# RE-DESIGNATION REPORT

## Assessment of 'Beach Closings' (BUI #10) in the Detroit River Canadian Area of Concern

**Prepared by Natalie Green & Sandra Hogan**
**for the DRCC's Monitoring and Research Work Group**

2013

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## EXECUTIVE SUMMARY

- Sources of bacterial contamination vary from natural (waterfowl) to point (wastewater effluent) and non-point sources (urban and agricultural runoff) and even beach sand.
- The main sources leading to the impaired designation of the 'Beach Closings' BUI in the 1991 Stage 1 Remedial Action Plan Report were related to wasterwater treatment plant bypasses and combined sewer overflows during heavy rainfall events. Since that time, remediation activities to deal with many of the unnatural sources have been completed (i.e., wastewater infrastructure upgrades).
- To assess the status of this beneficial use impairment (BUI), the DRCC reviewed *E. coli* bacteria data collected by the Essex Region Conservation Authority at two Detroit River locations (McKee Park and White Sands Conservation Area) compared to two nearby reference beaches (Sandpoint and Holiday) that are routinely monitored by the Windsor-Essex County Health Unit. Water quality at Sandpoint and Holiday Beaches is influenced by Lake St. Clair and Big Creek, respectively, rather than the Detroit River.
- McKee Park and White Sands Conservation Area are not considered public bathing beaches; however, they have site characteristics amenable to recreational contact and were monitored only for the purpose of this assessment.
- In Ontario, an advisory (or warning) is posted if samples exceed 100 *E. coli*/100 mL. A beach is closed if samples exceed 1,000 *E. coli*/100 mL.
- The delisting criterion states that ***Beach Closings*** **BUI will no longer be considered impaired when the frequency of beach closures due to elevated counts of *E. coli* in the Detroit River (White Sands and McKee Park) does not exceed the frequency at upstream (Sandpoint) and downstream (Holiday) reference beaches**. The delisting criterion for the Detroit River Canadian Area of Concern is based on the **closing benchmark** because it was deemed to be indicative of a greater risk to human health.
- Levels of *E. coli* at sampling sites in and near the Detroit River rarely exceeded the closing benchmark. The results collected for this assessment indicate that the Detroit River sampling sites (McKee Park and White Sands Conservation Area) were not different than the upstream and downstream locations, Sandpoint and Holiday Beaches.
- There was a one-time exceedance noted at the McKee Park site in July 2011 which was likely due to recent fish sampling activities that stirred up waterfowl feces and not due to an anthropogenic source that can be addressed through remediation.
- Over the last two decades, there have been several noteworthy upgrades to wastewater infrastructure to improve water quality including upgrades to the Lou Romano, Little River and Amherstburg Wastewater Treatment Plants, the construction of a Windsor Riverfront Retention Treatment Basin and numerous sewer separation projects.
- **It is recommended that the status of the 'Beach Closings' BUI be re-designated from 'impaired' to NOT IMPAIRED**.

## INTRODUCTION

When Europeans colonized this area in the 1700s, the Detroit River was a source of clean, safe drinking water (Hartig, 2003). However, as the population grew so did water pollution and by the late 1800s and early 1900s residents of Detroit, Windsor, and Amherstburg were affected by serious waterborne disease epidemics (e.g., cholera, typhoid fever). In 1918, bacteria concentrations were found to be more than 100 times greater than today's Canadian guidelines for safe water (Hartig, 2003). Soon thereafter, the City of Detroit began treating its drinking water but despite chlorination and filtration efforts waterborne disease epidemics were still prevalent. The severe water quality problems (found throughout the Great Lakes) were traced to sewage pollution due to poor and antiquated sewage treatment. It wasn't until 1972 (due, in part, to public outcry over Lake Erie's declining condition) that changes to legislation in Canada and the United States were made to revise guidelines, penalize polluting industries and commit to investing in better sewage treatment. Since that time, many improvements to water quality have been made.

