

CHAPTER 10 Project Recording Sheet
Water Flows Downhill

You are monitoring a river in which the water's velocity has been changing. What is the effect of this velocity change on the amount of water flowing past the measuring station? The river is 30 m across with a mean depth of 2.5 m. Use the relationships below to complete the table.

Discharge (m^3/s) = water velocity (m/s) \times stream cross section (m^2)

Stream cross section = width (m) \times mean depth (m)

1 m^3 = 264.4 gallons

1 hour = 3,600 seconds

My River
Stream Cross Section ($75 m^2$)

Velocity (m/s)	Discharge (m^3/s)	Hourly Discharge (m^3)	Hourly Discharge (gallons)
0.49	36.75	132,300	34,980,120
0.76			
1.22			
1.86			
2.10			

Answer the following questions:

- Dixon Creek in Texas has a discharge of $0.11 m^3/s$. What happens to the discharge:
 - if the velocity of the stream doubles? _____
 - if the cross section becomes smaller? _____
 - if both the velocity and cross section triple? _____
- The Mississippi River at Pointe Coupee Parish has a typical discharge of $16,735 m^3/s$.
 - How many billions of gallons of water pass in a typical day? _____
 - If the flow has a velocity of $2.0 m/s$ what might the cross section be? _____
- Create a river of your own. Draw a picture to demonstrate its flow. What would its characteristics be during:
 - normal times? _____
 - drought? _____
 - flood season? _____