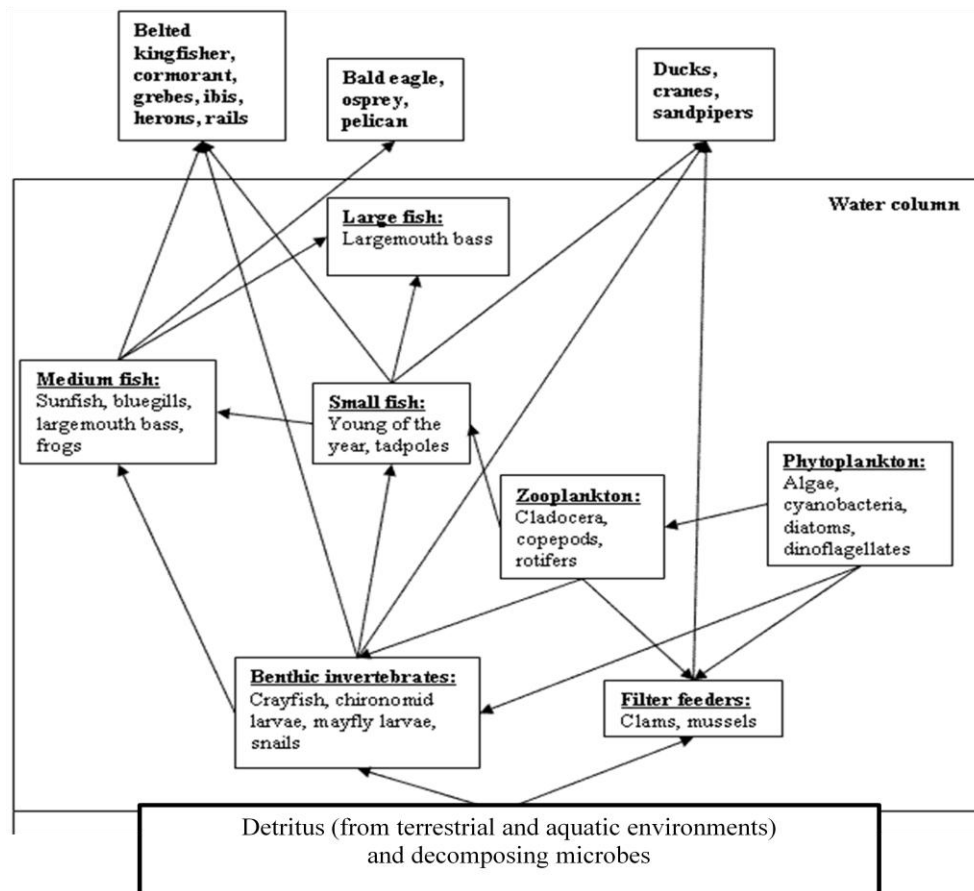


Day 1: Introduction to zebra mussels ANSWER KEY

Sample Hudson River Food Web Diagram:

Important to include:

- 1) Terrestrial inputs (leaves, organic materials)
- 2) Bacteria and/or microbes
- 3) Autotrophic and heterotrophic plankton
- 4) Filter feeders
- 5) Aquatic and terrestrial herbivores, predators



Introduction to zebra mussels

In the American Museum of Natural History videos on Hudson River Ecology, you will learn about the introduction of the invasive species, zebra mussels. As you watch the introductory videos, answer the following questions:

1. Why are zebra mussels so easy to move around?
Zebra mussels are very small and have an aquatic larval stage that makes it easy to move them around.
2. When did scientists know that zebra mussels would eventually make their way into the Hudson River? 1988
3. **After watching Video #1**, make a claim about how zebra mussels will affect one other organism in the Hudson River. Use the food web your class created to help you get ideas.
I think zebra mussels will eat a lot of phytoplankton. This will lead to a decrease in phytoplankton populations.

Video 2:

4. Why is it important to know how much light enters into the Hudson River?
The amount of light controls the amount of phytoplankton growth that can take place in the Hudson River, which in turn supports the rest of the food web.
5. What are the two main sources of food that form the base of the food web of the river?
A: Phytoplankton B: Detritus from the watershed
6. How do zebra mussels eat? They are filter feeders.
7. What do zebra mussels eat? They eat plankton, bacteria, and detritus.
8. Why is this study of the invasion of zebra mussels unique, compared to other scientific studies of invasive species?
It was explained in video 1 that scientists studying the Hudson River knew that it was a matter of time before zebra mussels moved from the Great Lakes into the Hudson River ecosystem. Accordingly, they had data about the state of the Hudson River ecosystem.

before and after the invasion. This allowed a more accurate comparison of environmental conditions, populations sizes, etc, before and after invasion.

9. **After watching Video # 2**, you will know why the Hudson River ecosystem is a good habitat for zebra mussels. Answer the following questions about zebra mussels:

- a. What measurements are scientists taking to explore the effects that zebra mussels have on the Hudson River?

Turbidity (cloudiness of water), temperature, oxygen, depth of sunlight penetration.

- b. What measurements would you have to take to help you support your claim made above?

If phytoplankton need sunlight to grow (photosynthesis), then the depth of sunlight penetration would tell me if the water conditions are good for photosynthesis. If the conditions are good for photosynthesis, but phytoplankton populations are still low, then I would think that means increasing zebra mussels populations would be the cause of the decline.