

# Aquatic Biology Fall 2009

## Limnology Lab Assignment

Aquatic habitats are complex places influenced by biotic and abiotic factors. In lentic systems thermal stratification of the water column exerts a strong effect on the distribution of oxygen, nutrients and, ultimately, aquatic life.

The **Introduction** should briefly outline the typical annual cycle of dimictic (and holomictic) temperate lakes and how vernal stratification influences productivity. Draw upon, and cite correctly, other studies as examples to support your statements.

The **Methods** should briefly describe Silver Lake, MN (including a contour map downloaded from Lake Finder on the MN DNR web site) and the methods used to obtain data on temperature and dissolved oxygen.

The **Results / Discussion** section should describe in words the main findings observed, referring to the figure containing the depth profiles of oxygen and temperature. Given the profiles of temperature and DO, add additional lines for the likely depth profiles for CO<sub>2</sub>, P and N for Silver Lake and explain the CO<sub>2</sub>, P and N profiles probably take these forms.

The **References** section should contain at least 3 primary sources cited in the text. Follow the formatting convention of the journal *Hydrobiologia*. I have provided 5 (posted on web site) but other/additional sources are also perfectly fine as long as they come from peer-reviewed journals.

Total length should not exceed 4 pages typed and **double spaced**.

## **Grading rubric (grade / 24 points to be converted to a score out of 8 for final grade)**

### Introduction (7)

- Opening with a general introduction to the broad phenomenon under study (factors affecting the distribution of nutrients and productivity in dimictic lakes) (2)
- Overview of the annual cycle that results in vernal thermal stratification (2)
- References to the primary literature providing examples of these phenomena (2)
- Predicted distribution of temperature and dissolved oxygen for Silver Lake in late summer (1)

### Methods (2)

- Briefly describe the study site (1)
  - o Location: latitude and longitude of lake
  - o Map of Silver Lake including depth contours from the MN DNR web site. Be sure to insert a figure legend below the map
- Briefly describe the methods used to collect the data (1)
  - o Boat, secchi disc
  - o Temp/DO meter used was a YSI Model 55 meter

### Results/Discussion (10)

- A verbal description of the depth profiles for temperature and dissolved oxygen, and secchi depth (2)
- A figure showing the depth profiles, with figure legend below (2)
- Conclusion about the trophic status of Silver Lake (Oligotrophic or Eutrophic?) (1)
- Inferences about the likely depth profiles for C, N and P (3)
- References to the primary literature to support these conclusions and inferences (2)

### References (3)

- At least three references from the primary literature cited using the formatting convention of *Hydrobiologia*

### Writing style (2)

- Flow: ease of reading, logical succession of statements, organization of ideas (1)
- Polish: free from typographical errors (proofread your work!) (1)