

All RUSS units have been removed from the lakes.
They will be redeployed in the spring.

[Lake Data](#) [Understanding Lakes](#) [Current Issues](#) [Land Use](#) [History](#) [Lake Users](#)

Understanding Lakes

Understanding Lake Ecology Index	
PHYSICAL	BIOLOGICAL
Formation	Lakezones
Variability	Food Webs
Light	Primary Producers
Density Stratification	Chlorophyll
Watersheds	Algal Succession
CHEMICAL	Consumers Decomposers
General Lake Chemistry	Trophic Status
Dissolved Oxygen	Eutrophication
Nutrients	Ecoregions
	Biological Differences



CHLOROPHYLL - A MEASURE OF ALGAE

An in-depth microscopic enumeration of the dozens of species of algae present in a water color each time a lake is sampled is prohibitively costly and technically impossible for most monitoring programs. Further, in many lakes a large portion of the algal biomass may be unidentifiable by nr experts (these are appropriately called LRGTs or LRBGTs -- little round green things and little round blue-green things). However, measuring the concentration of chlorophyll-a is much easier and provides a reasonable estimate of algal biomass. Chlorophyll-a is the green pigment that is responsible for a plant's ability to convert sunlight into the chemical energy needed to fix CO₂ into carbohydrates. To measure chlorophyll-a, a volume of water from a particular depth is filtered through a fine glass filter to collect all of the particulate material greater than about 1 micron (1/1000th of a millimeter) in size. The chlorophyll-a in this material is then extracted with a solvent (acetone or alcohol) and quantified using a spectrophotometer or a fluorometer.

Note regarding Water on the Web: Although the RUSS units do not currently have chlorophyll sensors, a prototype sensor is being developed by Apprise Technologies, Inc. and the Natural Resources Research Institute at the University of Minnesota Duluth. In the interim, surface water (0-2 meter composites) values of chlorophyll-a are being determined at 2-4 week intervals at Ice Lake and Grindstone Lake (by NRRRI) and at two week intervals at Lakes Independence and Minnetonka during the ice-free season (by Hennepin Parks Natural Resources). These data, along with secchi disk depth data and ancillary nutrient data are posted on the WOW Web site as they become available. (Data Only)

become available ([Data/Other](#)).

Both chlorophyll-a and secchi depth are long-accepted methods for estimating the amount of algal biomass in lakes. Secchi depth is much easier and less expensive to determine. However, care must be used in interpreting secchi data because of the potential influence of non-algal particulate material, such as from stream discharge or re-suspended bottom sediment. Also, the tea color of some lakes due to dissolved organic matter from bogs, can have an effect on secchi depth readings as well. Even when chlorophyll-a is measured, it may be important to also examine the algal community microscopically on occasion, since the mix of species may influence lake management decisions.

[Back](#) · [Index](#) · [Forward](#)

[Home](#) · [What's New](#) · [About Us](#) · [Contact Us](#)
[Frequently Asked Questions](#) · [Site Map](#)