

2010 Lakes Water Quality Data

presented to the Dunes City Council 7-8-10 by Mark Chandler

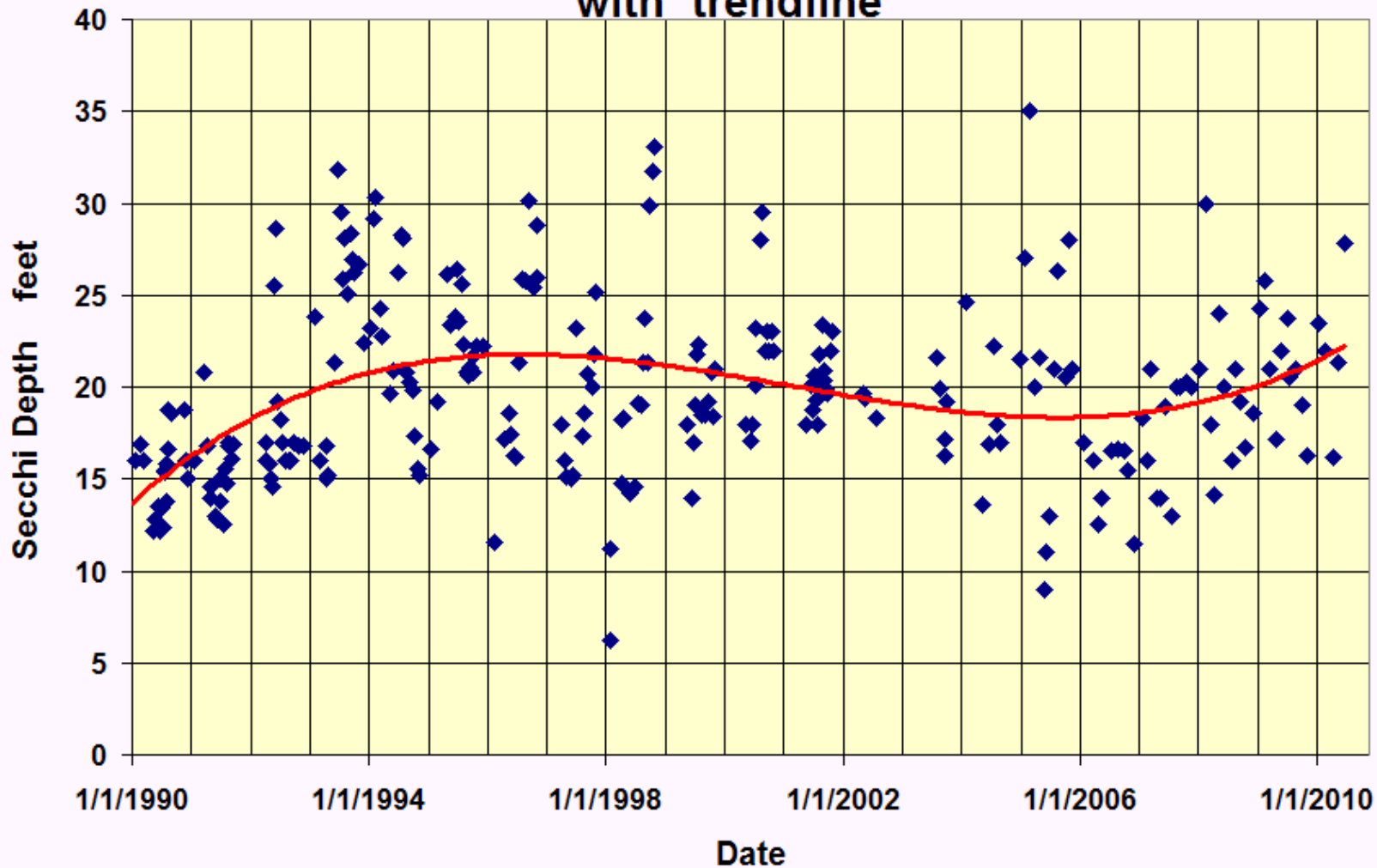
Introduction

The following charts illustrate data gathered by volunteers trained by the Oregon Dept. of Environmental Quality and Siuslaw Watershed Council participating in a monitoring program funded by Dunes City. Three water quality parameters are examined, clarity, chlorophyll-a, and total phosphorus. Trend lines are applied to the clarity charts where there is adequate data and it provides useful information.

