

DIATOMS AS BIOLOGICAL INDICATORS FOR ENVIRONMENTAL ASSESSMENT: A LAB ACTIVITY FOR UNDERGRADUATE ECOLOGY COURSES

Virginia M. Card

Natural Sciences Department, Metropolitan State University, St. Paul Minnesota USA 55106

Biological indicators, such as diatoms, are widely utilized for environmental assessment and monitoring. This poster presents a lab activity used in an upper division course in ecosystem and global ecology that is adaptable for use in a range of undergraduate science courses including ecology, general biology, and environmental science. It is the third in a series of three lab activities for which the learning objectives include skill with light microscopy, knowledge of ecology, understanding of environmental assessment methods, quantitative reasoning, civic engagement, and diatom appreciation. In this activity, students use diatoms to assess the trophic status of a water body near campus. Working with prepared slides, students identify and count diatoms at the species level, with the aid of a local flora and on-line identification guides: Diatoms of the United States (westerndiatoms.colorado.edu), Common Freshwater Diatoms of Britain and Ireland (craticula.ncl.ac.uk/EADiatomKey), Great Lakes Diatom Home Page (www.umich.edu/~phytolab), Diatoms Genus Project (research.calacademy.org) and Algae Image Database (diatom.ansp.org/AlgaeImage). Students calculate the trophic status of the water body using a weighted averaging function and the trophic optima for species from van Dam et al. (1994), Kelly & Whitton (1995; via the Common Freshwater Diatoms of Britain and Ireland web page), or a local transfer function training set. With successful completion of this lab, students have the tools that enable them to develop and propose their own independent project assessing and comparing the environmental conditions of local water bodies, using diatoms as biological indicators.

POSTER