

Salem Sound Coastwatch & Sea Station's *School to Sea*
High School Programs
PROGRAM DESCRIPTIONS

For these experiences, we provide materials that your students will need (except basics like pencil & paper), including field guides and other text resources, all hands-on equipment, etc. We require a 1:8 ratio of adult/teacher to student. Chaperones should be engaging in the activities with the students, especially in the field & on the boat.

Ocean Food Web

Standards: 2.3, 4.1, 5.2, 6.1, 6.2, 6.3, 6.4

Classroom: Students will acquire background knowledge about the modes of nutrition of organisms they will find in their field study & boat trip. Relationships among them will be investigated (predatory, symbiotic, etc).

In the field: In a local coastal habitat, students will collect organisms, identify their predators & food sources, and begin to understand how these habitats are part of the larger ocean food web.

On the boat: Students will observe and collect data about what's living under water using an underwater camera. They will haul a trawl and plankton net and examine the contents. Focus will then turn to an organism that is common to Salem Sound (eel grass, phytoplankton, blue mussel, lobster, specific crab species, or other species of interest) and where it fits in the greater ecosystem. Students will also observe human impact as part of the Salem Sound ecosystem. They will be presented with a current local issue affecting the Salem Sound watershed, discuss how it is affecting the ecosystem, and brainstorm possible solutions to the problem.

Plankton Lab

Standards:

Classroom: Students will acquire background knowledge about plankton. The most basic classification (heterotrophs vs autotrophs) will be introduced. Students will learn about larval stages of several marine animals (meroplankton), plankton that spend their entire lives as plankton (holoplankton), and plankton that is photosynthetic (phytoplankton). They will learn about the adaptations some of them have to keep them afloat, and then students will design their own plankton.

In the field: Students will do a quadrat study of a coastal area that is under study by Salem Sound Coastwatch. They will participate in collecting data about organisms that live in these areas that may be invasive species. The concept of invasive species will be investigated, as a threat to the biodiversity of Salem Sound. Connections will be made to organisms that start their lives as plankton that live in this habitat.

On the boat: Students will conduct a plankton tow to collect plankton. Students will observe diatoms and dinoflagellates (phytoplankton) under a microscope. Different forms of zooplankton will be observed under microscopes and students will try to identify them using field guides. Plankton will be classified by size, and calculations will be done to figure out the density of plankton at different locations/depths. Students may also conduct water quality testing to determine the health of Salem Sound.