**General Instructions for *Thalassiosira pseudonana* Population Lab: Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

You and your lab partners will do ONE of five class experiments. You will prepare a control and an experimental culture and monitor their growth rates over a week (3 data plus the initial). You will graph your data and share your findings with your class in a brief, informal presentation.

\*LABEL the sides of your two flasks with your initials, the NAME of the experiment and which flask is the control and which is the experimental.

\*Prepare your two flasks with media and Thaps (see instructions below)

\*Count the diatoms FOUR times: once to begin (Friday) and then three counts in one week (Mon, Wed, Fri).

\*Put 1 drop (ONLY ONE DROP) of your culture onto the gridded slide and top it with a coverslip.

\*Use low light, then use the 10X objective to find the Thaps and count them. If you have trouble seeing them, tap the edge of the coverslip with the tip of your pencil and the diatoms should jiggle.

**How To Estimate Populations Growth Of Thaps:**

Use the following technique to calculate the population of Thaps throughout the week. Record your data each day as well as these calculations.

1) Count how many Thaps are in 4 squares (count quick--they float around!) and calculate an AVERAGE of how many Thaps in those 4 squares.

 Example: \_\_ + \_\_ + \_\_ + \_\_ = \_\_\_\_\_÷ 4 = \_\_\_\_\_\_\_\_\_ Thaps per square on average.

2) Next, make an estimate for how many Thaps are in ONE DROP (34µl). \* µl means “micro” which is one-millionth of a liter

 \_\_\_\_Ave # Thaps per square x 400 squares on the slide =\_\_\_\_Thaps/34µl (one drop)

It takes 34µl to make one drop. It takes 30drops to make1ml of liquid (which is 1000µl). With that info, you can calculate how many Thaps are in one ml:

 \_\_\_\_\_\_\_\_\_Thaps/34µl (one drop) x 30drops/ml = \_\_\_\_\_\_\_\_\_\_\_Thaps/ml

3) And finally, calculate how many Thaps are in your 25ml culture flask:

 \_\_\_\_\_\_\_\_\_Thaps /ml x 25ml = \_\_\_\_\_\_\_\_\_\_\_Thaps/25ml



\*Keep a data table of your control and your experimental cultures.

\*Graph BOTH sets of data onto ONE graph.

\*Write a paragraph conclusion of your data. Discuss: It is predicted that with rising CO2 levels, diatoms will flourish. Given what you’ve learned about how diatoms use nutrients, what do you think will happen to nutrient cycles if diatom blooms are stronger and more productive? How do you think this will affect ocean ecosystems? How will it affect communities that feed on diatoms and the resources they provide?

\*Present findings to the class.