

Teacher Guide & Answers

Passage Reading Level: Lexile 1225

1. This article discusses a group of scientists who are studying an ecosystem. What ecosystem are the scientists studying?

- A **the Hudson River ecosystem**
- B the Great Lakes ecosystem
- C the Erie Canal ecosystem
- D the East River ecosystem

2. What is one effect zebra mussels could have on the river's ecosystem?

- A The river's water temperature could rise.
- B The river's water temperature could drop.
- C The amount of solids suspended in the river could rise.
- D **Oxygen levels in the river could drop.**

3. Read these sentences from the text.

"Based on previous studies, scientists estimated how much plankton the zebra mussels could filter out of the water. (Phytoplankton and zooplankton are microscopic organisms that are two critical components of the river's food web.) The numbers suggested the impact of zebra mussels on the river could be huge."

What conclusion can be made about the amount of plankton zebra mussels could filter out of the water?

- A **Zebra mussels could probably filter out a very large amount of plankton.**
- B Zebra mussels could probably filter out a small amount plankton.
- C Zebra mussels could probably filter out a lot of zooplankton, but no phytoplankton.
- D Zebra mussels probably could not filter out any plankton at all.

4. In an ecosystem, what can have an impact on the food web?

- A only biotic factors
- B only abiotic factors
- C only some biotic factors
- D **both biotic and abiotic factors**

5. What is the main idea of this article?

- A Scientists have been studying changes in the Hudson River ecosystem since before the arrival of zebra mussels.
- B Phytoplankton and zooplankton are the most important parts of the food web in the Hudson River ecosystem.
- C Scientists are combining two approaches to collecting data about different factors in the Hudson River's water.
- D **Scientists are studying biotic and abiotic factors in the Hudson River to see how zebra mussels affect the ecosystem.**

6. Read these sentences from the text.

“Scientists have combined two approaches to studying the river’s ecosystem:

- A spatial approach, in which water samples are taken from a transect of the river. A transect is a group of closely spaced locations along the river. This data helps scientists analyze how changes relate to geography.
- A temporal approach, in which samples are taken from the same six locations 4-6 times from May through October.”

Based on these sentences, what does the word “approach” most nearly mean?

- A a reason to do something
- B a way of doing something**
- C a measure of distance
- D a nearby location

7. Choose the answer that best completes the sentence.

Scientists were in a unique position to understand the impact of the zebra mussel invasion on the Hudson River _____ they had already begun collecting data on the river.

- A although
- B however
- C because**
- D as a result

8. What are three biotic factors that scientists are monitoring in the Hudson River to study the impact of zebra mussels?

Suggested answer: Answers may vary, as long as the factors are mentioned in the text. Students may list three of the following: zebra mussels, phytoplankton, zooplankton, fish, and plants.

9. One abiotic factor that scientists are studying in the Hudson River is the amount of dissolved oxygen. Describe how two different factors can impact the amount of dissolved oxygen in the river.

Suggested answer: Answers may vary but should be supported by the text. For example, zebra mussels can lower the amount of dissolved oxygen in the river through respiration, while plants can both increase the amount of dissolved oxygen in the river through photosynthesis and decrease it during respiration.

10. Why might it be important for scientists to monitor so many different biotic and abiotic factors as they try to observe the impact of zebra mussels? Use evidence from the text to support your answer.

Suggested answer: Answers may vary. It is important for scientists to monitor many different factors because zebra mussels are likely to impact many different factors in the ecosystem. Furthermore, all factors in an ecosystem interact with and affect each other; by studying a variety of factors, scientists will be able to understand both the direct and indirect effects of the zebra mussels’ arrival. Advanced answers may note that monitoring a wide variety of biotic and abiotic factors will help scientists understand which changes in the river are truly an effect of the zebra mussels and which changes may be caused by other factors.