

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER RESOURCES DIVISION  
MAY 2016

STAFF REPORT

MICHIGAN BEACH MONITORING  
YEAR 2015 ANNUAL REPORT

## INTRODUCTION

The Michigan Department of Environmental Quality (MDEQ) Surface Water Quality Monitoring Program is summarized in the January 1997 report entitled, "A Strategic Environmental Quality Monitoring Program for Michigan's Surface Waters" (Strategy) (MDEQ, 1997). The objectives of the beach monitoring component of the Strategy are listed below:

1. Assist local health departments to implement and strengthen beach monitoring programs.
2. Create and maintain a statewide database.
3. Determine whether waters of the state are safe for total body contact recreation.
4. Compile data to determine overall water quality.
5. Evaluate the effectiveness of MDEQ programs in attaining Water Quality Standards (WQS) for pathogen indicators.

### 1. ASSIST LOCAL HEALTH DEPARTMENTS TO IMPLEMENT AND STRENGTHEN BEACH MONITORING PROGRAMS

#### Beach Monitoring

The monitoring of beaches in Michigan is voluntary and is conducted by the local health departments. Health departments are required to comply with Michigan's WQS according to R 333.12544 of the Public Health Code, 1978 PA 368 (Act 368), as amended. According to R 333.12541 of Act 368, a local health officer or an authorized representative of a local health department that conducts tests at bathing beaches is required to notify the MDEQ and other entities of the test results within 36 hours of conducting a test or evaluation. This rule also states that the local health department may petition the circuit court for an injunction ordering the owners of a beach to close the beach. Owners of public bathing beaches must post a sign that states whether or not the bathing beach has been tested, and if so, where the test results may be accessed.

The MDEQ awards grants to local health departments to monitor and report levels of *E. coli* in the swimming areas of public beaches. In selecting recipients for grant awards, the MDEQ considers all of the following:

- Location and frequency of beach use.
- History of beach monitoring and bacterial contamination.
- Ability to communicate results to the public in an efficient manner.
- Ability to respond and take appropriate action in the event of beach contamination.
- Proximity of beach to a known bacterial contamination source.
- Innovativeness and feasibility of proposed project.
- Ability to reduce time delay between sampling and results.

## Funding for Beach Monitoring

Prior to 2000, health departments relied on local funding to conduct beach monitoring programs. Local funding was often not sufficient to execute a comprehensive statewide monitoring program. Beginning in 2000, funding became available from the Clean Michigan Initiative-Clean Water Fund (CMI-CWF). In 2003, the United States Environmental Protection Agency (USEPA) also began awarding funds from the Beaches Environmental Assessment and Coastal Health Act (BEACH Act) for monitoring Great Lakes beaches. In 2010 and 2012, the MDEQ received funds from the Great Lakes Restoration Initiative (GLRI) to monitor, conduct routine and annual sanitary surveys, develop forecast tools to open or close beaches in real-time, use source tracking tools to identify sources of pollution that contaminate beach water quality, and remediate sources of pollution. In 2015, the MDEQ provided \$500,000 for the purchase of rapid testing equipment and \$58,000 for QPCR training.

### *CMI-CWF Grants*

The MDEQ distributed CMI-CWF funds to aid in the development and implementation of inland lake beach monitoring programs throughout the state. In 2000 and 2001, CMI-CWF funds were distributed for inland lakes and Great Lakes beach monitoring programs. In 2002, no CMI-CWF funds were distributed, but future funding was designated for inland beaches due to the availability of BEACH Act funding for Great Lakes beaches.

The CMI-CWF grant funds are awarded by the MDEQ to local health departments and nonprofit entities, which include county, city, township, and village agencies, watershed and environmental action councils, universities, regional planning agencies, and incorporated nonprofit organizations. The majority of grants are awarded to local health departments. If a group other than a local health department is awarded a grant, the MDEQ requires the group to work closely with their local health department.

The CMI-CWF offers reliable funding for the monitoring of surface water over a period of approximately 15 years. Since 2000, the MDEQ has awarded \$1,712,205, including 13 awards totaling \$200,000 (Appendix A) for monitoring beaches in 2015 and 2016.

### *BEACH Act Grants*

The MDEQ distributes BEACH Act funds to aid in the development and implementation of Great Lakes beach monitoring programs. State, local, and tribal governments having coastal waters are eligible to apply for the BEACH Act grants. The USEPA (2014) revised the performance criteria that must be met by grant recipients. Since the BEACH Act was initiated in 2003, the MDEQ has allocated \$3,217,739 including 24 awards in 2015 totaling \$243,353 for beach monitoring using the culture-based and/or quantitative polymerase chain reaction (QPCR) method (Appendix B).

