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Surface Water Quality Monitoring on Golf Courses in the Pacific Northwest

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Objective

Evaluate the impacts of fertilizer and pesticide applications on surface water quality on a field-scale level at two Pacific Northwest golf courses.

Summary

Regulatory standards and public expectations increasingly demand protection of water quality from chemicals applied to golf courses. The perception exists that fertilizers and pesticides applied to golf courses are transported to surface water and/or ground water. Studies conducted on golf courses are needed to determine the fate of fertilizers and pesticides applied to golf courses.

Water samples were collected monthly over a two-year period at the entry and exit points of streams flowing through two western Washington golf courses. The water samples were analyzed for the presence of nutrients and pesticides. No treatments were imposed by the scientists; they monitored the potential water quality impacts of management practices employed on the golf course.



Results

- Concentrations of nitrate-nitrogen and orthophosphates were marginally but statistically lower in exit point samples than in entry samples at one golf course, and there were no differences between entry points and exit samples for the second golf course.
- At each golf course, there was one instance in which a pesticide detected in the exit point sample could be attributed to product application on the golf course. In one case, the concentration of the pesticide was 1,000,000 times lower than the LC50 for the most sensitive species, and in the other case, the concentration was more than 1,000 times lower.
- These results show that management practices typical of many Pacific Northwest golf courses pose little risk to water quality in course streams.

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