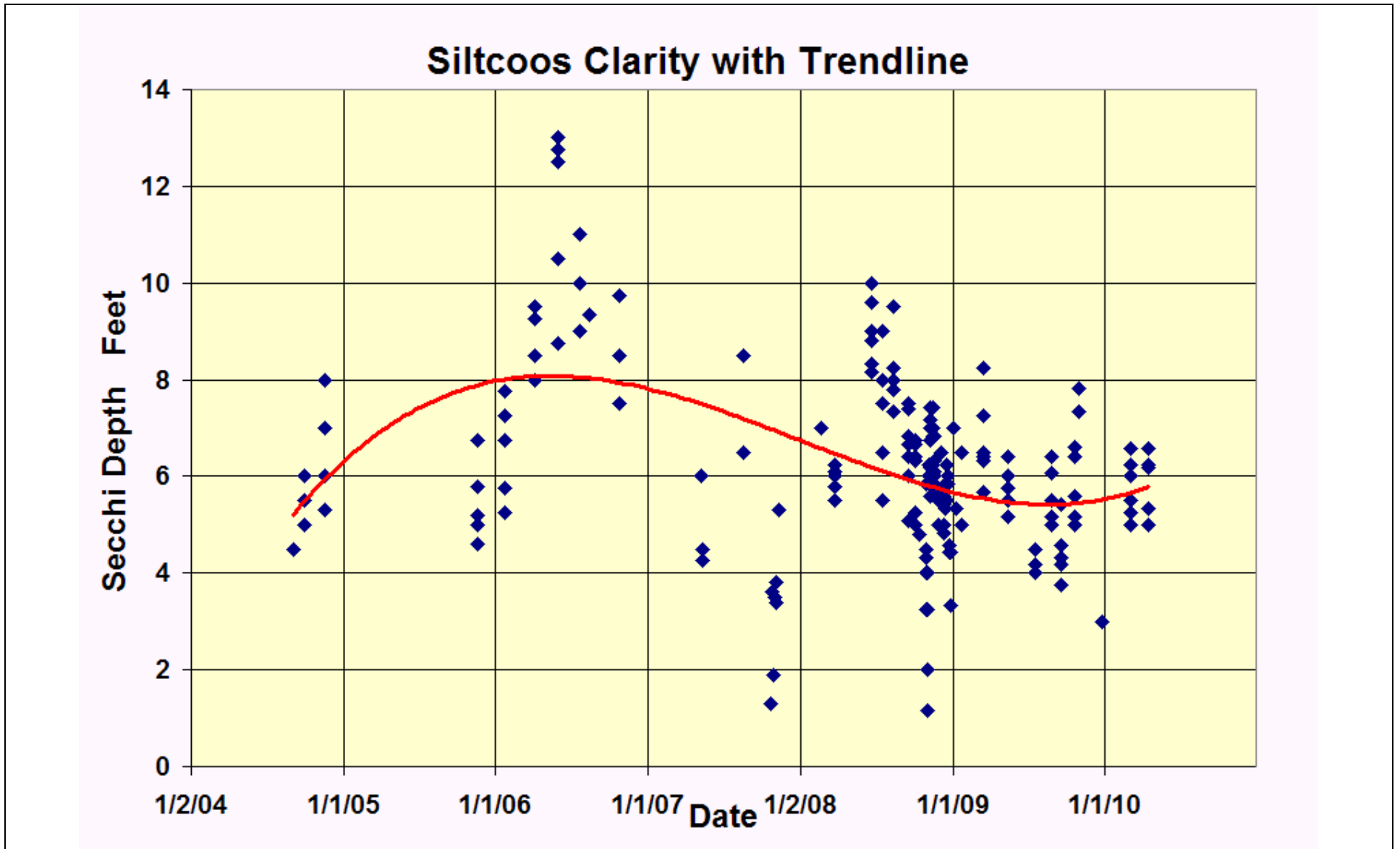
Secchi

The following two clarity chart measurements are taken by lowering a standard disc into the water and recording the maximum visible depth.