### *GLRI Grants*

The MDEQ collaborated with local health departments to improve beach water quality using GLRI funds starting in 2010. The last of the GLRI beach restoration projects was completed in 2015 at Sherman Park Beach in Sault Ste. Marie, Chippewa County. This beach was selected for remediation when monitoring data indicated that elevated *E. coli* levels resulted from a failing storm drain system. During heavy storms, the sidewalks served as channels for storm water to flow from the surrounding parking lots onto the beach areas, carrying bacteria and other debris with it. From 2010 to 2013, storm runoff caused one advisory and 13 beach closures. To intensify the situation, a large storm further damaged Sherman Park Beach on September 9,

2013. Runoff eroded some areas by as much as four feet and left the beach closed until May 2014. Fortunately, construction for the project began as scheduled in 2014. A rain garden, pedestrian foot-bridge, infiltration trenches, and dune grass were added to manage storm water. Dangerous, eroded areas of the beach were filled in and stabilized by adding coarse grain sand. These renovations made the beach safer, more visually appealing, and improved water quality.

### New Equipment and Methods

Michigan will be the first state to monitor beaches statewide using a new, rapid testing method for water quality to quickly address potential public health concerns and keep people safe. The new QPCR method quickly identifies and measures *E. coli* DNA in a beach water sample. The method provides results on the same day that a sample is collected. To implement the QPCR method, local health departments received \$500,000 worth of equipment and grants from the MDEQ. Ten labs statewide will use this equipment to begin testing with the QPCR method and comparing results to traditional culture-based methods. Dr. Joan Rose, Michigan State University, received funding from the MDEQ to provide specialized training for the QPCR method and beach water testing.

### CREATE AND MAINTAIN A STATEWIDE DATABASE

The MDEQ developed a centralized statewide database, BeachGuard, which includes beach locations and maps, beach monitoring *E. coli* test results, notification data, and routine sanitary survey data. These data are available electronically to the public via the MDEQ's Web site (<http://www.deq.state.mi.us/beach/>).

The Web site provides the following information about individual beaches:

- location information (county, water body, and coordinates for latitude and longitude)
- frequency of testing
- monitoring history
- beach closures
- monitoring efforts
- search tools
- options for data export
- information for beach monitoring procedures and methods
- additional links to beach monitoring resources
- contact information for federal, state, and local beach monitoring staff

BeachGuard is also connected to a beach application for mobile phones that was created by the Great Lakes Commission. The beach application is called *MyBeachCast* and retrieves beach locations and their status from BeachGuard. The beach application is available from (*link broken, removed*) and a mobile-enhanced Web site is available on the Great Lakes Information Network (*link broken, removed*) that offers information for Web viewers, iPhones, and other mobile devices.

## 2. DETERMINE WHETHER WATERS OF THE STATE ARE SAFE FOR TOTAL BODY CONTACT RECREATION

### Pathogens

Pathogens are microorganisms (bacteria, protozoans, or viruses) that cause disease. Most waterborne pathogens are readily found in the feces of humans and other warm-blooded animals. Gastroenteritis is the most common illness associated with swimming in contaminated water, although other illnesses can occur. The severity of the disease or illness depends on the amount of exposure and the type of pathogen (Appendix C) (USEPA, 2001). The USEPA (1986 and 2012) has determined that *E. coli* and *Enterococci* are appropriate indicators for the presence of waterborne pathogens in fresh water.

### Routine Sanitary Surveys

As part of the BEACH Act, local health departments conducted 1,001 routine sanitary surveys at 91 Great Lakes beaches and access points to identify sources of pollution that adversely impact beach water quality. Corrective actions have been taken as sources of pollution have been identified. In addition, local health departments conducted 858 routine sanitary surveys at 105 inland locations to identify sources of pollution that adversely impact beach water quality at inland lakes. Data for routine sanitary surveys for all of these beaches and locations are available on BeachGuard.

### Sources of Bacterial Contamination

Combined Sewer Overflows (CSOs) are discharges of raw or inadequately treated sewage from sewer systems that are designed to carry both domestic sewage and storm water to wastewater treatment plants (WWTPs). When a storm event occurs and the volume of wastewater is larger than the WWTP can process, the excess untreated sewage and storm water are discharged into local waterways.

Sanitary Sewer Overflows are discharges of raw or inadequately treated sewage (MDEQ, 2015) from municipal sanitary sewer systems, which are designed to carry domestic sanitary sewage but not storm water. Systems that contain cracks, obstructions, storm water connections, or that are undersized with sewers and pumps too small to carry all the sewage may leak or overflow raw sewage from manholes, bypass pump stations, and WWTPs into the surrounding waters, particularly during extreme hydrologic events.

Failing septic systems can cause leaching and/or runoff into the waterways, causing bacterial contamination. Urban storm water runoff from roads, roofs, construction sites, parking lots, etc., may contain fecal matter from pets and wildlife. Excessive waterfowl near the beaches and animal waste runoff from farms and fields can contribute to elevated bacterial levels. Illicit connections of pipes containing sewage to storm sewers or surface waters are also a potential source of bacterial contamination.

