Public Health
Prevent. Promote. Protect.

Mahoning County
District Board of Health
50 Westchester Drive • Youngstown, Ohio 44515
(330) 270-2855 • (800) 873-6243

Background

Poland Village Council requested a consultation with the Mahoning County District Board of Health to discuss concerns about the water quality within Yellow Creek. Yellow Creek is a waterway that begins in Poland Township, travels through Poland Woods and Poland Village, and then discharges into Lake Hamilton. Village Council was specifically concerned about the potential for untreated sewage entering into the creek and creating a public health nuisance due to high levels of E. coli in the water. E.coli is an organism that is found in the fecal waste of humans and animals. According to water quality standards set by the United States Environmental Protection Agency (US EPA), measuring the E. coli level is the most reliable indicator of fecal bacterial contamination of surface waters. When high levels of E. coli in are found, this indicates that there is fecal matter in the water.

Water Quality Study

The Mahoning County District Board of Health, in an agreement with Poland Village Council, conducted an eighteen week study of the water quality of Yellow Creek in the Village of Poland and Poland Woods. The testing began on April 27, 2016 and concluded on August 24, 2016. Low flow samples were drawn weekly from five pre-determined locations throughout Yellow Creek (see map). Additional samples, from the same five pre-determined locations, were drawn 24-48 hours following significant rain events. All samples were tested to determine E.coli levels. This method was chosen in an attempt to identify potential differences in water quality associated with precipitation.

Results of the Study

The Ohio Administrative Code 3745-1-04 (F) (1) (B) defines when waters of the state constitute a public health nuisance associated with raw or poorly treated sewage. The studied concluded that there is no public health nuisance associated with raw or poorly treated sewage in the areas that were tested. Base flow water samples did not exceed the threshold of 576 E. coli counts per one hundred milliliters in 20% of the samples taken during any 30 day period. The testing however does indicate elevated E.coli levels anywhere from 24-72 hours following significant rain events at the five sample locations. However, the E.coli levels receded below the threshold limits following 72 hours of no rainfall or when the stream returned to low flow.

Study Implications

Human and animal fecal waste contains disease-causing organisms. Exposing yourself to water contaminated with fecal waste can expose an individual to illness. Children, pregnant women, and people with compromised immune systems may suffer from severe illness if infected. In order to reduce your risk of becoming ill when in contact with natural bodies of water, please remember to do the following:

- Follow any warning signs or advisories that are posted in the area.
- Wash hands with soap and hot water as soon as possible or use a hand sanitizer if soap and hot water are not readily available.
- Do not place hands or items near your mouth, nose, and eyes that were in contact with the water.
- Do not drink water from an untreated or not approved source.

Sampling Results

DATE	Sample Location 1 Average (cfu/100ml)	Sample Location 2 Average (cfu/100ml)	Sample Location 3 Average (cfu/100ml)	Sample Location 4 Average (cfu/100ml)	Sample Location 5 Average (cfu/100ml)	TOTAL PRECIPTATION Average (inches)
4/27/2016	187	316	273	728	222	0.161
5/2/2016	2194	2194	2194	2420	1248	1.06
5/4/2016	275	333	207	166	220	0.001
5/11/2016	142	200	140	361	120	0.43
5/18/2016	820	532	482	366	531	0.771
5/25/2016	316	208	366	1233	244	0.431
6/1/2016	329	269	228	489	128	0.002
6/8/2016	329	1500	2420	1354	2420	1.001
6/15/2016	532	580	1048	631	244	0.001
6/22/2016	533	448	517	533	179	1.29
6/23/2016	44	668	118	11	246	0.32
6/29/2016	252	131	250	1318	229	0.002
7/6/2016	482	137	86	728	202	1.04
7/13/2016	67	55	227	502	48	0.74
7/20/2016	416	489	1354	1937	191	0.621
7/25/2016	2420	2420	2420	2420	2420	0.58
7/27/2016	279	471	803	779	509	0
8/1/2016	954	1750	1680	1988	841	2.37
8/3/2016	292	399	423	1301	411	0
8/10/2016	2420	2420	2420	2420	2420	0.401
8/15/2016	1302	1477	1717	1515	821	2.05
8/17/2016	448	669	945	1364	771	0.11
8/24/2016	580	503	647	962	1085	0.48

Sampling Locations