

## MEASURING & CALCULATING STREAM FLOW

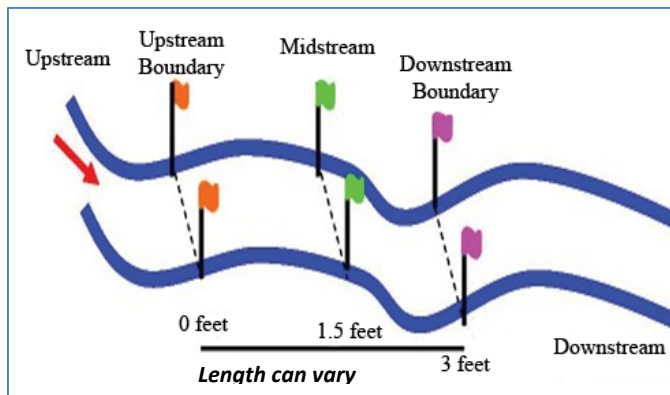
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Date:  
 Location:  
 Recorder's name:

**Set-up:** Find a straight stretch of river where the water flows fast and the stream bottom is relatively flat. Measure and mark 3 locations on both sides of the stream. Record the length from the upstream to the downstream boundary as the distance in column A. Your distances can be different for smaller streams (0, 1.5, and 3 feet, for example)

**Measure:**

- Width.** Measure the stream width (W) perpendicular to the flags (upstream, middle, and bottom) and average your 3 measurements.
- Depth.** Measure the depth of the river three times along each width line for a total of nine depth measurements. Calculate an average depth.
- Velocity.** Measure velocity by dropping your floating object upstream of the top flag and timing how long it takes to float the entire length (the distance from the upstream to the downstream boundaries). Take the measurement a minimum of 3 times from the same location.



A	B	C	D	E	F	G
Distance (feet)	Time (sec.) to float distance	Average Time (sec.)	Width at 3 points	Average Width of River (feet)	Depth at 9 points (note your units if in inches or feet)	Average Depth (if measured in inches divide result by 12 to get depth in feet)

**Calculate:**

- Calculate the averages for columns B, D, and F and record the averages in columns C, E, and G.
- Divide the distance (column A) by the time (column C) to get the feet per second (the velocity). Record this number on the line for V (velocity), below.
- Multiply the average width (column E) by the average depth (column G) to obtain the area. Make sure the depth is converted to feet! Record this number in the A (area) below.
- Multiply the velocity by the area (V x A) to obtain the preliminary streamflow and record on the appropriate line below.

\_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_  
 (V) velocity in feet per second                      (A) area in square feet                      preliminary streamflow in CFS

**Final adjusted streamflow calculation:**

Multiply your preliminary streamflow by a factor which takes into consideration the uneven bed of your river or stream. For streams with rocky bottoms use a factor of 0.8, but for smooth bottomed streams, use a factor of 0.9.

\_\_\_\_\_ x \_\_\_\_\_ =   
 preliminary streamflow                      factor of 0.9 or 0.8