## E. coli WQS

The MDEQ requires beaches to be monitored according to the Part 4 rules, WQS, promulgated under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, as follows:

### R 323.1062 Microorganisms

Rule 62(1): All waters of the state protected for total body contact recreation shall not contain more than 130 *E. coli* per 100 milliliters (ml), as a 30-day geometric mean. Compliance shall be based on the geometric mean of all individual samples taken during 5 or more sampling events representatively spread over a 30-day period. Each sampling event shall consist of 3 or more samples taken at representative locations within a defined sampling area. At no time shall the waters of the state protected for total body contact recreation contain more than a maximum of 300 *E. coli* per 100 ml. Compliance shall be based on the geometric mean of 3 or more samples taken during the same sampling event at representative locations within a defined sampling area.

All surface waters of the state are protected for total body contact according to the Part 4 rules, as follows:

### R 323.1100 Designated Uses

Rule 100(2): All surface waters of the state are designated and protected for total body contact recreation from May 1 to October 31 in accordance with the provisions of R 323.1062. Total body contact recreation immediately downstream of wastewater discharges, areas of significant urban runoff, CSOs, and areas influenced by certain agricultural practices is contrary to prudent public health and safety practices, even though WQS may be met.

## Beach Notification

The public will be warned of unsafe water conditions by beach notifications such as advisories or closures (collectively referred to as an action). These actions are based on beach data, which can show risks due to riptides, spills, harmful algal blooms, an *E. coli* result exceeding the WQS, or other potential threats to public health. Advisories or closures are most commonly issued because of elevated counts of *E. coli* in water samples collected from the shoreline of a water body. Health departments use the daily and 30-day geometric mean to determine if a beach closure or advisory should be issued. The health department notifies the owner of the beach when a beach should be closed. If necessary, the health department can petition the court for an injunction to force the owner to close the beach. The beach closure or advisory remains in effect until additional tests meet the WQS.

The MDEQ developed a centralized statewide database, BeachGuard, which includes bathing beach monitoring *E. coli* test results and notification data. These data are available electronically to the public via BeachGuard (<http://www.deq.state.mi.us/beach/>).

## Reporting Beach Monitoring and Notification Data

According to R 333.12541(2), all local health departments are required to report their beach monitoring test results to the MDEQ within 36 hours of conducting the test or evaluation. Health departments receiving beach monitoring grants are required to enter their data on the MDEQ's Web site, while non-grant receiving health departments are encouraged to report their data on the Web site.

As a requirement of the BEACH Act, the MDEQ submits beach monitoring data to the USEPA. The USEPA has created several Web pages for beach information that can be found at <http://water.epa.gov/type/oceb/beaches/>, along with an online directory of information regarding the water quality at our nation's beaches entitled, "Beach Advisory Closing On-line Notification," that can be found at <http://watersgeo.epa.gov/beacon2/>.

### 3. COMPILE DATA TO DETERMINE OVERALL WATER QUALITY

#### List of Beaches

Michigan beaches identified by local health departments and the MDEQ are listed in Appendices D.1 (Inland lakes-monitored), D.2 (Inland lakes-not monitored), E.1 (Great Lakes-monitored), and E.2 (Great Lakes-not monitored). They are also listed on the MDEQ's beach Web site. The beaches are arranged alphabetically by county, then water body, then location (site name). There are 578 identified public beaches on inland lakes and rivers and 617 identified public beaches on the Great Lakes.

#### Synopsis of Data

Monitoring and notification data reported for beaches included results of *E. coli* tests, number of advisories or closures (actions) posted, and the number of days for each posting. In 2015, monitoring was conducted at 387 public beaches in 54 counties. Local beach managers collected 4,266 daily water samples and 212 (5.0 percent) exceeded Michigan's WQS (Appendices F.1 and F.2). A numerical summary of all monitored public beaches and samples exceeding WQS is found below in Table 1. The number and percent of samples exceeding WQS in 2015 are similar to the previous years.

Table 1. Number and percent of monitored public beaches and water samples in Michigan exceeding the daily geometric mean of 300 *E. coli* per 100 ml.

Year	2011	2012	2013	2014	2015	10-Year Average
Number of Beaches with Exceedances	124	114	98	76	98	94
Percent of Beaches with Exceedances	30	27	23.7	22.8	25.1	22
Number of Samples Exceeding WQS	266	224	162	129	212	186
Percent of Samples Exceeding WQS	4.3	3.9	3.3	3.9	5.0	3.62

Notification data in 2015 for beach actions are shown in Table 2. A total of 291 of the 387 public beaches (75.2 percent) that were monitored were open during the entire swimming season. The number of beaches reporting an action was 96. The number of beaches with exceedances differed from the number of beaches with actions due to any of the following reasons: (1) water samples were tested before or after the swimming season; (2) delays in receiving test results; (3) a second test (follow-up sample) was used to confirm an exceedance; (4) preemptive closures or advisories were issued; or (5) contamination advisories were issued for potential chemical or oil discharge.

