

# St. Louis River - River Watch Discharge Calculations Fall 2002

School Name \_\_\_\_\_ Site Name \_\_\_\_\_ Date \_\_\_\_\_

Where

$$\text{DISCHARGE} = \frac{A L C}{T}$$

A = Avg. cross sectional area of stream  
L = Length of stream reach measured

C = Coefficient or correction factor  
T = Time for float to travel length L

## "A" AVERAGE CROSS-SECTIONAL AREA

### Transect #1 (upstream)

Stream width (ft):

Interval	Depth (ft)
<b>A to B</b>	_____ (at B)
<b>B to C</b>	_____ (at C)
<b>C to D</b>	_____ (at D)
<b>D to E</b>	_____ 0 _____ (at shoreline)

Total \_\_\_\_\_ ÷ 4 =  Average depth (ft)

### Transect #2 (downstream)

Stream width (ft):

Interval	Depth (ft)
<b>A to B</b>	_____ (at B)
<b>B to C</b>	_____ (at C)
<b>C to D</b>	_____ (at D)
<b>D to E</b>	_____ 0 _____ (at shoreline)

Total \_\_\_\_\_ ÷ 4 =  Average depth (ft)

### Cross-sectional area of Transect #1:

Width (ft) x  Avg. depth (ft) =  (a) ft<sup>2</sup>

### Cross-sectional area of Transect #2:

Width (ft) x  Avg. depth (ft) =  (b) ft<sup>2</sup>

### Average Cross-sectional Area:

(a) +  (b) = \_\_\_\_\_ ÷ 2 =  (A) ft<sup>2</sup>

## "L" LENGTH OF STREAM REACH (usually 20 ft.)

(ft.)  
**(L)**

## "T" TRAVEL TIME FROM TRANSECT #1 TO #2

*travel time of float*

Trial #1 \_\_\_\_\_ sec.  
Trial #2 \_\_\_\_\_ sec.  
Trial #3 \_\_\_\_\_ sec.

Total \_\_\_\_\_ ÷ 3 =  Avg. time (sec.)  
**(T)**

## "C" COEFFICIENT

0.8 for rocky-bottom streams  
0.9 for soft-bottom streams

**(C)**

$$\text{Discharge} = \frac{\text{A} \times \text{L} \times \text{C}}{\text{T}} = \text{_____ (ft}^3\text{/sec)}$$