Overview

Aboard UVM's Research Vessel, the *Melosira*, students will learn about current research and then apply scientific tools and techniques to collect data. By using the scientific method as a guideline, students will be challenged to raise questions and apply critical thinking skills in order to analyze data they have acquired on site and will be able to discuss the challenges and opportunities of lake stewardship.

Objectives

Essential Question: How do scientists study the complex ecosystem and environmental problems in Lake Champlain?

- Understanding the natural history and unique regions of the lake
- Introduction to water testing procedure and equipment
- Understanding how human activities can affect the lake

Activities

1. Physical and Chemical Characteristics: Lake water clarity, dissolved oxygen and temperature measurement from lake surface to bottom through secchi disk testing and on-boat graph
2. Physical and Chemical Characteristics: Lake water clarity, dissolved oxygen and temperature measurement from lake surface to bottom through secchi disk testing and on-boat graph
3. Zebra Mussel Story: Learn basics of zebra mussel life cycle, collect zebra mussels to estimate population density

Adaptations

Worksheets will be provided for students that are designed for either introductory or intermediate groups. Depending on the previous knowledge of the class regarding graphing and water testing, grades 5-8 can choose to use the more advanced worksheet if they desire.

Evaluation

A pre- and post-assessments will be provided for the students before and after attending Lake Champlain Live. Teachers will be provided a grading rubric including answers to the worksheets if they would like to evaluate their student’s work.

Materials

All testing equipment will be provided on-site. It is requested that students bring the following:

- Notebook and pencil
- Clothing: comfortable, stable shoes. Dress warmly, as conditions on the water can be very different than on land. Please remember motion sickness medication if required.

Next Generation Science Standards for Middle School (6-8)

MS-LS2-1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS2-4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

MS-ESS3-4: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
Next Generation Science Standards for High School (9-12)

HS-LS2-6: Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

Trip Details

• Fee: $300 for maximum of 22 participants (including chaperones and teachers)

• Available dates and times: Trips operate May-October, weather permitting. Please call or email for availability.