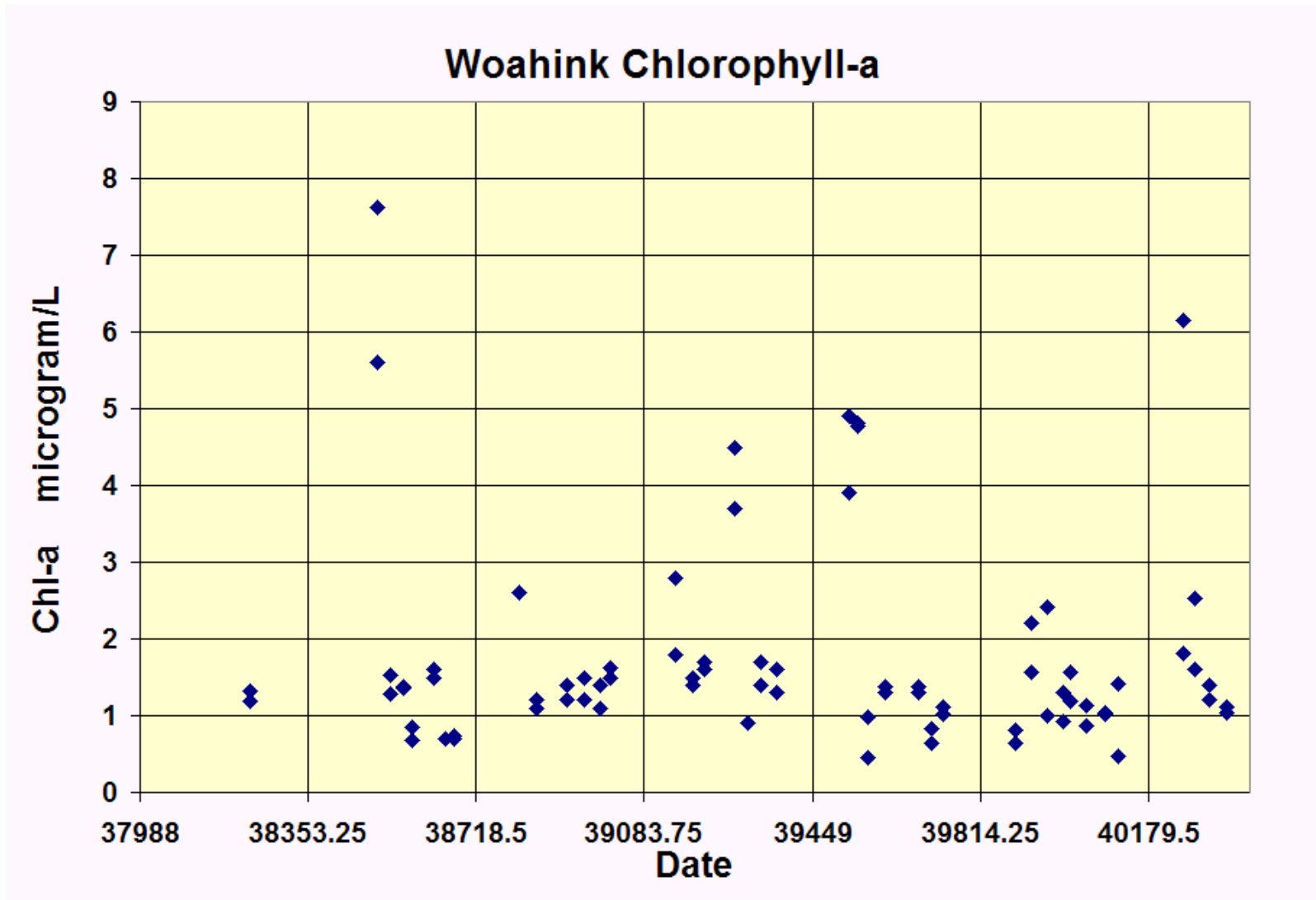
Woahink Atlas Site Clarity with trendline



