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Phytoremediation of Coal Bed Methane Produced Water

The purpose of this study is to see if Ulva Lactuca, Black Mangrove, and Chaetomorpha change the DO, SAR, TDS, TSS, ammonia, conductivity, and pH of coal bed methane produced water. I am also testing to see if one or more of the plants listed above, affects the survival rate of Daphnia Magna in the coal bed methane produced water. I hypothesize that one or more of the plants used in the study will affect the water quality and/or survival rate of the Daphnia Magna. Sixteen jars full of coal bed methane produced water were made, four for each plant type. Every other day, each plant-filled jar was tested for pH and conductivity. The plants were removed after 50 days and five Daphnia were then placed into each jar. Every other day for 15 days, the daphnia survival for each individual jar was checked. Before the plants were put in, and at the end of the daphnia magna testing, TSS, DO, pH, TDS, ammonia, and SAR were tested on each different water. Chaetomorpha and Ulva Lactuca Daphnia survivals were statistically significantly higher than both the control Daphnia Survivals and the Black Mangrove Daphnia survival with a 99% confidence level according to the Mann-Whitney U test. Based on the SAR, ammonia, and Daphnia survival rates, my results indicate there may be some potential for Phytoremediation with the Ulva and the Chaetomorpha.