

## Evaluation of Three Algal Bioassessment Techniques as Indicators of Nutrient Enrichment and Changes in Stream Loading

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### Biographical Sketches of Authors

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### Abstract

Despite the prevalence of eutrophication in streams, few methods have been shown to effectively monitor biological impairment from nutrients. Three periphyton bioassessment methods (periphyton biomass a chlorophyll *a*, diatom community assessment, and a field-based rapid periphyton survey) were tested at 20 stream segments with known or suspected impairment caused by nutrient enrichment. The methods were also tested at 14 ecoregional reference sites for comparison. Training in sample collection and taxonomy was an integral part of the project. To provide the most complete characterization of water quality conditions, habitat quality and the macroinvertebrate and fish communities were also assessed at the reference and study reaches. Water quality data was also collected. Pearson correlation coefficients showed significant redundancy among several biological variables. Preliminary results suggest that periphyton chlorophyll *a* and percent cover of suitable substrate (CSS) effectively detect nutrient enrichment problems. Periphyton as chlorophyll *a* was significantly correlated with average total phosphorus (TP) concentrations ( $p=0.05$ ;  $r=0.88$ ). The correlation between average TP and percent CSS was not as strong ( $p=0.02$ ;  $r=0.64$ ).