Water Quality Monitoring: Opportunities for Interdisciplinary Education and Research

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ABSTRACT

Water quality monitoring and studies offers an excellent venue for interdisciplinary education and research within undergraduate environmental science and engineering programs. Water quality studies offer a true interdisciplinary experience cutting across many disciplines including chemistry, biology, and engineering. In addition, when collaboration with a volunteer water quality monitoring group occurs students are provided a valuable service learning opportunity. We will discuss the two-year old effort at Rose-Hulman Institute of Technology to develop an Ecological Systems Laboratory with a goal to foster education, research, and outreach in sustainable water quality across the science and engineering disciplines through a water quality monitoring program. In addition, we will discuss how collaboration between undergraduate focused science and engineering programs and local water quality monitoring groups can yield significant mutual benefits.

JI Case Wetland, constructed in 1984 for waterfowl management, is a 257 acre tract of land with 68 acres of open water and wetland bordering the northern edge of the Rose-Hulman campus in Terre Haute, Indiana. Because of its proximity to campus the wetland provides an excellent "living laboratory." Water quality monitoring began in the summer of 2006 with initial funding for monitoring equipment and student salaries coming from a competitive internal grant program. During the last two summers over ten students, all female, from the departments of civil engineering, chemistry, and biology have participated in water quality and biological monitoring. Water quality sondes provide continuous measurements at the wetland's inlet and outlet. Students collected and analyzed samples along the shore and along several transect across the wetland.

KEYWORDS

Wetland, interdisciplinary education, collaboration

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