

Lake Sunapee Planktonic Food Web - Summer 2022

Project Description

Hi, I am Dylan Wang, a Dartmouth 24' majoring in Biology and minoring in Environmental Science. I have been working toward constructing a food web for the plankton community in Lake Sunapee with 2022 Eliassen Fellow, Dr. Jessica Trout-Haney as a part of Dartmouth's Presidential Research Scholarship. Over this past summer, we collected water samples from Lake Sunapee a total of six times throughout the summer, at varying depths and locations (Fig. 1). We collected plankton samples, measured dissolved oxygen, chlorophyll, temperature, conductivity, and turbidity of the lake at each of the sampling locations.

This winter I have been identifying and counting the phytoplankton (including cyanobacteria) and zooplankton species in each sample from the summer. I have counted roughly half of the samples so far, most of which correspond to the northeast region of Lake Sunapee, and I still have samples from the south and July/August to count.

From the preliminary results, it is clear that many types of phytoplankton, including green algae, diatoms, dinoflagellates, and cyanobacteria, are present across various locations, depths, and times throughout the summer. So far, I have identified 8 different taxonomic groups of cyanobacteria, which tended to be slightly more abundant than other phytoplankton in the early summer months (Fig. 2). The preliminary results in Fig. 2

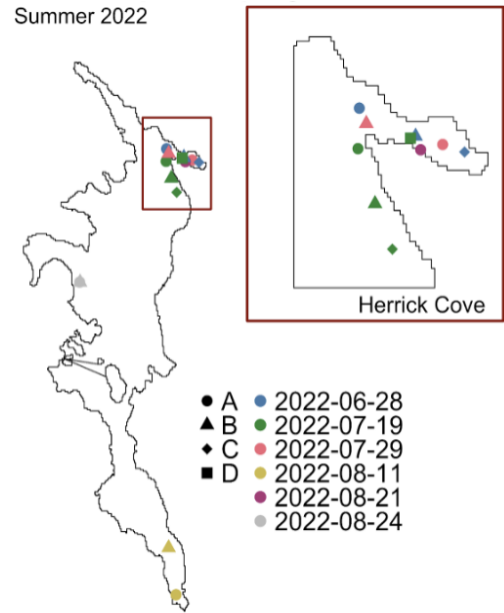


Figure 1 - Map of sampling locations across Lake Sunapee.

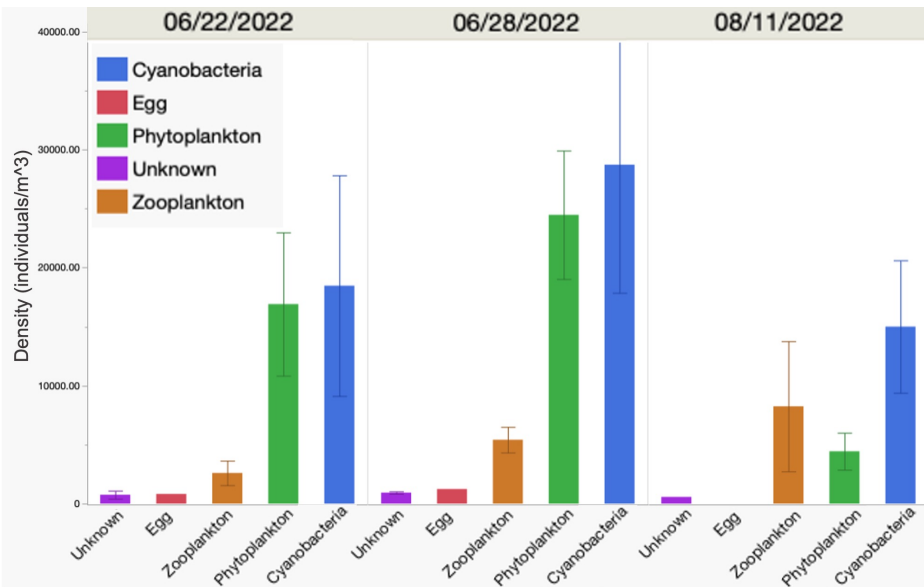


Figure 2 - Taxonomic distribution in Lake Sunapee. The x-axis shows the various taxonomic groups, and the Y-axis shows density in units of individuals per cubic meter. This figure is separated into three sections corresponding to different sample dates.

show the density of each taxon in Lake Sunapee from the samples counted so far in June - August 2022. I have also included a map showing the various sampling locations on the lake (Fig.1) and some photos of the most prominent planktonic organisms in the samples (Fig. 3). In the spring, I will continue my counts for July/Aug and the southern portion of the lake, and start building a model of the planktonic food web.