In 1987, the Great Lakes Water Quality Agreement of 1972 was amended by protocol and included the identification of Areas of Concern (AOCs). It also included a list of 14 potential beneficial use impairments (BUIs) related to ways humans and wildlife may be impacted by changes in the chemical, physical and biological integrity of water in an AOC. The '*Beach Closings'* BUI was identified as 'impaired' in the 1991 Stage 1 Remedial Action Plan (RAP) Report due to elevated levels of bacteria in some locations of the Canadian side of the Detroit River (MDNR/OMOE, 1991). In particular, exceedances of Provincial Water Quality Guidelines were noted downstream of Little River, Windsor sewer overflow sites, Turkey Creek and the Amherstburg Wastewater Treatment Plant. However, many significant investments and upgrades have been made to local infrastructure to improve water quality since the Stage 1 RAP Report was written including an upgrade of the Lou Romano Water Reclamation Plant (in 2008), ongoing separation of combined sewers, the construction of a retention treatment basin (in 2011), and the upgrade of the Amherstburg Wastewater Treatment Plant (in 2012).

There are several types of disease-causing organisms (pathogens) that occur in water and can cause gastro-intestinal and upper respiratory illness in humans. Enteric and fecal coliform bacteria, normally found in the intestines and feces of humans and animals (e.g., *Escherichia coli* (*E. coli*)), are currently considered the best indicator of fecal contamination in freshwater (Carreau-Green, 2009). While some strains of *E. coli* bacteria are harmless, they are good indicators of the possible presence of other pathogens. Some of the main sources of fecal contamination in water include waterfowl, combined

sewer overflows (CSOs), storm water, urban and agricultural run-off, bather load, and rough weather (OMOH, 1998).

In Ontario, the guidelines for safe swimming (recreational contact) are based on maximum geometric mean concentrations of *E. coli* colony forming units (cfu); **an advisory (or warning) is posted if samples exceed 100 cfu/100 mL, a beach is closed if samples exceed 1,000 cfu/100 mL.** These objectives differ from both the U.S. and Canada federal standards which are 235 cfu/100 mL and 200 cfu/100 mL, respectively.

| **ONTARIO GUIDELINES** |
| --- |
| Advisory posted if samples ≥ 100 cfu / 100 mL |
| Closure if samples ≥ 1,000 cfu / 1000 mL |

When a swimming advisory is posted, the public may enter the water at their own risk and are advised that there may be negative health risks. A beach is closed when the levels of indicator bacteria are high and the potential risk of illness and negative effects on human health is high. For the purpose of BUI assessment, **the Detroit River Canadian Cleanup (DRCC) decided to use the guidelines that would result in a beach closing** (not an advisory) as it is indicative of more serious water quality issues that could lead to more severe human health risks (Green et al., 2010). However, we do present results on advisories for additional information and discussion purposes.

In this region, the Windsor-Essex County Health Unit (WECHU) is responsible for monitoring designated public swimming beaches from June to September each year. Of the 9 beaches monitored by the WECHU, there is only one swimming beach within the boundaries of the Canadian AOC, Sandpoint Beach, which is highly influenced by the condition of Lake St. Clair and the Thames River. Other locations on the Canadian side of the Detroit River are not safe for swimming due to fast moving waters and are not monitored by the WECHU or a lifeguard. However, the DRCC Monitoring and Research Work Group noted that, for the purpose of the BUI assessment, other locations along the Canadian side of the Detroit River (where nearshore recreational contact could occur) should be sampled that would more accurately reflect the conditions of the AOC. Thus, in 2009, the DRCC partnered with the Essex Region Conservation Authority (ERCA) to begin sampling two additional locations in the AOC (McKee Park and White Sands Conservation Area) to supplement the existing monitoring program by the WECHU and to aid in the assessment of the *Beach Closings* BUI.

The purpose of this report was to compile recent information related to *E. coli* concentrations at four locations within and outside of the Canadian side of the Detroit River AOC in order to provide a status update and further recommendations for the *Beach Closings* BUI. The Detroit River Canadian Stage 2 RAP Report states that **the *Beach Closings* BUI will no longer be considered impaired when the frequency of beach closures due to elevated counts of *E. coli* in the Detroit River (White Sands and McKee Park) does not exceed the frequency at upstream (Sandpoint) and downstream (Holiday) reference beaches** (Green et al. 2010).

