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BEACH SAMPLING PROGRAM

The Health and Emergency Medical Services Committee recommends that:

- 1. Attachment 2 be referred to staff for further review, with consideration being given to Committee's discussion and the inclusion of contact information; and**
- 2. The recommendations contained in the following report, April 20, 2005, from the Commissioner of Health Services be adopted.**

1. RECOMMENDATIONS

It is recommended that:

1. Committee and Council receive this report for information.
2. The Regional Clerk distribute this report to the nine area municipalities for information.
3. The Regional Clerk distribute this report to the Lake Simcoe and Region Conservation Authority and the Toronto and Region Conservation Authority.

2. PURPOSE

The purpose of this report is to provide Committee and Council with an overview of York Region's beach sampling program and to report on the trends and factors associated with the water quality of public beaches in York Region.

3. BACKGROUND

At the December 2, 2004 meeting of the Health and Emergency Medical Services Committee, staff were requested to prepare a report on the beach sampling program and to consider re-sampling of beaches that are posted prior to the weekend.

The goal of the York Region Beach Sampling Program is to protect York Region residents and visitors from waterborne illness and injury by sampling and monitoring water quality at local beaches. York Region Health Services (YRHS) is responsible for the beach monitoring program under the Beach Management Protocol set out by the Ministry of Health and Long-Term Care (MOHLTC). The Protocol mandates health units to routinely monitor public bathing beaches by taking weekly samples. A public

bathing beach is defined as a beach area, owned or operated by a municipality, which has a supervised aquatics program or is staffed by a lifeguard.

3.1 Beach Sampling Program

In York Region, there is only one beach that fulfils the MOHLTC definition (Sunset Beach at Lake Wilcox). The YRHS Beach Program exceeds the minimum provincial standards by monitoring water quality at 18 area beaches including private beaches that serve high risk or more vulnerable populations and public beaches that do not have lifeguards (*see Attachment 1*). YRHS also facilitates the sampling of beach water at several private beaches by beach associations and at Sibbald's Point Provincial Park by the Ministry of Natural Resources.

The Beach Sampling Program runs from mid-June until September. Beach pollution surveys are carried out at the beginning of each season to identify possible pollution sources and their potential impact on beach water quality.

Water sampling is conducted at each beach by students in the beach sampling and monitoring program. Water samples are taken within a predetermined area where the majority of bathers including children would typically swim. Additional information collected includes presence of waterfowl, bather density, water temperature and rainfall data at each sampling location.

Water samples are sent to the MOHLTC, Laboratories Branch, for bacterial quality testing, specifically for E.coli, an indicator of fecal contamination. Laboratory results are received 24 to 30 hours later (as reliable analysis requires 20 to 24 hours).

Beaches are posted when the results exceeds the provincial standard of 100 E.coli. This level of bacteria can cause illness in bathers, including skin, ear, eye, nose and throat infections as well as stomach disorders. When samples of beach water reach this level, the area municipality is contacted immediately. YRHS staff post a sign at the beach warning bathers that swimming at that beach may pose a health hazard (*see Attachment 2, Figure 1*). Community notification of postings is also facilitated through the York Region website and Health Connection.

4. ANALYSIS AND OPTIONS

An assessment of the effectiveness of York Region's beach sampling program was initiated in 2004. Components of this assessment include data and trend analysis, community outreach and awareness, survey of other health units, and methods of collecting data for pollution source identification. These components are outlined below.

4.1 Data and Trend Analysis

In 2004, the Beach Sampling Program monitored York Region's beaches for 84 days, including 12 weekends. There were a total of 1,512 days during the beach season (i.e. 18 beaches times 84 days). The total number of days that beaches were posted in 2004 was 260, which equates to approximately 17%. A historical breakdown of postings from 1999 to 2004 by beach grouped by local municipality can be seen in *Attachment 1*.

YRHS conducted a Beach Water Quality Data Analysis Project in 2004 to analyze trends in beach water quality and factors that influence water quality at York Region beaches. Data analysis indicates that bacteria levels at York Region beaches are higher after a heavy rainfall.

In 2005, YRHS will be investigating methods to standardize data collection and to effectively monitor factors that may influence beach water quality based on posting data and the outcomes of the Beach Water Quality Data Analysis.

4.2 Community Outreach and Public Awareness

In order to increase education and outreach, YRHS has consulted with the Towns of Georgina, Richmond Hill and Whitchurch-Stouffville regarding beach water monitoring and public notification of beach postings. YRHS also promotes beach water quality awareness at different events including the York Children's Water Festival, Environmental picnics and the Georgina Marine Show.

YRHS has responded to 478 inquiries regarding beach water quality over the last three years. In 2004 there were 5,837 hits on the York Region beach webpage and four media requests. Public complaints regarding location and visibility of beach posting signs prompted YRHS to survey 100 users of De La Salle beach in Georgina last summer to gauge knowledge of beach postings and water quality. Respondents were very interested in learning more about beach postings and were concerned about beach water quality. Two-thirds of respondents that had seen postings in the past indicated that they were not easily visible. Most people were not aware of how to obtain information on beach postings. As a result of the survey, YRHS plans to increase promotion of the Beach Information Hotline and York Region beach webpage.

