Lakes and Environmental Change
Final Lab Report
Winter, 2006

Introduction:
For this lab report, you will be pulling together all of your vast knowledge of Collins Pond and Ballston Lake to interpret the sediment cores that we obtained from these lakes. Applying the age-old axiom that the present is the key to the past, you will use what you know of the modern limnology and surface sample sedimentology to interpret downcore variations in several basic sedimentologic parameters. For this lab, you will also be provided with data from past cores taken from these and other lakes so that you will have a more complete data set than would otherwise be available.

Objectives:
1. to interpret the downcore variation in MS, organic and inorganic C content, and bulk density in each of the cores.
2. to explain the downcore variation seen in MS, organic C, and bulk density in terms of regional vegetation and climate change as reported by Overpeck (1985), Bierman et al. (1997), and Toney et al. (2003).
3. to compare and contrast the cores from Collins Pond and and Ballston Lake.
4. to explain the differences noted in 1-2 (above) using what you know (from previous labs) of each lakes’ limnology, drainage basin characteristics, and dominant controls on sedimentation and lake productivity.

Methods:
• On one page for each lake, generate downcore plots of all parameters.
• Use the age-depth models to estimate the age of major changes in lake sedimentation, and label these ages on your plots

Tables:
1. All data tables shrunk to fit on as few pages as possible. The raw sedimentological data (esp. MS data) should go at the end of your lab reports. The age depth models can be imported into the body of your text.

Key Issues to Address:
• What do you believe caused the variations in MS, organic and inorganic carbon, and bulk density for each of the cores?
• Describe the history of each lake as you read it from the sediment data (esp. MS, organic and inorganic C and grain size data)
• Based on a comparison of the core data with your surface sediment data from Lab report #3, estimate how long the modern state of each of the lakes has existed. What do you believe caused the lakes to evolve to their modern states?
• Compare the average C content of the Holocene section of the two cores. Is this consistent with surface sample data and with what you know of the drainage basins and modern limnology of the lakes?
• Compare the average MS content of the Holocene section of the cores. Is this consistent with relative MS values for surface sediment samples from the lakes and with what you know of the geology of the drainage basins.
• Finally, explain the downcore variation seen in in terms of regional vegetation and climate change as reported by Overpeck (1985) and Bierman et al. (1997), and Toney et al. (2003).