## DATA COLLECTION AND SAMPLING SITES

The WECHU has been responsible for monitoring water quality (*E. coli*) at 9 designated swimming beaches throughout Essex County for over 20 years. Their sampling is conducted weekly during each swimming season from June to September. Of those 9 sites, only one falls within the boundaries of the AOC but its condition is indicative of upstream Lake St. Clair conditions rather than the AOC. Therefore, the DRCC contracted ERCA to begin weekly sampling of two additional Detroit River locations (McKee Park and White Sands Conservation Area) from 2009 to 2011 for the assessment of the *Beach Closings* BUI only. McKee Park was chosen because of its location (mid-river) and due to its shallow bay area that may attract recreational users. White Sands Conservation Area was chosen as a lower river sampling site and because it is a known swimming location in the Detroit River even though it isn't monitored by the WECHU. Sandpoint Beach and Holiday Beach, the nearest beaches monitored by the WECHU, were used as reference sites to compare with our Detroit River sampling locations; their condition is influenced by other waterbodies (i.e., Lake St. Clair, Big Creek) rather than the AOC. No other locations along the Canadian side of the Detroit River were sampled because they did not have the characteristics of a beach (e.g., publicly accessible, shallow, etc.). The sampling locations used for this report are noted in Figure 1.

Although the water sampling regimes were conducted independently, they followed the same protocol outlined by Ontario Ministry of Health (OMOH) (1998) in order to allow comparison between sites. Due to various constraints such as poor weather and personnel availability, the number of samples varies from year to year. On average, each site was sampled 12 times per swimming season. The greatest number of sampling events at one site was McKee in 2010 (15 sampling events), while the least sampled sites were McKee and Sandpoint in 2009 (10 sampling events). A minimum five samples were collected, in sterile bottles, during each site visit. The water was collected 15-30 cm below the surface in locations where the water was approximately 1.5 m deep. Samples were refrigerated and sent to

