The Natural Decontamination of Industrial and Agricultural Water

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Purpose: To analyze the decontamination ability of coontail, sago pondweed, and barley straw. Secondly, to determine the decontamination ability of natural wetlands. Procedures: Small Scale Study & Large Scale Study: Tested water samples from three different locations (beet plant, ethanol plant, and the Wild Rice River). Placed two different aquatic plants (coontail & sago pondweed) and one cereal straw (barley) in water from each of the locations. Tested water samples for amounts of phosphates, nitrates, ammonia, pH, conductivity, and bacteria growth. Repeated this procedure a total of four repetitions. Tewaukon Refuge: Collected water samples from four different water sources located at the Tewaukon National Wildlife Refuge. Tested water samples for amounts of dissolved oxygen, carbon dioxide, phosphates, nitrates, ammonia, and bacteria growth. Repeated this procedure a total of four repetitions. Barley Straw Pump: Built a pump system that flowed water through a collection of barley straw. Determined flow rate to be at 600ml per minute. Allowed it to flow freely for four weeks. Tested water samples for amounts of phosphates, nitrates, ammonia, pH, conductivity, and bacteria growth. Conclusion: I found that all three decontaminators helped reduce water contamination in both the small scale, large scale, and the practical setting studies. I also noticed that cycling water through the barley straw does help to increase its overall effectiveness. Overall, I feel that even though plants are more effective at decontaminating water, barley straw would still be a suitable choice due its relative low cost and abundance

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