

## PLANS for the Chesapeake Bay – Student Guide Oyster Feeding Experiment

### Oyster Feeding Experiment

#### **Materials Needed**

- PowerPoint presentation on oysters in the Chesapeake Bay.
- Nine 12 L fish tanks filled with 7.5 L of River water.
- At least 33 similarly sized live oysters that have been cleaned of attached organisms.
- Live phytoplankton cultures to use as oyster food.
- 100 ml graduated cylinder
- Air pumps and air stones.
- 2 ml disposable pipettes.
- Hand-held Aqua-fluor fluorometer and cuvettes.
- Student lab sheet.

#### **Procedure**

- Setting up the experiment- Different densities of oysters per tank
  - Each treatment will be based on the number of oysters in the tanks: control (no oysters); low oyster density (1 oyster) and high oyster density (10 oysters).
  - Each treatment will have three replicates (three tanks).
  - Each tank will be filled with 7.5 liters of Patuxent River water.
- Starting the experiment- adding live algae
  - Add the same volume of algae to each tank (this amount will be determined by cell density of culture).
- Adding oysters to control and treatments (3 replicates)-  
Add oysters-
  - The control will contain no oysters.
  - The low treatment will contain 1 oyster.
  - The high treatment will contain 10 oysters.
  - Each treatment and the control will have 3 replicates.
- Taking initial fluorescence readings
  - Immediately stir each tank and pipette 2 ml of water into a cuvette- use the fluorometer to take the initial fluorescence reading for each tank.
  - Record the reading on the lab data sheet.
  - Explain the relationship between fluorescence and amount of algae in the water.
- Every 30 minutes for 1.5 hr take another reading for each tank
  - Follow the procedure of the initial reading.
  - Record the average of the replicate fluorescence readings on the lab sheet.

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#### *Interpreting the results*

- Plotting the data:
  - Use the student lab sheet to plot the fluorescence reading for the 3 treatments for each time period.
  - Based on the fluorescence reading (the max and min fluorescence readings), the scale of Y-axis may need to be modified.
  - Try to use different colors or symbols to represent different treatments.
- Based on the results, discuss the following questions:
  - What are the ecological roles of oysters in the Chesapeake Bay?
  - What is the importance of oyster restoration in the Chesapeake Bay?

Note: The afternoon lab group will continue the oyster experiment that was started in the morning by the first lab group. At the end of the experiment there will be readings taken at 6 different time periods. At the end of the day, the entire group will gather to discuss the results of the experiment.