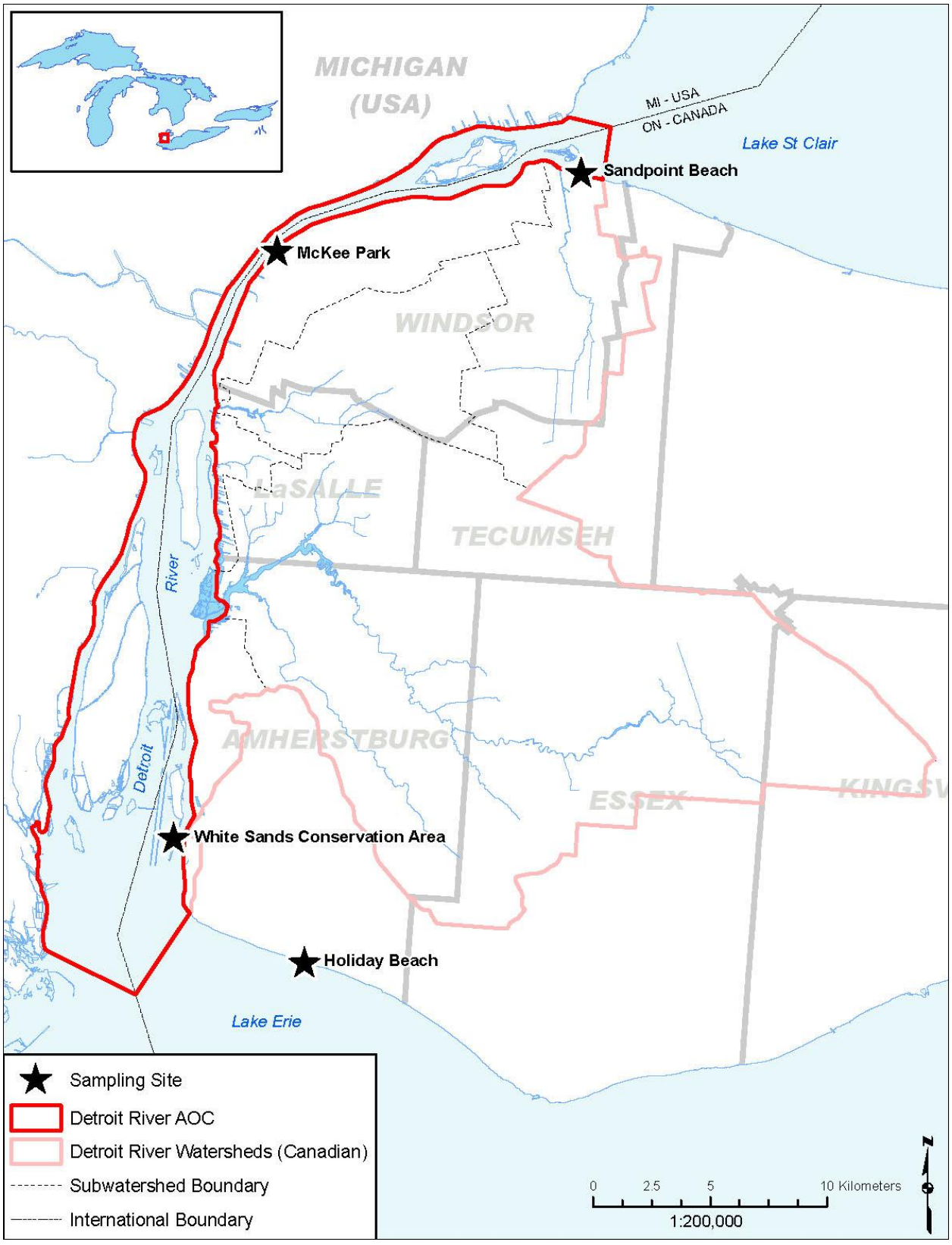


**Figure 1.** A map showing the sampling sites tested for the presence and amount of *E. coli* bacteria in the Detroit River AOC as well as one sampling site outside of the AOC (Holiday Beach).

laboratories within 24 hours of collection for analysis, including culture and enumeration, using Standard Method for the Examination of Water and Wastewater 9222D (American Public Health Association et al. 2005; OMOH, 1998). As a single sample would not be representative of conditions across an entire site, all 5 samples were analyzed for the number of *E. coli* cfu/100 mL and a geometric mean was calculated. A summary of the results are discussed in this report; however, all raw geometric means for each sampling site are included in Appendix 1 for additional information. In 2011 only, the water quality monitoring staff of ERCA recorded additional wildlife information at McKee Park and White Sands Conservation Area which was used for discussion purposes in this report (Appendix 2). Historical weather information for 2009 and 2010 was obtained through the Weather Network's (www.theweathernetwork.com) online database using corresponding sampling dates.

**RESULTS & DISCUSSION**

Over the 3 years of monitoring conducted for this report, samples at each individual location rarely exceeded the value that would result in a beach closing. Similarly, a report examining beach closings prepared for the Detroit River Canadian Public Advisory Council also showed that water samples from Sandpoint and Holiday Beach rarely exceeded the closure value from 2000 to 2008 (Carreau-Green, 2009). The frequency of beach closures due to elevated counts of *E.* coli in the Detroit River (White Sands and McKee Park) did not exceed the frequency at upstream (Sandpoint) and downstream (Holiday) reference beaches. The results of this assessment indicate that there are no significant issues related to beach closures within the Detroit River.

Samples from White Sands Conservation Area, situated on Crystal Bay Island at the lower reach of the Detroit River, never exceeded the 'closing' benchmark (Table 1). White Sands also had the lowest number of samples exceeding the 'advisory' benchmark (100 cfu/100 mL) (Table 2). This result may have been due to its location away from large numbers of waterfowl and potential land-based pollution sources (it's situated away from human development); however, the site is a known, unmonitored swimming location. The other three sampling locations (Sandpoint, McKee, and Holiday) exceeded the beach closing benchmark once each over the entire sampling period from 2009-2011 resulting in only 2.7%-2.8% of all samples collected exceeding the beach closing value (Table 1). The only closing exceedance noted at McKee Park was on July 27, 2011 after 20 mm of rainfall and when seine fishing was being done by another group during the time of water sampling (Appendix 2). Seine fishing is technique used to collect fish in shallow areas using a seine net or dragnet which can stir up sediments. Researchers have recently discovered that *E. coli* is able to grow and persist in beach sand (Ishii et al.,

2007; Edge & Hill, 2007). Moreover, studies have suggested that bird droppings can be a significant source of *E. coli* contamination in sand and water (Lu et al., 2011; Edge & Hill, 2007). McKee Park is known to have large numbers of waterfowl including Canada geese (Appendix 2 & sampling staff observations). Therefore, it is possible that the large numbers of waterfowl at the site combined with rainfall and sediment mixing due to seine fishing influenced the levels of *E. coli* at that site. There were no other samples over the closing benchmark at the site over the 3 year sampling period. The results collected at the Detroit River sampling sites (McKee Park and White Sands CA) were not different than the upstream and downstream locations, Sandpoint and Holiday Beaches (Table 1).

