

Water Quality Management of Purdue's Kampen Golf Course

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Objective

The objective was to determine how effective created wetlands are in filtering water runoff from commercial, residential, and golf course areas before the water enters a highly valued environmental area.

Rationale

It is established that pesticides and fertilizers when applied properly to golf course turf do not move off-site through runoff or leaching. Golf courses may actually improve the water quality in streams and rivers flowing through the course. This project takes this idea one step farther to determine if the created wetlands on Purdue's new Kampen Golf Course can filter possible impurities in runoff from the adjacent neighborhood. The neighborhood includes two residential highways, parking lot of a motel, a gas station, and 200 residences. The water flowing through the Kampen Course eventually enters Celery Bog, a nature center which contains a natural wetland prior to reconstruction of the Kampen Course, residential runoff entered Celery Bog directly through drainage tiles and overland transport. This five-year study is part of a larger project monitoring the larger watershed including industrial, agricultural, and commercial sites.

How It Was Done

After construction of the Kampen Course was finished in 1998, water quality samplers were installed at six points throughout the created wetlands. The samplers were located to track the progress of water as it enters the east edge of the courses, through the wetland system, and exits the far northwest edge of the course. The water is sampled continuously for temperature, pH, oxygen content and other quality parameters. During storm events, water is sampled for contaminants such as nutrients, pesticides, salt, metals, petroleum products, etc. It is thought if any contaminants will be identified in the system, it will most likely occur during or immediately after a storm event. All water samplers were installed by Sep. 1998 and one storm event was analyzed in Nov. 1998.

Results to Date

- Since only one storm event was analyzed in 1998, limited construction in and around the created wetlands is still occurring, and the wetland vegetation is establishing and maturing, it is too early to draw definite conclusions.
- No unusually high levels of any of a wide array of potential pollutants, including pesticides and metals, were detected during the storm event from any sampling location.
- Surprisingly, even from the urban runoff there is no measurable oil and grease. It is reassuring to note that heavy metals of concern, such as mercury and lead, are below detection limits in all samples.

Acknowledgments

The work reported here would not have been possible without the support and assistance of numerous people and organizations. Thanks goes to Jim Scott, superintendent of the Birck Boilermaker Golf Complex, for his patience and cooperation. Financial support for water quality monitoring on the Kampen Course was provided by the United States Golf Association, Pete Dye, Inc, and Heritage Environmental.

Figure 1. Schematic of water sampling sites in Kampen Course water monitoring project (not to scale)

