Frydenborg Ecologic, LLC
www.frecologic.com
850-228-4658

Assessment of Deer Moss Creek Flora Using the Rapid Periphyton Survey (Okaloosa County)

August, 2016

Client: Niceville-Valparaiso Regional Sewer Board/Sweetgum Environmental

Project Summary

Due to apparent discrepancies in recent FDEP Rapid Periphyton Survey (RPS) data, Frydenborg EcoLogic assisted the Niceville-Valparaiso Regional Sewer Board by conducting a field assessment of Deer Moss Creek and providing a variety of statistical analyses. The Frydenborg EcoLogic results, conducted one month after FDEP's sampling, indicated that the RPS achieved the evidentiary threshold (<25% coverage of rank 4-6) **at all five sites sampled**, including the same site sampled by FDEP. Only 5.6% of 495 individual observations (totaling all five sites) had an RPS measured in the rank 4-6 range. Statistical analysis demonstrated that algal growth was more influenced by proximity to the bridge and percent canopy cover than to nitrate concentrations. The coefficient of determination was stronger between RPS vs. distance from the bridge (**$r^2 = 0.43$, $p = 0.024$**) and distance from bridge vs. canopy cover (**$r^2 = 0.52$, $p = 0.011$**) than it was for either RPS vs. canopy cover for all sites (**$r^2 = 0.26$, $p < 0.001$**), or RPS vs. TN for all sites (**$r^2 = -0.23$, $p = 0.65$**). This suggests that a combination of factors associated with the bridge construction (soil disturbance, holding pond creation, tree clearing) were the most influential stressors in determining the RPS rank 4-6 coverage.

Innovative approach

Frydenborg EcoLogic determined that the FDEP sampling site near the bridge was not representative of the creek, that FDEP overestimated the algae present, likely by counting *Fontinalis* (an aquatic moss), and that algal growth was more influenced by proximity to the bridge and percent canopy cover than to nitrate concentrations. This information was presented in an attempt to prevent an incorrect Impaired Waters Rule listing of the creek. Subsequent sampling by FDEP Quality Assurance staff indicated agreement with Frydenborg EcoLogic's data.

Project Manager: Russ Frydenborg
Sampling: Russ Frydenborg, Beck Frydenborg
Data analysis and GIS: Beck Frydenborg
Report: Russ Frydenborg, Beck Frydenborg

Contact: Rob DeGraaf
robdegraaf@verizon.net
(813) 365-2411