**Table 1.** Frequency of water samples at each study site that exceeded potential beach closure values (1,000 *E. coli* cfu/100 mL) during each swimming season from 2009 to 2011. The overall 2009-2011 data is summarized as '3 year' (as done by McPhedran et al., 2012). Data compiled from WECHU and ERCA.

| | 2009 | | | 2010 | | | 2011 | | | 3 year |
|---|---|---|---|---|---|---|---|---|---|---|
| **Site** | **n** | **≥ 1,000** | **%** | **n** | **≥ 1,000** | **%** | **n** | **≥ 1,000** | **%** | **%** |
| **Sandpoint Beach** | 11 | 0 | 0 | 13 | 1 | 7.7 | 13 | 0 | 0 | 2.7 |
| **McKee Park** | 10 | 0 | 0 | 15 | 0 | 0 | 11 | 1 | 9 | 2.8 |
| **White Sands CA** | 10 | 0 | 0 | 14 | 0 | 0 | 11 | 0 | 0 | 0 |
| **Holiday Beach** | 11 | 0 | 0 | 13 | 1 | 7.7 | 13 | 0 | 0 | 2.7 |

**Table 2.** Frequency of water samples at each study site that exceeded advisory values (100 *E. coli* cfu/100 mL) during each swimming season from 2009 to 2011. The overall 2009-2011 data is summarized as '3 year' (as done by McPhedran et al. 2012). Data compiled from WECHU and ERCA.

| | 2009 | | | 2010 | | | 2011 | | | 3 year |
|---|---|---|---|---|---|---|---|---|---|---|
| **Site** | **n** | **≥ 100** | **%** | **n** | **≥ 100** | **%** | **n** | **≥ 100** | **%** | **%** |
| **Sandpoint Beach** | 11 | 6 | 54.5 | 13 | 6 | 46.2 | 13 | 10 | 76.9 | 59.5 |
| **McKee Park** | 10 | 7 | 70.0 | 15 | 9 | 60.0 | 11 | 7 | 63.6 | 63.9 |
| **White Sands CA** | 10 | 5 | 50.0 | 14 | 0 | 0 | 11 | 1 | 9.1 | 17.1 |
| **Holiday Beach** | 11 | 4 | 36.4 | 13 | 9 | 69.2 | 13 | 8 | 61.5 | 56.8 |

One of the reasons the Detroit River was listed as an AOC in the 1980s was because of a deterioration of water quality due to bacteria beginning between 1975 and 1984 (MDNR/OMOE, 1991). A study cited in the 1991 Stage 1 RAP Report concluded that the contamination was caused by known point and nonpoint sources including CSOs in Windsor and the three wastewater treatment plants (Little River, Lou Romano and Amherstburg). Between 1975 and 1988, the frequency of monitored stations on the Canadian side of the Detroit River that exceeded the 'advisory' benchmark (100 cfu/100 mL) ranged from 61% (1988) to 93% (1987). The frequency reported in 1988 was noted as the lowest reported since

1978 (MDNR/OMOE, 1991). Our results show that the frequency of samples exceeding the 'advisory' limit ranged from 17% to 64% over 3 years (Table 2); the highest frequency being almost as low as it has ever been historically. Although direct comparisons cannot be made due to differences in sampling techniques over time and varying locations, the present results show a marked improvement in Detroit River water quality.

