding time and staff gauge height.

Flow Instructions for Water > 2.5 Ft Deep

1. When flow monitoring in water depths greater than 2.5 feet take 2 velocity measurements at each transect at 20% and 80% of the total depth (see image).
2. Set the sliding rod as you would if the water was double the actual depth (depth x 2) for your first reading at 20% depth.
3. Complete steps 11 & 12.
4. Then set sliding rod as you would if the water was half the actual depth (depth / 2) for your second reading at 80% of the depth.
5. Repeat steps 11 & 12 at the new depth.

EXAMPLE: If the water is 2.7 feet, you will adjust the flow rod to 1.35 ft and take a flow measurement, then you will move the bulb position to 5.4 feet and take a flow measurement there as well. Record both measurements on your datasheet.