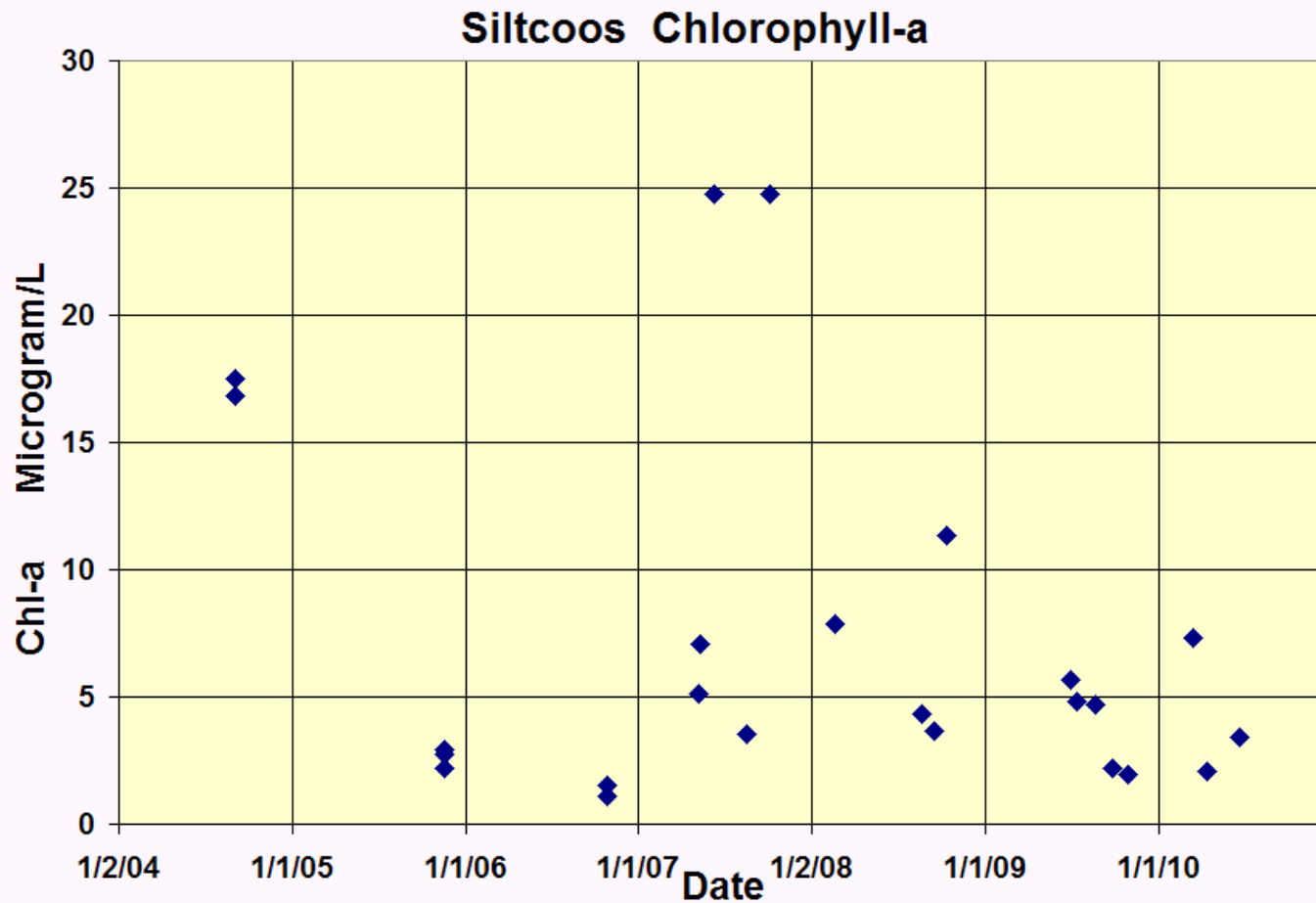
The chart above shows the clarity of the water at the Atlas site in Woahink Lake over the last 20 years. The average depth is somewhat greater at present, a bit over 20 ft., than it was in 1990. The data shows the early 1990's were a period of lower clarity, followed by a period of high clarity in the late 1990's. The lowest readings correspond to either a time of high rainfall and runoff or a spring algal bloom.



The above chart shows the clarity of the water in Siltcoos Lake from 2004 up until June of 2010. The trend line indicates greatest visibility in 2006 with less in the most recent years reflecting the algal blooms that are very apparent in the fall of 2007 and 2008.