Over the last two decades, there have been several noteworthy upgrades to wastewater infrastructure including upgrades to the Lou Romano, Little River and Amherstburg Wastewater Treatment Plants (WWTP), the construction of a Windsor Riverfront Retention Treatment Basin (RTB) and numerous sewer separation projects. Wastewater treatment plants are no longer a significant source of bacterial contamination to the Detroit River as they once were, with the exception of extreme weather events. There are also more stringent regulations for discharges to the River compared to the 1970s. For example, the Lou Romano WWTP's certificate of approval (from the OMOE) states that the monthly geometric mean of *E. coli* in treated effluent cannot exceed 200 cfu/100 mL (P. Drca, Manager of Environmental Quality, City of Windsor, pers. comm.). Since July 2009, the Lou Romano WWTP exceeded that value only 4 times at which point they were reported to the OMOE and dealt with immediately by staff at the WWTP (P. Drca, pers. comm.).

The Windsor Riverfront Retention Treatment Basin (RTB), which became operational in November 2011, is designed to reduce the amount of untreated wastewater entering the Detroit River as a result of a CSO. During a heavy rainfall event, the RTB collects and holds untreated CSO water until the rainfall event ends and it can be sent to the wastewater treatment plant. If the capacity of the RTB is exceeded during the rainfall event, then the CSO water receives some treatment before being discharged to the Detroit River. A 2012 study of its performance showed that a total of 25 CSO events occurred whereby 363,556,000 litres of CSO water was captured by the RTB. Of the amount collected, only 137,780,000 litres (or 38% of the total amount captured) exceeded the RTB's holding capacity and was released to the Detroit River (after some treatment)—the rest was sent to the wastewater treatment plant for full treatment. These infrastructure projects continue to improve local water quality conditions.

Our results suggest that there are no major anthropogenic sources of bacterial contamination on the Canadian side of the Detroit River AOC that would lead to persistent beach closures. One sampling location within the AOC had levels of contamination above the closings benchmark likely from natural sources such as wildlife and sediments. At this time, there are no further remediation actions that can be implemented within the scope of the RAP to further improve water quality linked to the *Beach*

*Closings* BUI. However, we would like to note that the City of Windsor should continue its ongoing sewer separation and address remaining CSOs. The DRCC recommends that the status of the 'Beach Closings' BUI be changed to NOT IMPAIRED.

**RECOMMENDATION**

Overall, the frequency of beach closures due to elevated counts of *E. coli* in the Detroit River (White Sands and McKee Park) did not exceed the frequency at upstream (Sandpoint) and downstream (Holiday) reference beaches. Therefore, the DRCC recommends that the *Beach Closings* BUI no longer be listed as impaired.

## ACKNOWLEDGEMENTS

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It is important to note that swimming in undesignated areas of the Detroit River is **highly discouraged** due to dangers related to water current and shipping traffic. The public is encouraged to contact the WECHU to obtain information regarding the condition of a designated swimming beach in the Windsor-Essex Region:
http://www.wechealthunit.org/inspect/beaches
519-258-2146 x426.

# APPENDIX 1

## 2009-2011 *E. coli* Monitoring Results – Geometric means for each sampling event

*Source: Windsor-Essex County Health Unit and Essex Region Conservation Authority*

***E. coli ≥ 100 CFU/100 mL = ADVISORY***
***E. coli ≥1000 CFU/100 mL = CLOSING***

| **2009** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3-Jul | 10-Jul | 15-Jul | 22-Jul | 29-Jul | 5-Aug | 12-Aug | 19-Aug | 28-Aug | 2-Sep | 11-Sep |
| Sandpoint | 36 | 130 | 76 | 293 | 754 | 335 | 296 | 72 | 58 | 28 | 579 |
| McKee Park | 105 | 85 | 78 | 149 | 108 | 210 | 54 | 175 | 144 | 270 | - |
| White Sands | 18 | 16 | 7 | 112 | 22 | 144 | 159 | 104 | 6 | 635 | - |
| Holiday | 432 | 125 | 224 | 81 | 80 | 50 | 72 | 959 | 23 | 15 | 14 |
| Rainfall (mm) | 0 | 0 | 0 | 0.4 | 8.6 | 0 | 0 | 0.4 | 14.8 | 0 | 0 |

