Overpopulation of Water Hyacinth: Reaching the Root of the Problem

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Agricultural technology has advanced, so has its waste. Numerous studies show that fertilizers used on large scale farms often drain into local reservoirs of water, creating unique conditions. One condition that arises from this situation is called eutrophication, the enrichment of an ecosystem with nutrients, typically containing nitrogen or phosphorous, or both. Water Hyacinths are broad plants with dark, fibrous roots offering little to no direct food value to other animals; therefore, considered a pest species. The respiration and decomposition of this plant requires large amounts of oxygen. The purpose of this research is to investigate runoff fertilizer causing water hyacinth to overpopulate and make the body of water hypoxic. Six different collections were tested before and after rainfall. Water quality parameters tested were: water temperature, dissolved oxygen, pH, salinity, conductivity, total suspended solids, turbidity, nitrates, and phosphates. Water hyacinth were collected and massed from an area and compared to the control. The control site was selected from an area with no visible hyacinth without farmland nearby. The test site was an area of water surrounded by farmland and overpopulated with hyacinth in Point Coupee, LA. The sample site was significantly lower in D.O. and nitrates and higher in hyacinth population, pH, and phosphates as compared to the control. The data suggest the sample site water was hypoxic due to the high pH and concentration of phosphates. Further research could be to investigate different types of landscapes of livestock and agriculture farms as a possible means to reduce contaminated runoff.

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