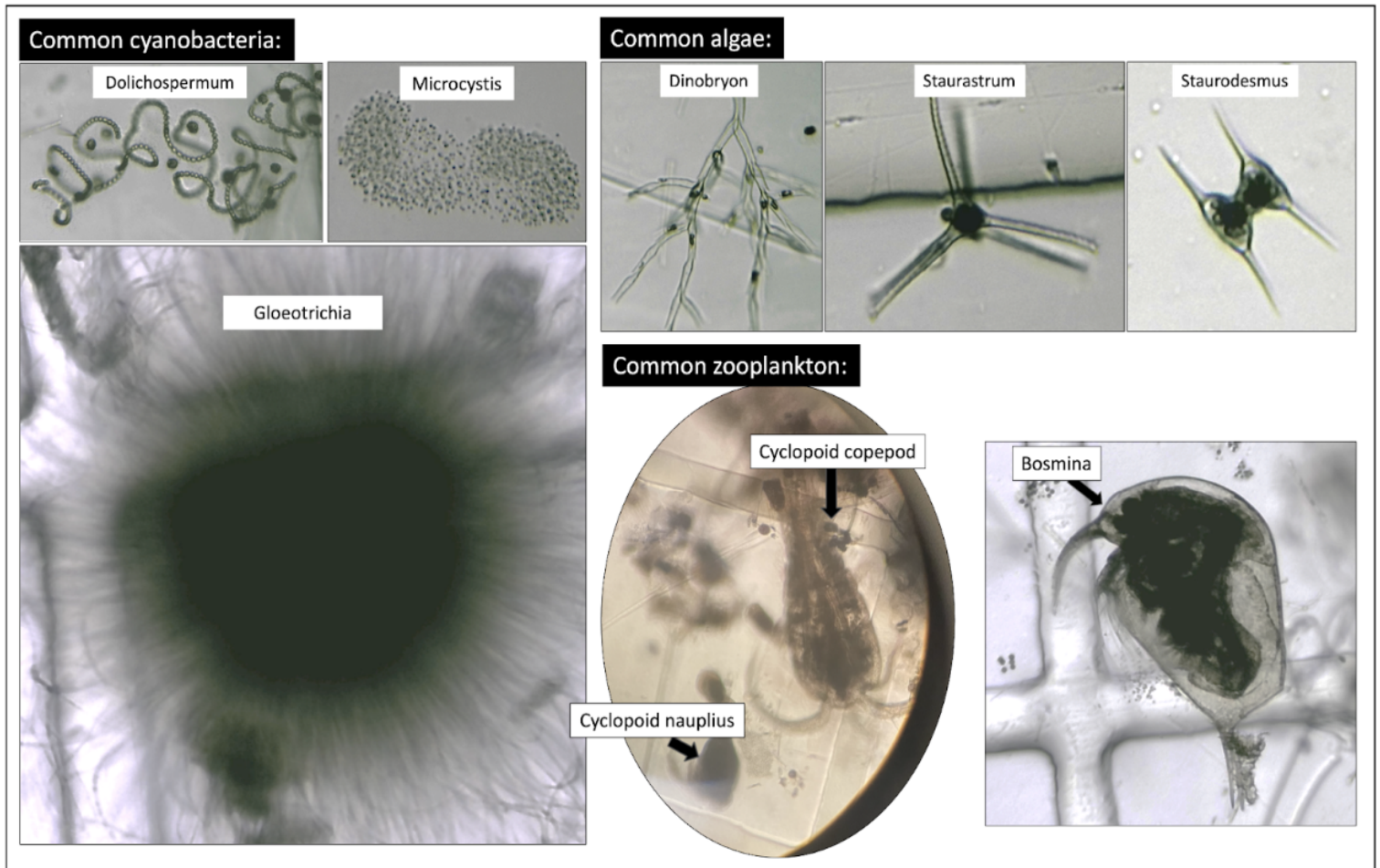


Figure 3 – Examples of the some of the most common planktonic organisms found in our plankton net samples so far from the summer 2022 in Lake Sunapee.