Data Analysis *Teacher's Guide*

Students analyze downloaded data using statistical analysis, tables and graphs.

GRADE LEVEL: 9th – 12th

SUBJECT AREA/COURSE: Chemistry, Environmental Science

SUNSHINE STATE STANDARDS:

- The student uses the scientific processes and habits of mind to solve problems. (SC.H.1.4)
- The student understands that most natural events occur in comprehensible, consistent patterns. (SC.H.2.4)
- The student understands that science, technology, and society are interwoven and interdependent. (SC.H.3.4)

ACADEMIC OUTCOMES/LESSON OBJECTIVES:

- Students will create a data table using the website and a spreadsheet and word processing program.
- Students will calculate the mean value of water quality data from the website.
- Students will determine the effect of outliers on the mean.
- Students will determine the quality of water for a given lake by analyzing three different mean values.

TEACHER BACKGROUND INFORMATION: Practice the student activity using Lake Thonotosassa, then explore the web pages of lakes near your school to see which will fit your needs. Not all lakes will have data for dissolved oxygen and for nitrogen (mixed) for the same period of time. You may want your students to start with Lake Thonotosassa, since it matches the example graph, or begin with nearby lakes you have selected.

Fecal coliform is used in the table as an example of pollution. Not all lake will have this information for all dates. Access this information through the Advanced Graphing Tool or the Data Download found either at the bottom of the Water Quality page for each lake or under Research in the main menu. Add it to the list of parameters if data is available.

You may want to choose different water quality parameters. Check to be sure there are values recorded for the lake and time period you select.

MATERIALS NEEDED: Internet access with a bookmark for www.Hillsborough.WaterAtlas.org, Word or equivalent program.

SAFETY: N/A

VOCABULARY: parameter, mean, average, outlier

AUTHOR: Trent Daniel – Modified from the original lesson plans created for the Seminole County Watershed Atlas.