

Name _____

Class _____

Date _____

Exploring Abiotic Changes

Part 1: Abiotic Factors

1. List three abiotic factors that are important in the Hudson River ecosystem.
a.) _____ b.) _____ c.) _____

2. Predict how the invasion of zebra mussels might have impacted one of the abiotic factors above.

Part 2: Ecosystem Changes –

Read Passage 3: The Short-Term Impact of the Zebra Mussel Invasion, and then watch Video 3 in order to answer the following questions:

1. How does Dr. Strayer help the viewer visualize the size of the zebra mussel population in the Hudson River?

2. In the space provided, indicate the biotic and abiotic factors mentioned in the video that were most affected by zebra mussel invasion. For each, state if they increased or decreased:

Biotic Factors	Abiotic Factors

Part 3 – The Future – Video 4

1. Cary Institute scientists explain that, in the later years of zebra mussel invasion, some organisms' populations began to recover. Which organisms benefitted from the zebra mussel invasion in the long term? How did they benefit?

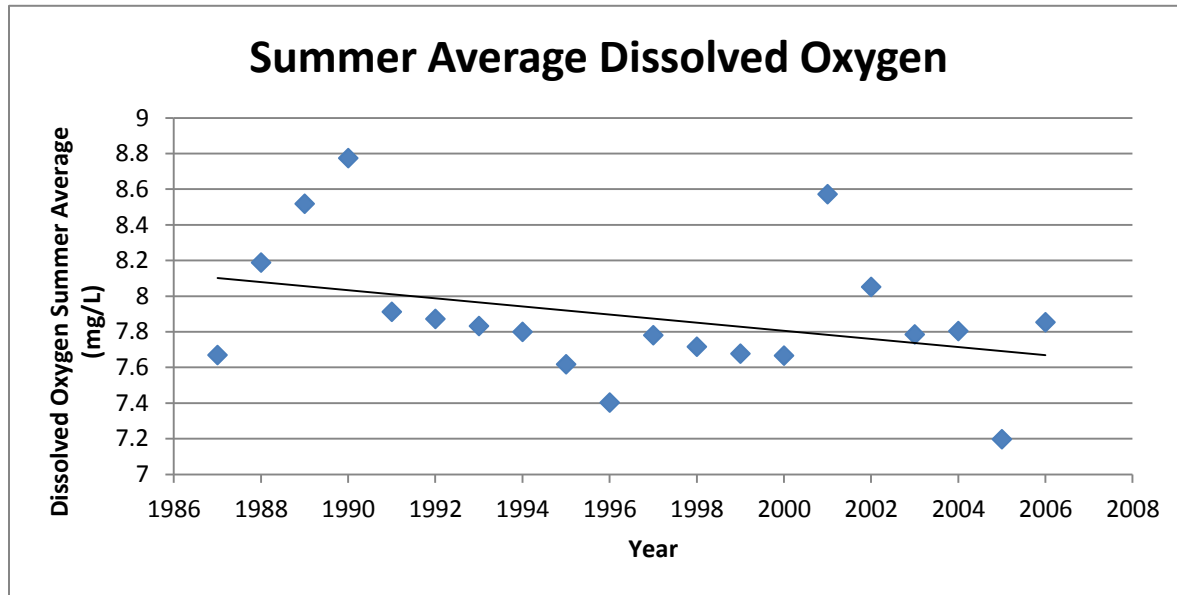
2. Below, give one example of how biotic factors (organisms) in this river ecosystem affected the abiotic environment, and in turn how that affected the biota. Use examples of factors Cary Scientists explored in their study. A general example for trees along a stream might be:

Trees (biotic) → Lower Water Temperature → More trout

3. **In video 4**, Cary institute scientists state that long-term monitoring of ecosystems is important. Provide support for this statement.

Part 4: Making Connections

Use the graph below to answer questions #1-2.



This graph shows the average dissolved oxygen in the Hudson River over the summer seasons, both before and after the zebra mussel invasion.

1. What trend do you notice in this graph?

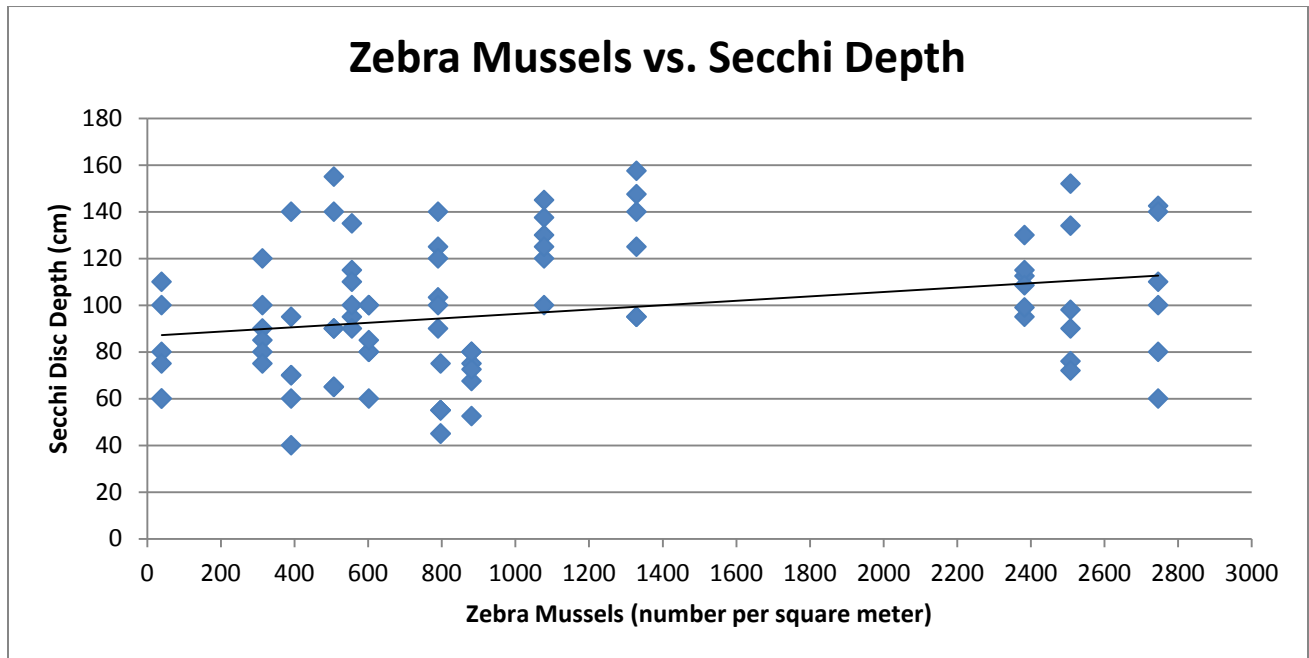
2. Why does this graph only include data for dissolved oxygen in the summer?

3. Give two reasons why scientists thought zebra mussels affected the change in dissolved oxygen:

a. _____

b. _____

Use the graph below to answer the remaining questions.



The graph above shows how the depth of the Secchi Disc changed with the number of zebra mussels found in the Hudson River. The **Secchi Disc** is an instrument that scientists use to measure how deep into the water sunlight can penetrate.

4. Which organisms in the Hudson River ecosystem depend upon sunlight to live?

5. How did increases in zebra mussel populations affect light penetration in the Hudson River? What was the result of this change on the broader ecosystem?

6. How does the Secchi disc graph support these conclusions?
