

WATERSHED ALTERATION IMPACTS TO BENTHIC DIATOM ASSEMBLAGES IN STREAMS. Nathan J. Smucker and Naomi E. Detenbeck. U.S. EPA, ORD, NHEERL, Atlantic Ecology Division, 27 Tarzwell Dr., Narragansett, RI 02882.

To examine the use of diatoms as indicators of urban impacts to streams, we identified relationships of diatom assemblages with water chemistry and land use for 160 sites in New England. The first axis of a nonmetric multidimensional scaling ordination showed significant relationships of diatom assemblages with increased urban land use in the upstream watershed, conductivity, and concentrations of P and N. Diatom metrics indicating high or low P or N conditions had nonlinear relationships with nutrient concentrations, with high P diatoms increasing and low P diatoms decreasing with greater TP ( $R^2 = 0.42, 0.22$ , respectively;  $P < 0.001$ ), and high N diatoms increasing and low N diatoms decreasing with greater  $\text{NO}_3$  ( $R^2 = 0.42, 0.25$ , respectively;  $P < 0.001$ ). Motile, high P, and high N diatoms increased with greater amounts of developed land use ( $r = 0.40, 0.56, 0.44$ , respectively;  $P < 0.001$ ). LOWESS regressions indicated that nutrient sensitive and tolerant diatoms may have threshold responses to increased watershed development and nutrients. Change-point analysis and TITAN will be used to explore and document any statistically significant threshold responses.