| **2010** | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2-Jun | 9-Jun | 16-Jun | 23-Jun | 30-Jun | 7-Jul | 14-Jul | 2-Jul | 28-Jul | 4-Aug | 11-Aug | 18-Aug | 25-Aug | 1-Sep | 8-Sep |
| Sandpoint | - | - | 150 | 32 | 1000 | 95 | 158 | 161 | 109 | 74 | 84 | 83 | 372 | 80 | 321 |
| McKee Park | 308 | 418 | 66 | 96 | 50 | 131 | 39 | 116 | 139 | 109 | 131 | 100 | 96 | 196 | 91 |
| White Sands | 99 | 87 | 4 | 16 | 9 | 29 | 2 | - | 30 | 8 | 79 | 26 | 26 | 29 | 50 |
| Holiday | - | - | 262 | 726 | 674 | 577 | 936 | 323 | 1000 | 486 | 696 | 24 | 13 | 222 | 59 |
| Rainfall (mm) | 5.4 | 3 | 4.6 | 6.8 | 0 | 0 | 0 | 0 | 8 | 0 | 0.2 | 0.2 | 0 | trace | 0 |

| **2011** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-Jun | 22-Jun | 29-Jun | 6-Jul | 13-Jul | 20-Jul | 27-Jul | 3-Aug | 10-Aug | 17-Aug | 24-Aug | 31-Aug | 8-Sep |
| Sandpoint | 11 | 802 | 127 | 234 | 376 | 112 | 111 | 172 | 349 | 18 | 436 | 60 | 512 |
| McKee Park | - | 373 | 217 | 90 | 105 | 161 | 1047 | 411 | 164 | 47 | 229 | 87 | - |
| White Sands | - | 8 | 27 | 21 | 21 | 24 | 47 | 106 | 16 | 5 | 61 | 71 | - |
| Holiday | 757 | 379 | 60 | 181 | 162 | 49 | 293 | 156 | 975 | 130 | 47 | 28 | 89 |
| Rainfall (mm) | trace | 7.8 | 0 | 0 | 0 | 0 | 20.6 | 7 | 0 | 0 | 8.2 | trace | 13.8 |

# APPENDIX 2

## Additional Aesthetic/Wildlife Information at Detroit River Canadian Sites in 2011

*Source: Essex Region Conservation Authority*

| Date | McKee Park | White Sands Conservation Area |
|---|---|---|
| 22-Jun-11 | Sunny, few clouds, 54 geese, 1 seagull, poop everywhere | Overcast, windy, 8 seagulls, 2 swans, 2 cranes |
| 30-Jun-11 | Sunny, few clouds, 16 geese, poop everywhere | Sunny, few clouds, 1 decaying fish in the water |
| 06-Jul-11 | Sunny, few clouds, windy, 42 geese, 1 duck | Overcast, decaying seaweed and "soupy" stuff (greyish brown, slimey/sludge-like) along shoreline, bubbles when agitated |
| 13-Jul-11 | Sunny, clear skies, 1 large (~ 3') decaying fish, 1 decaying mudpuppy (~ 8") on beach | Sunny, clear skies, 2 dead fish and lots of decaying seaweed on beach |
| 20-Jul-11 | Overcast, 37 geese, 1 seagull | Sunny, overcast, decaying seaweed along the shoreline |
| 27-Jul-11 | Sunny, few clouds, decaying seaweed on beach, people sein-netting which stirred up the sediment | Clear skies, sunny, decaying seaweed along the shore |
| 03-Aug-11 | Decaying seaweed on shore, water level was lower than normal | Bubbles and foam along shoreline, decaying seaweed on the shore, water level was lower than normal |
| 10-Aug-11 | Decaying seaweed & large dead rat, 9 geese, 1 duck | Decaying seaweed on shore, foamy stuff along water's edge, 10 ducks |
| 17-Aug-11 | Decaying seaweed on shore, 2 seagulls, 26 geese, 29 ducks | Decaying seaweed on shore |
| 24-Aug-11 | Low water level. Lots of goose poop. 6 Seagulls, ~60 geese, ~30 ducks. | Lots of decaying seaweed. Foam on water's edge. Low water level. High winds, fast waves. |
| 31-Aug-11 | Decaying seaweed on shore, 4 seagulls, 30 geese. | Decaying seaweed on shore. |
| 07-Sep-11 | Decaying seaweed on shore, goose poop on beach. 3 seagulls, 1 goose, 7 ducks, 1 blue heron, 1 white crane. | Decaying seaweed on shore, low water level. |