4.3 Survey of Other Health Units

YRHS surveyed nine health units in Ontario to compare their beach sampling programs (including Durham, Hamilton, Peel, Simcoe and Toronto). While all health units utilize the Beach Management Protocol as a minimum standard, individual health units have different approaches to monitoring and sampling beach water quality as outlined below:

- Sampling frequency ranged from weekly to daily
- Some health units post permanent rain fall warning signs
- One health unit permanently designates beaches for the swimming season as high, medium or low risk (based on 3–5 year data trends)

Several health units re-sample after posting a beach (Peel, Simcoe, Kingston, Ottawa and Sudbury). This re-sampling has resulted in postings being removed based on re-sample results 80-90% of the time overall for Peel and 50% of the time in 2004 for Simcoe.

4.4 2005 Beach Sampling Program

York Region beaches tend to have the greatest amount of users during summer weekends. Data analysis has shown that bacteria levels at the beaches are usually higher after a heavy rainfall.

Municipalities and beach users have raised concerns including posting that continue throughout a weekend when water quality may have improved, or conversely, beaches not tested or posted when quality may have deteriorated, especially after a rainfall.

In order to address these concerns, York Region Health Services has taken an in-depth review of the current sampling program in accordance with the MOHLTC protocol. Changes have been made to the program for 2005 in order to improve efficiency and to implement a risk assessment approach. These changes include permanent rainfall warning signs and re-sampling of posted beaches prior to weekends.

4.4.1 Permanent Rainfall Warning Signs

This year YRHS will be installing permanent rainfall warning signs (*see Attachment 2, Figure 2*) at each beach to inform the public not to swim for up to 48 hours after heavy rain. These signs will be replaced by beach posting signs when bacterial levels are unsafe for swimming (*see Attachment 2, Figure 1*). Posting of permanent rainfall warning signs will reduce potential exposure to unsafe swimming conditions that might occur as a result of heavy rainfall events between sampling dates or while samples are being analysed. These signs will allow for greater public awareness as notifications will more visibly noticeable and in a permanent location.

4.4.2 Beach Sampling Pilot for 2005

In previous years, the Beach Program sampled on Tuesdays and Thursdays. If a beach was posted on a Friday, based on Thursday sample results, it remained posted over the weekend. These beaches were then re-sampled the following Tuesday and might reopen Wednesday. Historically, there have been no significant differences between Tuesday and Thursday sample results.

For 2005, YRHS will pilot a new sampling program. Each of York Region's 18 beaches will be sampled weekly in accordance with the MOHLTC protocol. Samples will be gathered each Wednesday and if a beach is posted on Thursday, it will also be re-sampled at that time. This re-sampling could possibly allow for the posting to be removed on Friday (depending on the results). However, if the results continue to show a potential risk, the beach will remain posted over the weekend and re-sampled on Monday.

Historical beach data will also be reviewed to identify specific beaches that could potentially be considered “high risk” and may require more frequent sampling.

These program changes will be piloted for the 2005 beach season and the results will be reviewed in order to determine the best course of action for 2006 and beyond.

4.5 Future Program Options

The following is a list of proposed options that will also be investigated in 2005 with the goal of enhancing the Beach Monitoring Program for future years:

- Meet with municipalities and local conservation authorities to identify high risk/high use beaches, effectiveness of public notification of beach postings, sources of pollution and public awareness needs
- Review data collection and analysis methods for beach water quality assessment
- Conduct a risk assessment for additional beaches upon request, e.g. Musselman’s Lake
- Investigate GIS mapping of beach locations and sampling points
- Investigate sources of grants and bursaries to enhance program
- Advocate for a review of the MOHLTC Beach Management Protocol

4.6 Review of MOHLTC Protocol

In 2005, the MOHLTC will be reviewing the *Mandatory Health Programs and Services Guidelines* as part of Operation Health Protection. Included in this review will be the Branch Management Protocol. Although the existing protocol is a valuable tool that assists health units in monitoring and sampling public bathing beaches, there are inconsistencies across the province with respect to interpretation and implementation (e.g. posting based on geometric mean results and frequency of sampling). YRHS supports this Ministry initiative and will be providing input to this review.

4.7 Relationship to Vision 2026

The York Region Beach Monitoring Program contributes to the Vision 2026 goals and principles of: protecting the legacy of York Region’s natural environment and securing a green York Region by protecting Lake Simcoe and the quality of surface water.

5. FINANCIAL IMPLICATIONS

The purchase of 50 permanent rainfall warning signs for York Region beaches will cost approximately \$5,000. This amount is included in the approved 2005 Public Health Branch Budget.

6. LOCAL MUNICIPAL IMPACT

York Region Health Services will continue to meet and liaise with area municipalities to determine strategies to deal with beach pollution, community outreach, education and postings. Health Services will work with municipalities and conservation authorities to identify sources and solutions to beach water contamination and continue to recognize the impact of beach postings/closures on local tourism.

7. CONCLUSION

YRHS routinely monitors beach water quality at designated beaches in York Region as per MOHLTC protocols. For 2005, permanent rainfall warning signs will be posted at York Region Beaches to warn bathers not to swim after heavy rainfall. Health Services will also be reviewing the beach sampling program, including beach data collection, public notification and factors influencing beach water quality to determine the best strategies and options for 2006 and beyond.

The Senior Management Group has reviewed this report.

(The attachments referred to in this clause were included in the agenda for the May 12, 2005 Committee meeting.)