Name _____ Date _____

Biomanipulation

During this lab activity, you will set up several aquaria (mini-ecosystems) to find out what happens to the algae numbers and the clarity (turbidity) of the water when you add different types of predators to the system. You will be able to determine what type of predator, and how many predators, you would like to add. You will also decide how long to run your experiment, and how you will measure predation over time.

Step 1: Background

Think about what you already know in regards predators in an aquatic ecosystem. Write a hypothesis about what you think will happen during your experiment. Will you have more or less phytoplankton? Will the clarity of the water change? How?

_____
_____
_____

Step 2: Experiment

1. Obtain three aquaria (or other containers), pond water, a graduated cylinder, a microscope, slides, and a pipette.
2. Fill each aquaria (these are your mini-ecosystems) about halfway with the pond water. Make sure you add the same amount of water to each jar. Write down the amount of water you added: _____
3. Gently stir the water, and place a drop of the water on a slide.
4. Using the microscope, count the number of phytoplankton that you see in one minute.
5. Note the color of the water when held up against a white sheet of paper.
6. Decide what type of predator and how many of the predators you will add.
   Type: _____
   Amount: _____
7. Finally, decide how long you will leave your experiment, and how often you will check on the results: _____

Initial observations:

Aquaria	Treatment	Observations	Number of algae observed under microscope	Color of water
1	Control			
2				
3				

Step 3: Experimental Results:

Aquaria	Treatment	Observations	Number of algae observed under microscope	Color of water
1	Control			
2				
3				

Step 4: Discussion:

1. Create a graph that shows the growth of algae in the different jars over time.

2. What happened to the aquatic ecosystem with the addition of a predator?
   _____
   _____
   _____

3. Which treatment had the greatest impact on your ecosystem? Did other people in your class uses different treatments? How did this change their results?
   _____
   _____
   _____

4. Explain the impact of different types of predation on water clarity.
   _____
   _____
   _____

5. Imagine you are managing a local watershed. You need to make sure that there is enough food for the local fish population, as well as the other organisms in the river. What would you need to know in order to successfully manage the system?
   _____
   _____
   _____