

## Zoom in on Zebra Mussels

**Grades:** 3 – 6

**Time:** 45 minutes

**Rationale and Context:**

Invasive species are a priority issue for management of the lake and connecting waterways. Their unique characteristics, dispersal and distribution require constant attention to inform stewardship actions to prevent further habitat impact. Understanding the life cycle, feeding and physiology of invasive species provides a foundation of science concepts applicable across other life sciences, but provides a context for how invasive species impacts our local region's environmental balance.

**TEACHER CONTENT KNOWLEDGE:**

Invasive species is the term given to non-native species in a specific area that disrupt the balance of an ecosystem in a significant way. There are differences among species that are native, non-native, invasive, and nuisances. Animals that fit in these categories have distinct impacts on their environment. Zebra mussels are an iconic species easily identifiable to students. Their distribution, means of travel into the region, and long term impacts on both natural and built communities is clearly evident.

**Essential Questions:**

1. What are the characteristics of invasive species and how does the Zebra mussel demonstrate typical distribution patterns.
2. What is being done to remove or minimize the impact of the zebra mussel?

**Vermont Standard(s):**

Vermont Standard	Grade Expectations	Inquiry Skills and Content
7.1	S.1, 2	Observe samples of zebra mussels and consider their physiology and feeding. Make predictions about how their population numbers might affect other living and non-living things in the Lake Champlain Basin.
7.13	S. 4 – 8, 30	Identify the characteristics of invasive species and why they are problematic to different ecosystems. Explore how invasive species are transported. Understand the stewardship actions people can take to control invasive species.

**Learning/Behavioral Objective(s):**

1. Students will be able to identify six possible characteristics that would identify a plants or animal as invasive.
2. Students will be able to differentiate between the terms: native, non-native, and invasive and nuisance species.
3. Students will participate in a movement activity to illustrate feeding behavior of the Zebra mussel and understand physiology and life cycles through images and samples.
4. Students will explore Zebra mussel distribution factors by participating in an experiment using scientific tools.
5. Students will understand several ways humans have attempted to minimize the impact of Zebra mussels in the Lake Champlain Basin.