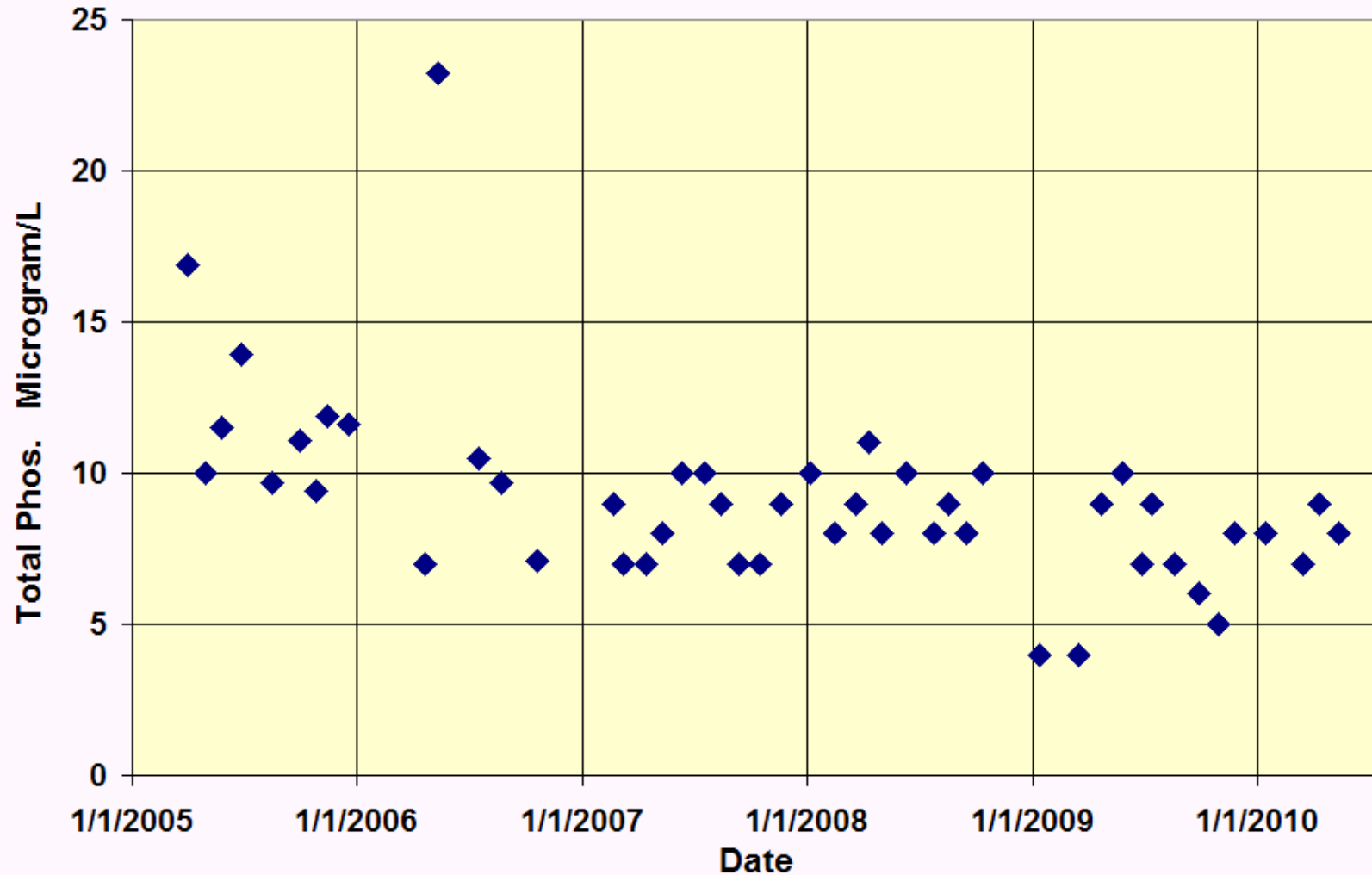


This chart shows the levels of Chlorophyll-a in micrograms per liter at two sites, Atlas and Bridge 1, on Woahink Lake from 2004 up until June of 2010. Higher levels indicate elevated presence of algae in the water. The higher data points are generally associated with springtime blooms. The species that predominate during these blooms are usually *Cyclotella*, a diatom, or *Chrysochromulina*, a chrysophyte. While these species do not raise health concerns; they can impart an unpleasant taste and odor to the water. The average level over the 6+ years is fairly stable. The level at the two different sites are generally well correlated. These samples are sent frozen to the University of Washington for analysis.

