

Common Surface Water Measurement Terms

(Mike Roberts, DNRC)

Cross-section – A two-dimensional measurement of a channel (width and depth) used to determine streamflow area and other channel metrics.

Current meter – An instrument used to measure water velocity for the determination of discharge in a channel.

Discharge – The volume of water passing a point per unit time, for example cubic feet per second (cfs) or gallons per minute (gpm).

Doppler Velocity Meter – A meter that employs the Doppler Principle. These meters, such as the Sontek Flowtracker© emit a known sound frequency then measures the change in frequency of sound that is reflected off particles in water and converts it to current velocity.

Electromagnetic Flowmeter – A meter that measures voltage as water moves through a magnetic field generated by the meter. The magnitude of the voltage is directly proportionate to the velocity of the water. These meters, such as the Marsh McBirney©, are used to measure stream velocities that can be converted into volumetric flow.

Float-area method – A quick method to approximate flow when other means are not available. The float-area method employs rudimentary measurements of width, depth and velocity (typically by timing a floating object over a specified distance).

Mid-Section Method - An approach to streamflow measurement that measures the depth and mean velocity for each of a number of verticals along the cross section. The depth at a vertical is multiplied by the width, which extends halfway to the preceding vertical and halfway to the following vertical, to develop a cross-sectional area.

Staff gage – Typically a porcelain-enameled incremented section of metal mounted horizontally or vertically to measure water stage.

Stage – Height of water above an established datum.

Stage-Discharge Rating – The relationship between stage and discharge in a stream or canal that allows for the conversion of stage readings to discharge.

Top-setting rod – Used with current meters, these rods allow for top-set adjustment of depth to accommodate for the required 0.2, 0.6, or 0.8 probe depth required for proper velocity measurement.

