



Seguin Township Report to Council

Prepared for: Township Council
Agenda Date: February 6, 2017

Department: Development and Protective Services
Report No: DPS-PL-2017-018

Subject: 2016 Water Quality Monitoring Program Report

1.0 Recommendation:

To provide the Council of the Township of Seguin a summary of key findings of the 2016 Water Quality Monitoring Program.

2.0 Background & Purpose of Report:

As an environment first municipality, Council has chosen to be proactive at environmental planning initiatives to improve water quality and the overall health of our lakes in the future. Our Water Quality Monitoring Program continues to monitor the ecological health of our lakes and collaborates with our numerous Lake Associations as well as neighbouring District as part of our overall stewardship initiatives. This report will provide Council with an update for the 2016 season for both programs.

Water Quality Program:

The Seguin Lake Water Quality Monitoring Program, developed in 2008, is a field-based program that monitors approximately 120 lakes across Seguin on a rotating basis. The purpose of the Water Quality Monitoring Program is to establish a historical record of water quality parameters so that trends in water quality can be identified.

The Water Quality Monitoring Program measures:

- Spring Phosphorus concentrations (a measure of nutrient enrichment)
- Dissolved Organic Carbon
- Secchi Depth (a measure of water clarity)
- End of summer dissolved oxygen and temperature profiles

Operation:

The Water Quality Monitoring Program consists of two phases, one in May and the other in August. In May, phosphorus concentrations are tested and secchi disk readings are taken on our specified lakes and water samples are taken and transported to a lab in Dorset to be tested for phosphorous. In August, dissolved oxygen testing and secchi disk testing are completed.

In 2016, 44 lakes were chosen and tested. The data collected over time allows us to monitor future sensitivities to phosphorus or potential problems that may arise. In fact, the Ministry of the Environment and Climate Change recommends a minimum of two years of phosphorus data to be 95% confident of being within 20% of the mean annual concentration of a lake. Seguin now has 79 lakes that have at least two years of monitoring data. This set of lakes was chosen

at the beginning of the program to include lakes that were over threshold for phosphorus based on the model, developed lakes, and then lakes of varying characteristics (shallow, deep, headwater, undeveloped), to make sure that we have a good dataset to validate the model and to evaluate the success of the approach to managing shoreline development for control of phosphorus.

The following summary and recommendations have been received from Hutcheson Environmental:

- A total of 79 or 61% of the lakes in Seguin have been measured for total phosphorus.
- 70 of these lakes have at least 2 years of data as of the end of the 2016 sampling season.
- August monitoring of dissolved oxygen, temperature, lake depth and Secchi depth has been completed for 35 lakes in 2015.
- Now that at least 2 years of data exist for the 'A' Lakes monitored by the program which will result in a new monitoring schedule of three years for these lakes.
- It is recommended that the monitoring program continue, as developed, with the addition of more lakes that have little or no data.
- Due to the complex shape of the Horseshoe and Little Whitefish Lakes, it is recommended that spring total phosphorus sampling be conducted within each of their distinct basins.
- Due to a large percentage of the Seguin lakes having high dissolved organic carbon concentrations that could result in model error, it is recommended that a subset of lakes be sampled for dissolved organic carbon.

For more information on the lakes tested in the 2016 year, please review the attached "Hutcheson Environmental 2016" report as Schedule A.

3.0 Financial Analysis:

The total cost in 2016 to the delivery the Water Quality and Stewardship Program was \$19,932.05. The breakdown of cost is as follows:

a) Training fee (Hutchinson Environmental)	\$699.04
b) Student Wages	\$17,326.00
c) Mileage	\$650.00
d) End of year Report fee (Hutchinson)	\$1,257.01

4.0 Conclusion:

In conclusion, the Seguin Water Quality Monitoring Program is an integral component to the Stewardship of our natural resources. Continued monitoring of our lakes will provide important historical data essential to the ongoing assessment of development capacities and the health of our lakes. During discussions with the consultant, it was noted that the sampling program was a success again this year. No lakes displayed a significant trend in TP over time and that the relative health of the lakes relative to phosphorus levels remains unchanged.

Respectfully submitted by



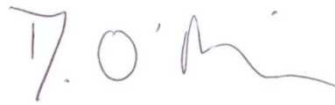
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Reviewed by



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Respectfully submitted by



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Attachments:

Schedule A: Hutchinson Environmental 2016 Water Quality Monitoring Summary

SS/DO/MF/CM/lqw