**From: Date: Dec 10, 2015**

Dr Robert Pillsbury

Biology Department

University of Wisconsin Oshkosh

800 Algoma Blvd.

Oshkosh, WI 54901

920-424-3069

pillsbur@uwosh.edu

**To:**

Jeremy Williamson

Polk County Land and Water Resource Department

100 Polk County Plaza, Suite 120

Balsam Lake, WI 54810

**Project Overview**

Wisconsin Lakes Report: Analysis of phytoplankton samples from Big Blake Lake and Lotus Lake during June-August 2014.

**Methods**

This set of lake samples was received in the spring of 2015.

Lake samples were concentrated when necessary in glass funnels. Samples were then enumerated using a Palmer-Maloney nanoplankton counting chamber and a Olympus BX40 research microscope at 400x magnification. This allows for the calculations of cell densities (cells/ml) At least 400 cells were counted and identified to genus using Prescot (1952), Taft and Taft (1971) Wehr and Sheath (2003) as the main taxonomic guides. All samples were counted within 5 weeks of receiving them.

**Results**

Cell densities for each sample are reported in Table 1. The data is grouped by lake and algal division. An electronic version will be included.

-The taxa labeled “centric sm” refers to small (<8 um) centric diatoms which most likely belong to the genus *Cyclotella* but distinguishing details important to taxonomic resolution could not be resolved.

-The Taxa labeled “Naviculoid” represents diatoms that resembled the genus *Navicula* but lack any taxonomic features resolvable at 400x with uncleaned samples.

-The taxa labeled “Coccoid greens” represent small (3-6um), coccoid, green algae (phylum Chlorophyta) cells that lack characteristics to distinguish among several genera from the order Chlorococcales.

**Discussion**

In both Big Blake and Lotus lakes, there is a general increase in blue-green taxa (Cyanobacteria) from June to August which is typical of many mesotrophic and eutrophic lakes. For each month, Big Blake Lake has high cell densities compared to Lotus Lake.

In general there seems to be a good agreement with both the cell densities and taxonomic composition when these samples are compared with past analyses conducted by the Wisconsin State laboratory of Hygiene from these same lakes. Those reports noted the presence of the diatom genus *Cavinula* was recently split off from the genus *Navicula*. In the cells counts presented in this report those cells would have been labeled as “Naviculoid”. At the magnification used for this report, I did not believe that I could consistently and accurately keep that two taxa separate.

References:

Prescott, G.W. 1952. Algae of the western great lakes area. Otto Koeltz Science Publishers. Koenigstein. Germany.

Taft, C.E., and Taft, C.W. 1971. The algae of western Lake Erie. Bulletin of Ohio Biological survey. 4(1). College of Biological sciences, Ohio State University. Columbus, OH.

Wehr, J.E., and Sheath, R.G. (eds) 2003. Freshwater algae of North America. Ecology and Classification. Academic Press. New York, NY.