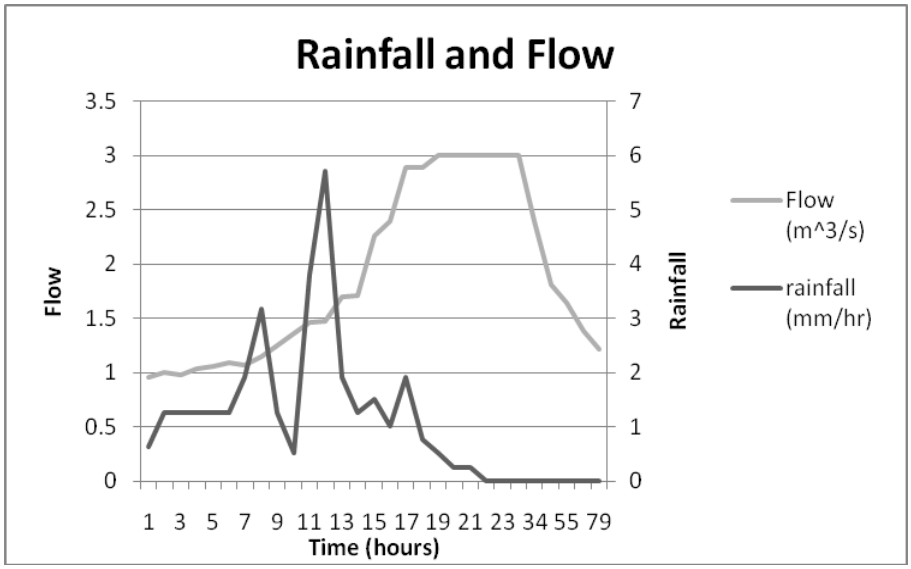
Name _____ Date _____

Wappinger Creek Storm

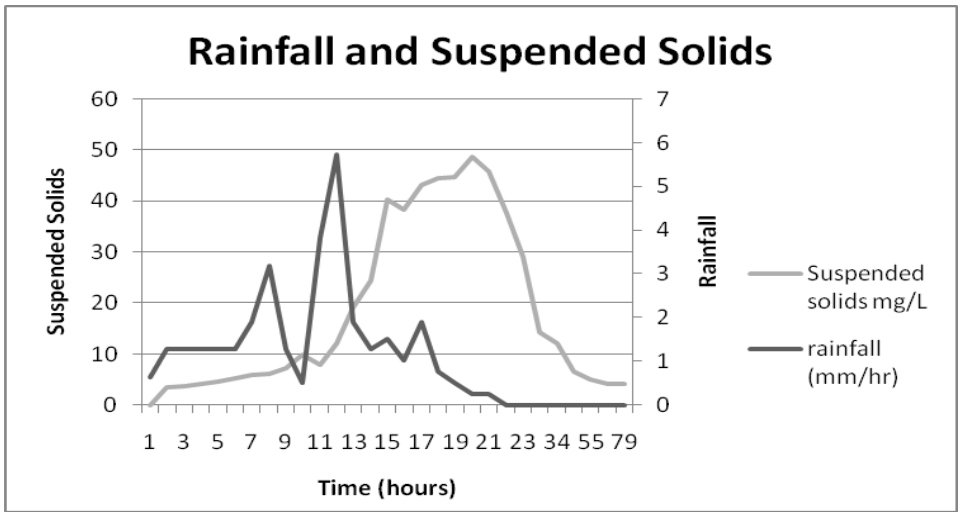
How does a stream change during and after a big storm event? Using the data in this lesson, you will learn about different types of changes.

1. Use this graph which shows the amount of rainfall and stream flow in the Wappinger Creek during and after a storm event to answer the questions below. The storm occurred from May 29 through June 1, 1990.



   a. When did it rain the most per hour?
   b. When did the highest flow occur?
   c. Why didn't these happen at the same time?
   d. How long did it take for Wappinger Creek to return to a pre-storm flow?

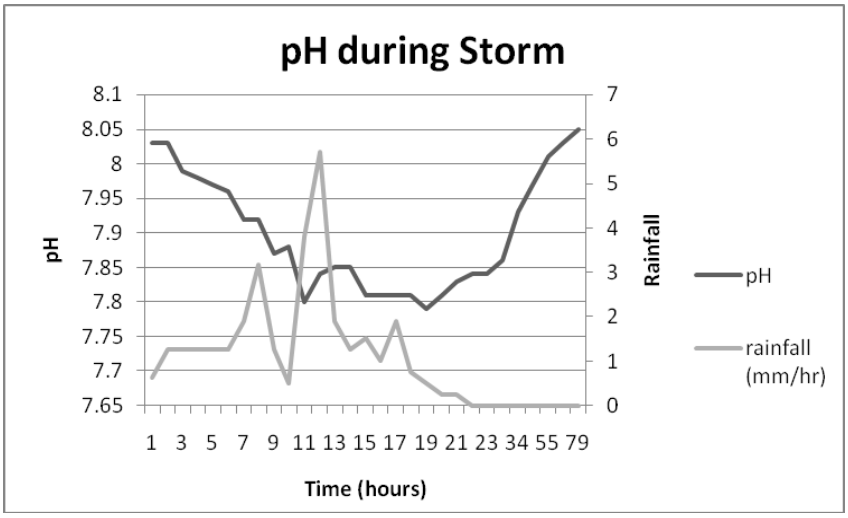
2. Use the graph below to answer the next question.



a. What happened to suspended solids during the storm event? Why do you think this happened?
b. How are the suspended solids data similar to and different from flow?

