TEACHER EXTENSIONS

Extension Activity One: Why is Filter-Feeding Important?

Objective: Students will learn about the current and historical condition of the oysters in the Chesapeake or Maryland Coastal Bays.

Procedure: Students will write an essay discussing how oysters contribute to a healthy Chesapeake Bay or other estuary. The essay should be one page in length and double-spaced. Students can use the internet or other resources to research the topic.

Resources: Internet: www.chesapeakebay.net , www.vims.edu , www.dnr.state.md.us/fisheries

Teacher Background Information:

An abundant and healthy oyster population is beneficial to the Bay in several different ways.

- Oysters, through the way they feed, can benefit the areas they live in by removing algae from the water and allowing light to penetrate to a greater water depth.
- The presence of algae (phytoplankton) is a natural and necessary part of the food web in the Chesapeake Bay. Sediment (dirt) is also something that is naturally found in the waters of the Bay. However, since colonists arrived in the late 1600's, years of development and growth on the land around the Bay and its watershed have dramatically increased the amount of nutrients, which makes the algae grow, and sediment in the water column.
- Oyster bar and reef communities provide vital habitat to other marine organisms in estuarine systems, especially the Chesapeake Bay. Oysters and Submerged Aquatic Vegetation (SAV) support large and diverse communities of marine organisms. Oyster reefs provide food, shelter, nursery areas, and other benefits to the marine organisms that depend on them in an otherwise featureless benthic environment.

The large increase in nutrients and sediment into the Bay is not good for the Bay for several reasons:

1) It decreases the amount of sunlight reaching important underwater plants (SAV)
2) Once the excess algae dies, it settles to the bottom and is consumed by bacteria in a process called decomposition. This process uses up oxygen that organisms living in and on the bottom of the Bay need (organisms like oysters). Dangerously low levels of oxygen can harm or kill aquatic organisms.
3) Excess silt and other sediments can smother oysters on the bottom. Oysters are anchored to fixed locations and cannot move to different areas. Sediments have buried many historic oyster bars around the State.