# ESS474 Zooplankton Lab

***October 25, 2024***

Today’s lab will have three steps that you will complete with a partner. *The lab will be done entirely in class and there is nothing you need to turn in on canvas.* Please use the time you would normally spend on your weekly assignment to prepare for the second midterm, the final Horsetooth report, or something good for your mental health.

# Step 1 (Horsetooth Reservoir zooplankton ID)

1. Get in pairs and sit with your partner.
2. Set up a compound microscope.
3. Pull up this week’s lecture slides about zooplankton to reference.
4. At the front of the class, there is a shared answer sheet. Please fill out one of the rows with you and your partner’s names and then prepare a slide, just as you did in the phytoplankton lab. The sample does not need to be from your group (though of course, it can be).
5. Identify the type(s) of zooplankton on your slide (Rotifer, Copepod, or Daphnia).
6. Try to identify the different features highlighted in lecture.
7. Which is the most dominant type of zooplankton in the preserved sample? Please write your answer on the share answer sheet at the front of the classroom.

# Step 2 (Calculating grazing rate/ Zooplankton rodeo)

1. Put away your compound microscope and set up a dissecting microscope.
2. On the shared answer sheet, you and your partner signed up for one of five algal cell concentration values. Three pairs will test each of the concentrations. At the front of the classroom, there are five beakers containing our five different concentrations.
3. In your pair’s petri dish, aliquot a few drops of your designated concentration (*pro-tip: cohesion and adhesion are your friend. Try to keep the drops contained in the center of your petri dish*).
4. Return to your microscope and focus the field of view on the algal cells.
5. Next, you will need to wrangle your zooplankton. In the front of the classroom, there are live zooplankton collected from Sheldon Pond (City Park). In a weigh boat, secure a lively looking zooplankton.
6. Back at your microscope, gently introduce your zooplankton to your petri dish and give the zooplankton a moment to settle in. One partner should then open the stopwatch n their phone while the other counts the number of cells your zooplankton consumes per unit time. Your goal is to estimate number of cells consumed per hour (i.e., determine number of cells consumed in a minute then multiple it by 60 or some similar method).
7. Have both partners estimate rate then report this rate on the shared answer sheet at the front of the class.
8. On the answer sheet, please also circle D (for daphnia), C (for copepod) or R (for rotifer), depending on the type of zooplankton whose feeding rate you measured.

# Step 3 (Sheldon Pond zooplankton ID)

1. Add a few drops of the Sheldon Pond sample to your petri dish and observe the zooplankton activity.
2. If you’d like, you can experiment with introducing additional algae to your petri dish as well.
3. What is the dominant type of zooplankton in Sheldon Pond? Please write your answer on the share answer sheet at the front of the classroom.
4. When you are done, return your zooplankton to the front of the classroom, clean up your bench area (wipe away any waterdrops etc.), and put your microscope away.