

WHAT IS STREAM GAGING?

Measuring Discharge

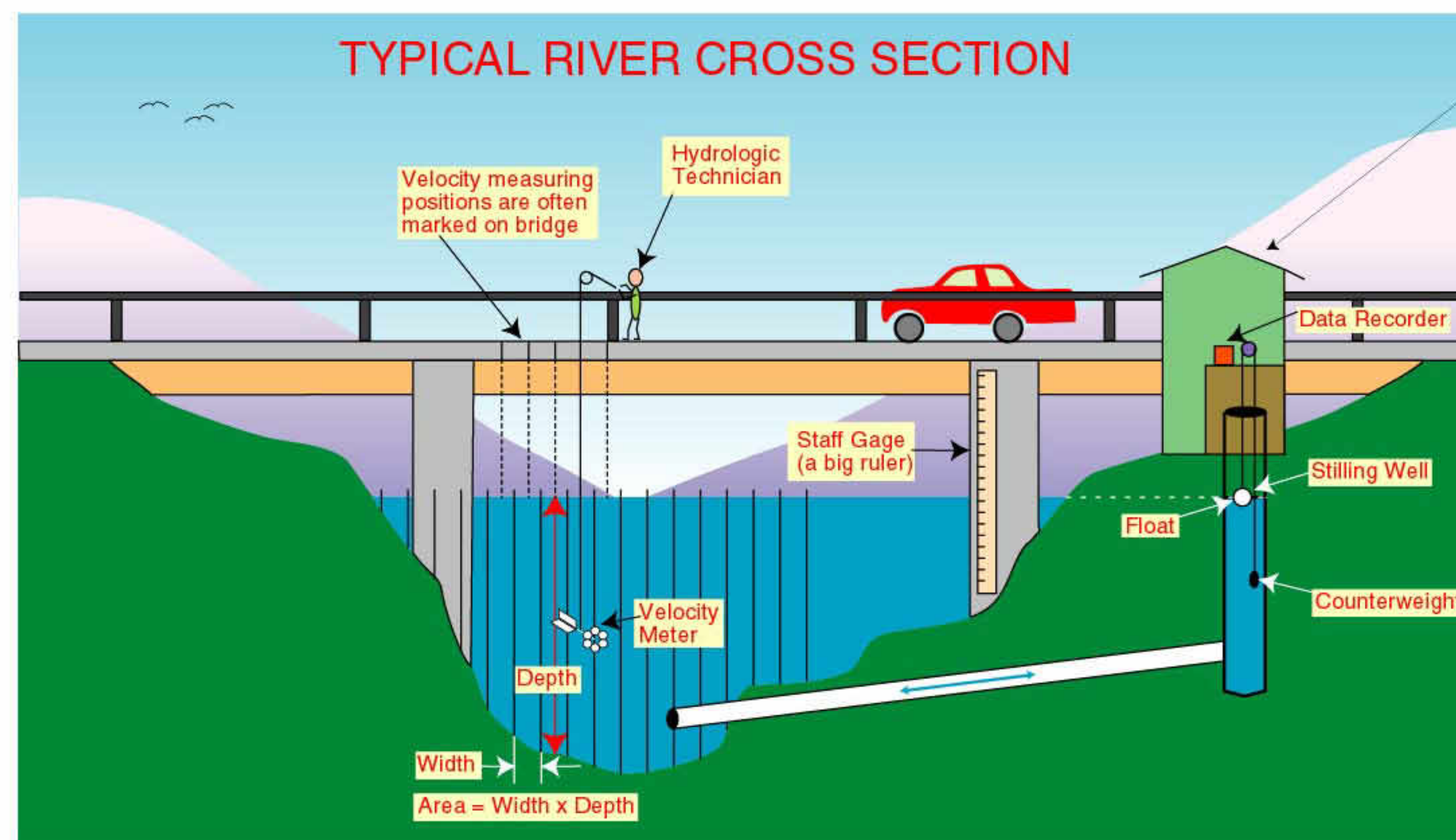
$$\text{Velocity (feet/second)} \times \text{Area (feet x feet or ft}^2\text{)} = \text{Discharge (ft}^3\text{/sec or cfs)}$$

Velocity is measured using a meter which turns with the flow of the stream or river. Revolutions of the meter are counted and timed by the hydrologic technician. Velocity measurements done at each subsection represent the velocity for one small area of the stream.

Depth and width are measured and areas are calculated by multiplying width (ft) by depth (ft) for each subsection. Width and depth of the subsection are indicated on the diagram.

Discharge is calculated for each subsection by multiplying velocity by area. The discharges for each subsection are added together to equal the total discharge for a stream or river at the time of measurement.