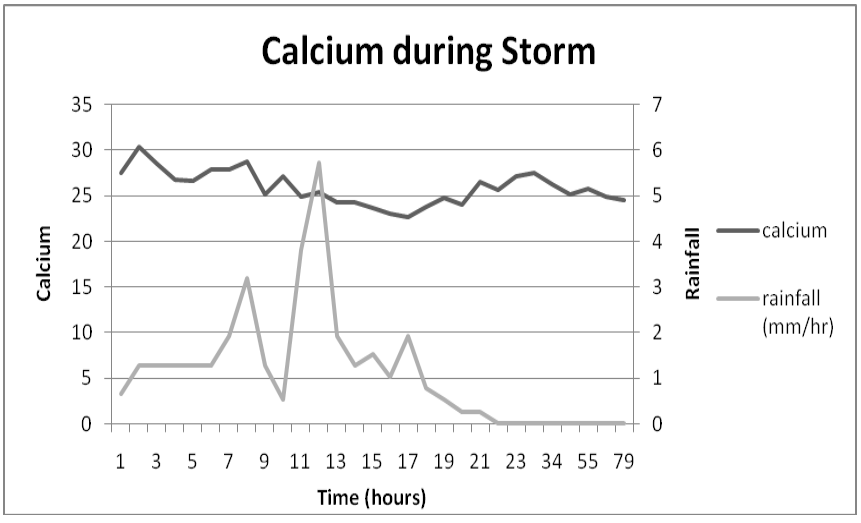
3. In April of 2007, a flood event occurred in the Northeast, dumping between 50 and 175 mm of rain within a twenty-four hour period. How does this compare with the storm at Wappinger Creek?

4. Look at the graphs below and answer the questions that follow.

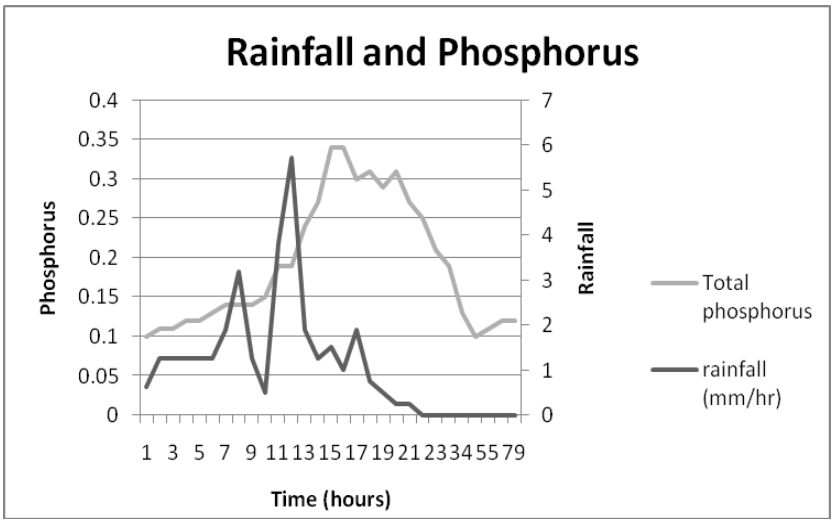


a. How long did it take the stream to 'recover' after the storm event?

b. What do you think is the "normal" pH of the stream?



c. Compare the data from pH and calcium before, during, and after the storm. How are these two sets of data the same? How are they different?
d. Why do you think pH changed more than calcium? Do you think this would change depending on the time of year that the storm occurred? Why?



e. Explain how total phosphorus changed during the storm event. How is this similar to and different from the way pH and calcium changed? Why?

5. This storm is an example of a pulse event (it happened once and then stopped). How might pH be affected if these events occurred more often? For instance, would you expect there to be an increase, or decrease, in pH during every storm event? What about the other variables—suspended solids, calcium, and phosphorus?

6. Think about another water quality indicator, nitrate-nitrogen. How would you expect this variable to change during a storm? Why?

7. Hypothesize how a change in pH or flow rate would affect the stream's organisms and physical characteristics over the short and long term. Fill in the chart below with your hypotheses.

	Short term		**Long term**	
	pH	Flow	pH	Flow
Algal growth				
Stream bottom-dwelling insects				
Fish				
Plants on the stream's banks				
The stability of the stream bank				