



## **Utilizing *Spirogyra grevilleana* as a Phytoremediatory Agent for Reduction of Limnetic Nutrients and *Escherichia coli* Concentrations**

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The freshwater alga *Spirogyra grevilleana* was used in an experimental biofiltration system to reduce levels of *Escherichia coli*, nitrates, and phosphates. Water collected from a 2.32 ha lake in Atlanta, Georgia, USA was pumped at a constant rate ( $0.617 \text{ m}^3 \text{ hr}^{-1}$ ) through the algal filtration devices with low and high concentrations of *S. grevilleana*. Effluent water was tested over time for *E. coli*, nitrate, phosphate, dissolved oxygen, and pH levels. Both concentrations of *S. grevilleana* reduced *E. coli* by 100% and significantly reduced nitrate concentrations ( $30\% \pm 13\%$ ) and phosphate concentrations ( $23\% \pm 5\%$ ) while maintaining dissolved oxygen and pH at normal levels. Utilizing *S. grevilleana* in an algal filtration device could potentially provide a sustainable, flexible, and low-cost method of *E. coli* reduction in freshwater lakes worldwide. Initial results indicate that the use of *S. grevilleana* in conjunction with an algal filtration device is potentially capable of creating potable water.