



# PROJECT OCEANOLOGY



## Lobsters & Climate Change

### **Overview**

Students will complete a variety of stations in which they will examine live lobsters, practice skills related to the lobster fishery, such as lobster measurement and banding, examine a lobster trap, learn about lobster life cycles, interpret data from CT DEEP and Project Oceanology on climate change and lobster populations in Long Island Sound, and create a graph based on Project Oceanology's lobster catch dataset. Students will then discuss the implications of their observations by identifying causes and consequences of lobster die-off in Long Island Sound in terms of ecosystem health as well as economic benefit.

### **Alignment with NGSS (High School)**

#### **Performance Expectations**

**HS-LS4-5** Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. *Students will study environmental changes in Long Island Sound over the past 40-50 years, specifically those thought to be connected to Global Climate Change. Students will evaluate the evidence to make a claim about possible causes of the lobster fishery collapse in LIS.*

#### **Science and Engineering Practices**

**Asking Questions** *Students will ask questions about human impacts on the environment related to Global Climate Change and observations of the lobster die-off phenomenon in Long Island Sound.*

**Engaging in Argument From Evidence** *Students will construct, use, and/or present an oral and/or written argument or counter-arguments based on data and scientific knowledge.*

#### **Crosscutting Concepts**

**Patterns** *Students will recognize patterns as empirical evidence for causality in supporting their explanations of the lobster die-off phenomenon.*

**Cause and Effect** *Students will cite empirical evidence to differentiate between cause and correlation and make claims about specific causes and effects.*

## **Disciplinary Core Ideas**

**LS4.C: Adaptation:** Changes in the physical environment, whether naturally occurring or human induced, have thus contributed to the expansion of some species, the emergence of new distinct species as populations diverge under different conditions, and the decline—and sometimes the extinction—of some species. Species become extinct because they can no longer survive and reproduce in their altered environment. If members cannot adjust to change that is too fast or drastic, the opportunity for the species' evolution is lost. *Students will understand the effects of global climate change on the decreasing lobster populations in Long Island Sound as well as the long term impacts these changes may have on the lobster population as a whole.*