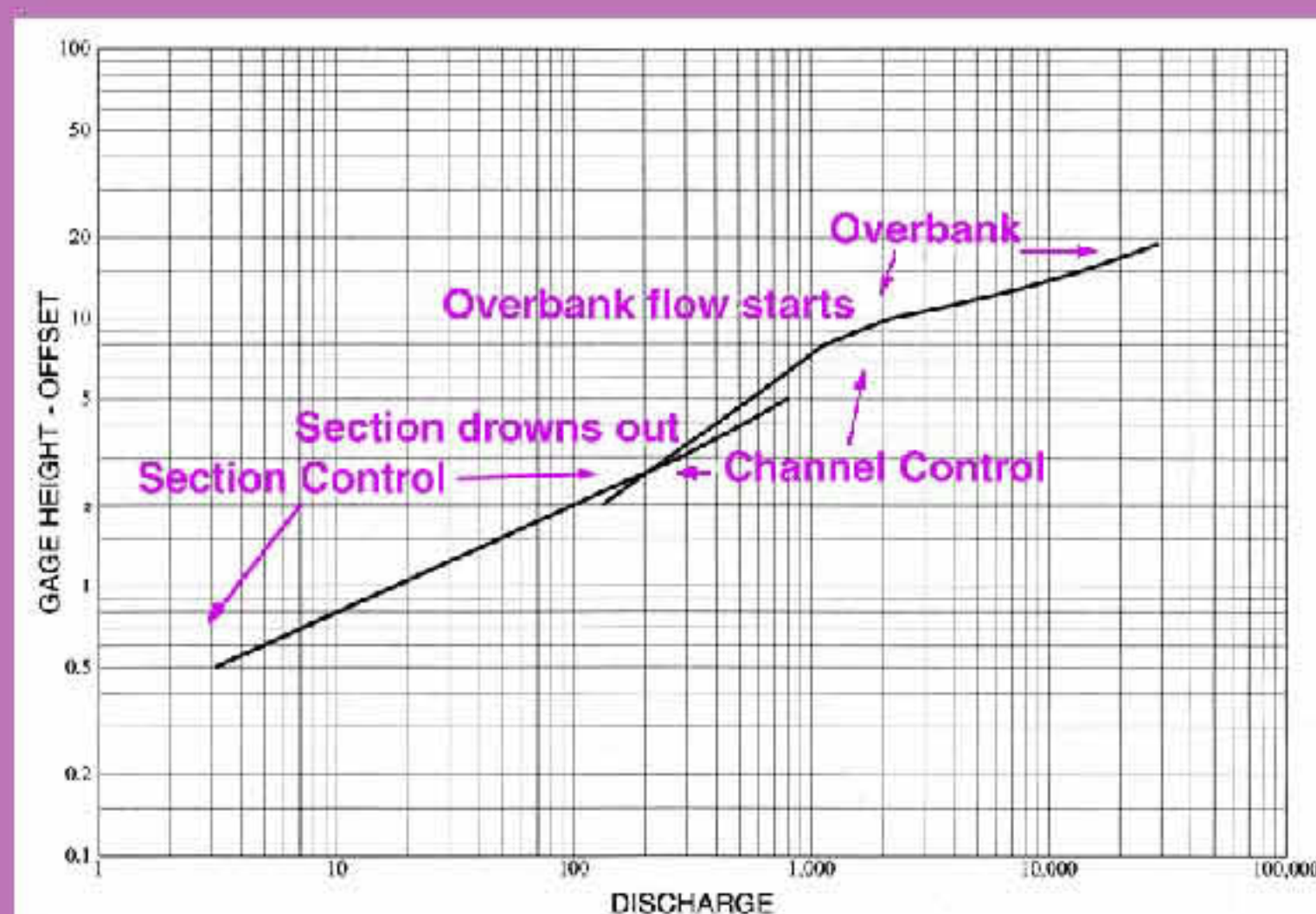
Depth is measured at each velocity measuring position. Velocity measuring positions are selected by the hydrologic technician based on several factors. Usually a stream or river will be measured at about 25 regularly spaced locations across the river.



In the gage house there is equipment which records gage height (level of water surface) every 15 minutes and stores this data. Other data such as water temperature and pH can also be recorded. For some sites this data is transmitted to our office via satellite so that we can watch water level changes as they are happening.

Developing a Rating Curve

EXAMPLE OF A RATING CURVE



A rating curve is a graphical representation of the relationship between stage (water level) and discharge for a given stream or river. The rating curve is developed from discharge measurements collected over a period of time and over a range of stages (from low flow to flood stage). Each point on the graph represents one discharge measurement. This rating curve can be used to estimate discharge at a given gage height.

A rating curve often changes after a flood when the physical characteristics of a river or stream are drastically changed. The rating curve may also change over a long period of time after gradual changes occur.