
Water Resources Program

Swimming Safety in Our Rivers

Swimming Safety Updates for 2011

By Tony David, Program Manager, Water Resources Last updated: June 30, 2011

ADVISORY UPDATE: RAQUETTE AND ST REGIS E. COLI RISK ELEVATED TO MODERATE. SWIMMERS URGED TO PREVENT INGESTION OF RIVER WATER.

Introduction

The Water Resources Program (WRP) of the Environment Division monitors swimming safety in the Raquette, St. Regis and St. Lawrence Rivers. This is accomplished by measuring the number of *Escherichia coli* (or *E. coli*) colonies formed in a 100-ml water sample expressed as colony forming units (cfu) or most probably number (mpn). WRP has developed a peer reviewed method for collection, analysis and assessment to determine the risk to swimmers. This webpage will provide the results of this project as they become available and include some past results. Overall, the risk to swimmers is greatest following a large rain event of 0.5-in (1.3 cm) or more.

What's the Risk?

The risk to swimmers is gastrointestinal illness from the ingestion of river water--symptoms can include headaches, vomiting, and fever, and to a lesser extent infections of the eye, ear, nose and throat. WRP did not examine risks associated with parasites (such as swimmer's itch) nor harmful algal blooms (cyanobacteria). Persons with open wounds should be extra cautious. When in doubt, ask a healthcare professional if you need to take additional precautions.

Water-borne pathogens are difficult to measure directly, so WRP assessed swimming safety by measuring the levels of *E. coli*. This bacterium is found where pathogens are present. The swimming standard in the SMRT Water Quality Standards is 126 colony forming units per 100-ml. Historically, at base flow the risk to swimmers from pathogens is low to moderate. Known swimming areas at the Route 37 Bridge on the Raquette, Cook's campground on the St. Regis, and a sandy beach on St. Regis Island were repeatedly sampled (see map on this page).

Pathogens enter our rivers from natural sources such as wildlife, but the main contributors are poorly treated human wastes and livestock runoff. The runoff from large rain events will mobilize these pollutants into our rivers. The greatest risk to swimmers is a large rain event (0.5-inch or more), especially when preceded by a long dry period.

The best way to reduce the risk of gastrointestinal illness is through prevention. Children should be explained that river water is not to be swallowed. Try not to swim in the Raquette and St Regis Rivers after a large rain event. And Stay away from known sources of pathogens such as livestock areas and leaking septic systems. To help the Tribe keep our waters safe report known sources of pollution to the Environment Division at 518-358-5937.

Discussion: what it all means and how to prevent exposure

The table below summarizes the sampling events at each bathing area. Please note the following notation: geometric mean is similar to average—it represents the typical level of exposure on the sample date; N means the number of samples taken at the site; Std Dev means the standard deviation—a measure of how grouped the results are for that sample round; Risk is a qualitative characterization of the potential risk to swimmers expressed as low, moderate, high and very high.

Low risk means the risk of gastrointestinal illness from incidental ingestion of water is low, but not zero. It does not mean that the surface water is ok to consume. Moderate risk means the levels do not exceed the SRMT standard, but are close to it—extra precautions should be made to prevent the consumption of surface water. High risk means adults and children should avoid entering that water body until water clarity is restored. Elevated E. coli is typically associated with large storms which stir up sediments and decreased river clarity. In general, as the effects of the storm flow downriver, water clarity is restored and E. coli levels return to low. Due to seasonally low river flow and high temperatures, the highest levels of E. coli are typically observed in August.

Tribal Water Quality Standard

Swimming standard for E. coli is a geometric mean less than 126 mpn /100ml.

2011 E. coli results by river

Raquette River: State Route 37					
	Geo Mean	Range	N	Std Dev	Risk
6/6/2011	29	(13-47)	5	12.4	Low
6/13/2011	34	(29-37)	5	3.3	Low
6/27/2011	55	(38-74)	5	15.3	Low
7/07/2011	48	(31-60)	5	11.6	Low
7/11/2011	30	(24-36)	5	5.5	Low
7/25/2011	47	(36-61)	5	9.6	Low
08/08/2011	71	(59-86)	5	13.3	Low

St. Regis River: Cooks Campground					
	Geo Mean	Range	N	Std Dev	Risk
6/6/2011	16	(7.0-25)	7	7.4	Low
6/13/2011	41	(37-51)	7	5.7	Low
6/27/2011	58	(52-70)	7	8.4	Low
7/07/2011	35	(29-44)	7	6.6	Low
7/11/2011	31	(23-41)	7	9.4	Low
7/25/2011	38	(34-53)	7	7.3	Low
08/08/2011	99.6	(88-150)	7	25.3	Mod

St. Lawrence River: sand beach, south shore St. Regis Island					
	Geo Mean	Range	N	Std Dev	Risk
6/6/2011	1	(ND-4)	3	2.0	Low
6/13/2011	2	(1-4)	3	1.5	Low
6/27/2011	1	(ND-2)	3	0.8	Low
7/07/2011	1	(1-2)	3	0.6	Low
7/11/2011	1	(ND-4)	3	1.6	Low
7/25/2011	2	(ND-5)	3	2.4	Low
08/08/2011	1	(ND-1)	3	0.3	Low

Sample Locations

