

# [Determination float from upstream direction. get a stop](https://assignbuster.com/determination-float-from-upstream-direction-get-a-stop/)

Determination the velocity & discharge using floatsAPPARATUS: 1)    TapeMeasure2)    Stop-Watchcell phone having a timer3)     Meter stick TO Measure Depth (Tape Measuresare not possible to use)4)    Buoyantobjects such as orange  THEORY: If a Flow Meter is not Available or RoughEstimate is enough so we can use the float to measure the flow.

The float canbe any light object such as pine cone or an orange or partially filled plasticwater bottle. The basic idea is to Measure the time that ittakes a floating object to travel a specified distance downstream. We measurethe flow of stream.

Flow is important because define the shape, size anddirection of the stream. Measure the distance up to 50 feet along thebank string the rope at the both ends. 1.

Usingthe total stream calculate the cross sectional area of the stream at the bothend. To find the total stream width and the average depth.           Total Width (feet)\*Average depth (feet) = area in feet. 2.     ThrowThe Float From Upstream Direction.

Get a stop watch to record the time it takesto reach the downstream. If the float moves too fast so record the data 75 or100 instead of 50 feet. Repeat this process two more times for a total of threemeasurements. 3.     Nowin this step we will calculate the velocity the distance covered by floatdivided by the average amount of time it took to cover the distance.  If the distance is 50 feet and the time takenby orange 100 seconds so get the velocity is 0. 5 feet/sec.

50 feet/100sec= 0. 5sec. 4.     Calculatethe mid-depth velocity by multiplying the surface velocity by 0.

85.          0. 5×0. 85= 0. 43ft/sec.

5.  Now calculate the discharge incubic feet per second (cfs) & multiplying the          Velocity (ft/sec) by the cross-sectional area (ft.) of the stream.         0. 43ft/secx10. 73ft= 4. 62cfs.

USING A STAFF GUAGE The staff gage is a long ruler placed half-permanentlyin a stream or lake used to measure the water depth. Staff gauges are the mostcommon & useful for measurement. place the staff gauges in a lake. Placethe three staff gauges because in mid portion the lake water velocity isdifferent as compared to the side of lake. There is some resistance at the sideof lake that’s why we place the multiple staff gauge. If a staff gauges placeon non-vertical place so knowing that the staff gauges reading is correct ornot.

WHY USE ASTAFF GUAGEWe can use a staff gauge to get the informationin an indirect way to calculate the stream flow. If we place the staff gaugenear a section of stream for which you are collecting flow data, you canidentify the relationship between stream depth & stream flow. Once you gotthis relationship so we can calculate flow from the stream depth without havingto take a time to make a detailed flow measurement. A staff gauge havingnumerically labeled divided in lines to take the measurement of water easily the depth & stream flow.