

Swimming, boating, and fishing attract people from all over the northeast to Maine lakes during the summer. In winter too, Maine lakes offer skating, snowmobiling and ice fishing until late winter when the ice starts to melt. In olden days, people used lakes instead of roads and often floated logs to mills when there was no ice. The day when all the ice disappeared is called "ice out". These people who used the lake for work started keeping track of "ice out" as early as the 1880s.

Today, scientists continue to record the date of "ice out" using Julian days. Instead of using months they just number the days starting with January 1 as day one. February 1 would be day 32 and March 1 would be... well that depends if it is a leap year. The U.S. Geologic Survey

Climate Change Data Analysis & Essay, Grades 7-8



question in 500 words or less; be sure to include your ideas along with supporting evidence (details) from the data and graphs. Use the following four steps to guide your analysis and report format when writing your essay.

Step #1 Go to web page http://www.maine.gov/dep/blwq/ docteacher/lesson/iceout.htm and select the "ice out data" Select <u>two or more</u> lakes and create an *XY scatter graph* for each. Put *"year"* on the X axis and *"ice out date"* data on the Y axis. Add a



trend line or trend line equation to the graph.* Use the trend line equation to determine if ice out dates have changed over time. Describe how "ice out dates" have changed over time in each of the lakes you selected.

* To create a trend line or equation: In Excel, right click on one point data on the graph and select add a linear trend line. In Appleworks, see other instructions for trend line equations.

Step

#2: Using the data from the web, "Average Spring Temperature", create

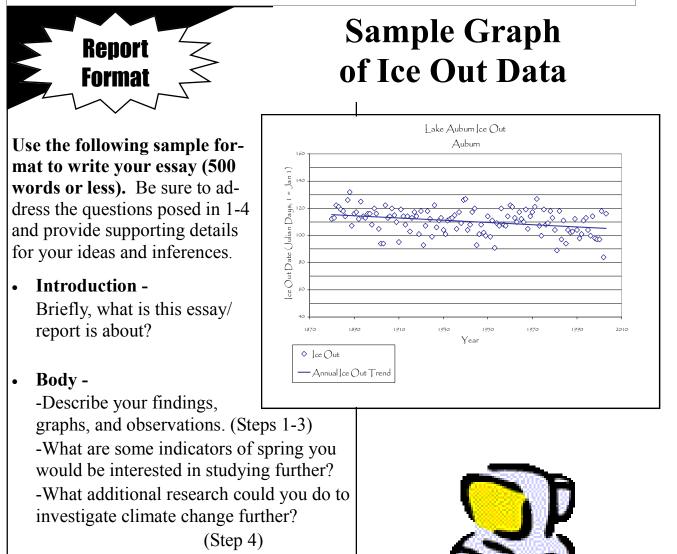
an XY scatter graph and



Ice out on Sebago Lake, spring 1985 (USGS)

trend line for the weather station that is closest to your lakes' locations. Again "year" should be on the X axis and "temperature (average March to May)" should be on the Y axis. Describe how the temperature trend has changed over time. **Step #3:** Compare and contrast similarities and differences between the ice out data and air temperatures. Do you think this data shows a trend that may serve as an indicator of earlier spring time weather overall? Explain your thinking: describe at least <u>three</u> observations or inferences about the data.

Step #4: What other indicators might help you to answer the question: Is spring time weather coming earlier each year? Describe at least <u>two</u> possible indicators and explain your thinking. If you were a scientist continuing to investigate climate change, what additional research questions would you explore? Describe at least <u>one</u> new question for research.



• **Conclusion -**Summarize your findings and observations.