

## **Soil & Water Conservation Society of Metro Halifax ('SWCSMH')**

*(a volunteer scientific stakeholder-group)*

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**Ref.:** WAB0021 (total= 2 p. + 10 p. encl.= 12 p.)  
**To:** Chairman Dr. Wayne Stobo and Members,  
Halifax/Halifax County Watershed Advisory Board (WAB), HRM  
**From:** S. M. Mandaville (Professional Lake Manage.), Chairman & Exec. Director  
**Date:** August 30, 2000  
**Subject:** **Effects of Golf Course Construction and Operation on the Aquatic Environment**

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I am herewith pleased to include a Progress Report-June 2000 prepared by Dr. Jennifer Winter Ph.D., a post-doctorate researcher at Trent University, Ontario. She is heading a research group on the effects of golf course construction as well as operation on the downstream aquatic systems, and the work is being conducted for the Dorset Research Centre, Ontario Ministry of the Environment among others.

You can note the depth into which her research group is delving into. In addition to basic chemistry, her group is also investigating the effects on **Periphyton** and **Benthic Macroinvertebrates**:

1. Many of the macroinvertebrates (includes juvenile stages of insects, as well as snails, clams, leeches and others) are more sensitive to stressors than fish, mammals or birds.
2. Benthic algae, or periphyton, are photosynthetic and occupy a pivotal position in aquatic ecosystem at the interface of chemical-physical and biotic components of the food web. Algae are likely to be sensitive indicators of contaminants such as pesticides.

For emphasis, we are herewith pleased to quote the following extract from the aforementioned report:

- Although chemical monitoring is useful, there are important reasons for biological monitoring.
- Organisms have an integrating response to their environment.
  - This means that fluctuations in water quality, which may be missed by intermittent chemical sampling and analysis, are reflected in biological assessments.

- Chemical monitoring will only record the contaminants that are analyzed for whereas the biota may respond to many other, unmeasured, chemicals.
- Biological monitoring is also important in situations where there are a range of contaminants whose biological effects may be synergistic or antagonistic and would not be appreciated through chemical measurements.
- Furthermore, the aquatic biota can serve as sensitive early warning indicators of problems that may take years to fully develop!!

**PS:**

1. We herewith remind everyone that our Board, the Halifax/Halifax County Watershed Advisory Board (‘WAB’) did indeed take the necessary leadership by recommending a somewhat similar protocol way back during the summer of 1996 prior to the development of the Golf Course and other construction in Glen Arbor in Hammonds Plains, Sackville River watershed. But unfortunately the HRM staff saw fit to significantly ignore the WAB’s recommendations.
2. Further, we took the leadership and pointed out the shortcomings at the public hearing held by the North West Community Council, but the HRM planner, Ms. Jacqueline Hamilton MCIP once again saw fit to find an excuse for non-compliance with the WAB’s recommendations (the public hearing minutes will probably record the entire sad scenario).
3. We then approached the Hon. Wayne Adams, Minister of NSDoE to intervene, but he wrote back with the same sort of vague excuses as well!

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