

DIATOM COMMUNITY DYNAMICS IN GEORGIA STREAMS WITH REPEATED SAMPLING

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Evaluating water quality in aquatic systems through time is important for the understanding and maintenance of healthy ecosystems. Using biota in assessment is useful as biological communities integrate the chemical and physical characteristics of environment. Diatoms are valuable indicators of ecosystem conditions and species composition and abundance in Georgia streams have been assessed. Diatom community indices are incorporated into the state of Georgia assessment of state's waters strategy. This project began in 2008 with a total of 550 samples collected. Surface waters in the State of Georgia, USA by law have to protect human health, fish conservation, wildlife, and other beneficial aquatic life. Wadable streams and rivers in the State of Georgia were sampled following standard protocols by Environmental Protection Division biologists. Diatom community composition and physicochemical characteristics at each site were assessed and compared. In this project we present 70 common diatom taxa for the streams samples at least 3 different times. Population morphology and size descriptions through time were use stream classification and changes. Unique diatom water quality index was tested on documented community and compared to other indices in the literature. Species richness, dominance, diversity and presence of Cymbelloid vs Naviculoid/Nitzschioid diatoms suggest 70 % of the streams evaluated can be classified having good or excellent water quality. Changes in stream water quality through time are reported.