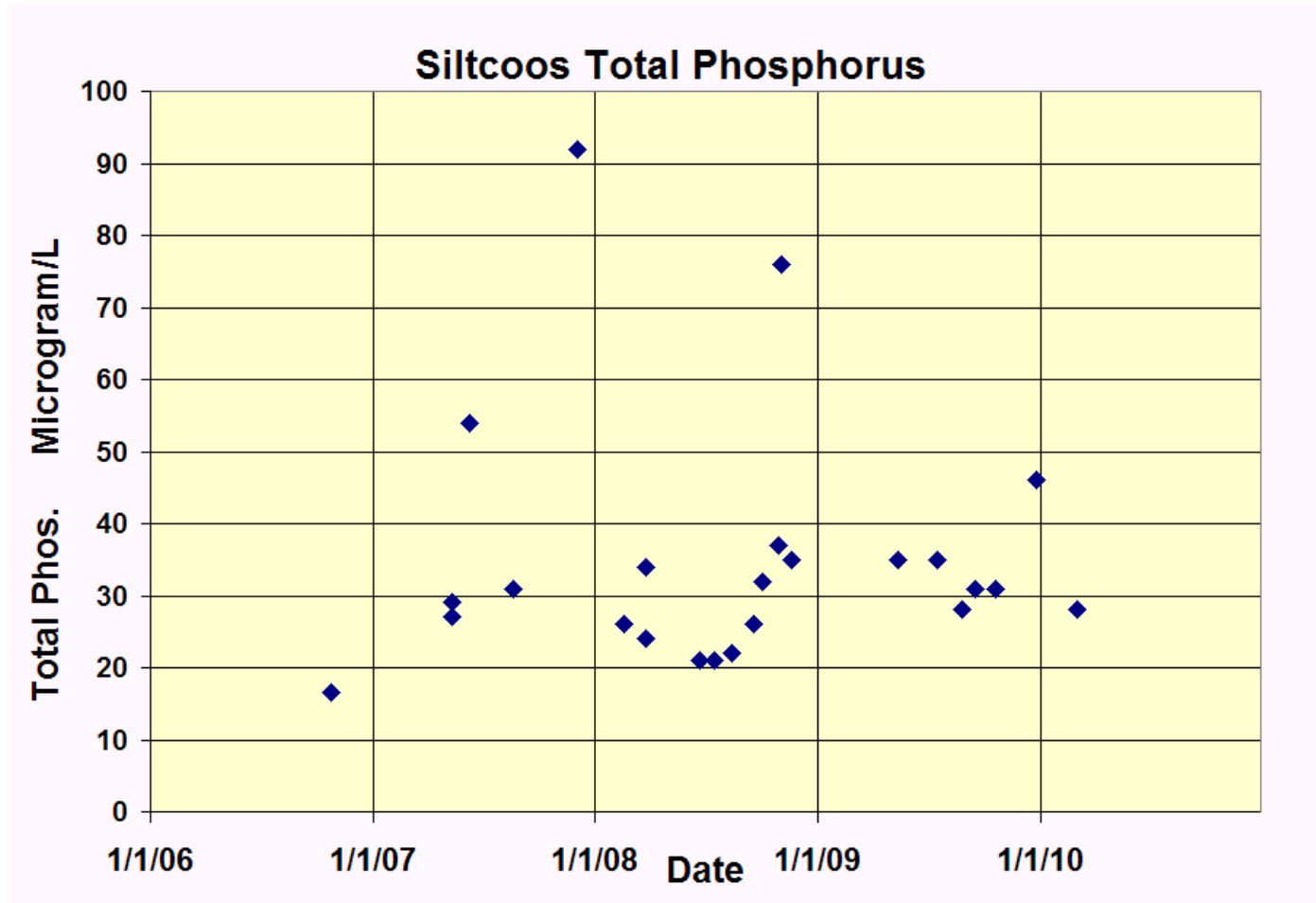


This chart shows the levels of Chlorophyll-a in micrograms per liter in Siltcoos Lake from 2004 up until June of 2010. Higher levels indicate elevated presence of algae in the water. The higher data points are generally associated with fall blooms. The predominant species during these occurrences has usually been *Anabaena*. The Chlorophyll-a samples are sent frozen to the University of Washington for analysis.

Woahink Atlas Total Phosphorus



This chart shows the level of Total Phosphorus in micrograms per liter at the Woahink Atlas site, 2005 up until June of 2010. Recent data indicates a somewhat lower level at present than in earlier years. Lower total phosphorus levels are associated with better water quality, as phosphorus is the nutrient that limits algal growth. These samples are sent frozen to a lab at Oregon State University for analysis.



Total phosphorus levels in micrograms per liter in Siltcoos lake 2006 up until March of 2010 is displayed in the chart above. A cyclical pattern for the phosphorus levels is apparent in 2008. This may be due to weed growth increases in the spring and summer causing the nutrients to be bound up in the weeds and so the level in the water drops. As the weeds break down and the runoff increases in the fall the levels increase. The highest levels correspond with fall algal blooms. These samples are sent frozen to a lab at Oregon State University for analysis.

Summary

The water quality in Woahink Lake is generally good and stable at present with relatively minor spring algal blooms; in Siltcoos Lake we have seen more significant blue-green algal blooms in 2 of the past 3 years and that is reflected in the data.