POSTER PRESENTATION

RESPONSE OF ALGAL COMMUNITY TO ANTHROPOGENICALLY-INDUCED TEMPERATURE DIFFERENCES IN LAKE SINCLAIR, BALDWIN COUNTY, GEORGIA

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Algal community composition has long been regarded an excellent indicator of environmental change in aquatic systems, responding with quantifiable trends over relatively short time periods. We have used this relationship to examine the effects of significant water temperature gradients on algal community composition in Lake Sinclair, Baldwin County, Georgia. Steam-based power generated by a local factory (Georgia Power) results in the daily discharge of recycled lake water an average of 6°C (and up to 10°C) warmer than typical ambient temperatures, although chemically unchanged. Two sites were chosen for comparison of effects, one in the immediate "warmer" area of the power plant and the other approximately 2.5 km to the south representing typical background lake temperatures. Site temperatures were most divergent during the winter, while summer values remained much more similar. Algal samples were collected bi-weekly since October, 2007, along with measures of water temperature, pH, and conductivity. Lab analysis of algal diatom community composition was performed using cleaned (pre-digested organic) samples preserved on permanent slides. Warmer water temperatures were anticipated to promote a greater diversity of species, as our results demonstrate. Much of the cold water community was dominated by the species *Achnanthidium minutissimum* (Kützing) Czarnecki, with secondary abundances of other Pennate genera including *Nitzschia*, *Gomphonema*, *Synedra* and *Cymbella*. Warm water community composition was more diverse than cold water. The dominant species was again *A. minutissimum*, but secondary in abundance were *Navicula* and *Cymbella* species form were at much greater abundances than in cold water. Additionally, *Thalassiosira bramaputrae* (Ehrenberg) Håkansson et Locker and *Discostella stelligera* (Hustedt) Houk et Klee were identified uniquely in warm water. Thermal pollution is implicated here as a factor inducing changes in the normal algal community composition, which may impact other trophic levels and ultimately the overall ecology of Lake Sinclair.