Table 2. Summary of monitored beaches with and without actions.

Year	2011	2012	2013	2014	2015	10-Year Average
Total Actions For All Beaches	165	166	112	112	147	124
Total of Monitored Beaches with an Action	111	112	84	74	96	84
Percent of Monitored Beaches with an Action	27	26	20	22.2	24.8	20
Total of Monitored Beaches with no Action	304	311	329	260	291	332
Percent of Monitored Beaches with no Action	73	74	80	77.8	75.2	80

Synopsis of Data from Great Lakes Beaches

In 2015, 2,286 daily samples were collected at 203 Great Lakes public beaches in 35 counties in Michigan. A summary of WQS exceedances and closures/advisories for Great Lakes beaches is provided in Table 3. Exceedances and actions for Great Lakes beaches were of short duration. The number of monitored Great Lakes beaches has decreased from previous years, but the number of beaches with an action has remained about the same (Table 4).

Table 3. Number of exceedances and actions for Great Lakes beaches monitored in 2015.

a. Number of Exceedances Reported per Beach	b. Number of Beaches with Exceedance(s)	Total Number of Exceedances (a x b)	c. Number of Closures or Advisories per Beach	d. Number of Beaches with Closures or Advisories	Total Number of Closures or Advisories (c x d)
1	42	42	1	42	42
2	10	20	2	13	26
3	4	12	3	6	18
4	5	20	4	2	8
5	2	10	6	1	6
6	1	6	7	1	7
7	1	7			
12	1	12			
13	1	13			
<b>TOTAL</b>	67	142	<b>TOTAL</b>	65	107

Table 4. Number of monitored Great Lakes beaches with and without an action.

Year	2011	2012	2013	2014	2015	10-Year Average
GL Monitored Beaches with an Action	89	89	54	50	65	52
GL Monitored Beaches with no Action	173	171	185	110	138	165
Total GL Monitored Beaches	262	260	239	160	203	217

A summary of the 2015 beach action data for each of the Great Lakes, Lake St. Clair, and connecting channels is provided in Table 5. A summary of sources of contamination reported for actions in the Great Lakes, Lake St. Clair, and connecting channels is provided in Table 6.

Table 5. Data summary for the Great Lakes, Lake St. Clair, and connecting channels.

Summary	Lake Erie	Lake Huron	Lake Michigan	Lake Superior	Lake St. Clair	Great Lakes Connecting Channels	Total
Number of Public Beaches	2	170	306	121	4	14	<b>617</b>
Number of Monitored Beaches	2	53	121	18	4	5	<b>203</b>
Number of Beaches with Exceedance	1	28	29	2	4	3	<b>67</b>
Number of Exceedances	1	60	38	8	27	8	<b>142</b>
Number of Beaches with an Action	1	29	28	2	3	3	<b>65</b>
Number of Actions	1	48	33	4	14	7	<b>107</b>
Total Number of Days with Actions	2	132	53	8	130	15	<b>340</b>

Table 6. Contamination sources reported for advisories and closures, days affected, and the number of beaches for the Great Lakes, Lake St. Clair, and connecting channels for the specific cause of the beach action.

Contamination Source	Number of Actions with Reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Storm Water	29	62	22
Runoff	3	17	3
Sanitary Sewer Overflow	1	3	1
Wildlife	2	10	2
Other	4	38	4
Unknown	68	210	43
<b>TOTAL</b>	<b>107</b>	<b>340</b>	<b>75*</b>

\*Multiple sources reported for some beaches.

#### Synopsis of Data from Inland Beaches

In 2015, 1,980 daily samples were collected at 184 inland lake public beaches in 38 counties in Michigan. Of the 31 beaches that reported actions, 4 beaches contributed 72.5 percent of the total days impacted by an action. The remaining 27 beaches issued an action lasting 1 to 27 days and contributed 27.5 percent of the total days impacted by an action.

A summary of WQS exceedances and closures/advisories for inland beaches is provided in Table 7. As seen with Great Lakes Beaches, exceedances and actions for inland beaches were of short duration. The number of monitored inland beaches varies by year and Table 8 shows the number of beaches with an action was about the same in 2015 as compared to previous



years. A summary of sources of contamination reported for beach actions for inland lakes is provided in Table 9.

Table 7. Number of exceedances and actions for inland beaches monitored in 2015.

a. Number of Exceedances Reported per Beach	b. Number of Beaches with Exceedance(s)	Total Number of Exceedances (a x b)	c. Number of Actions per Beach	d. Number of Beaches with Actions	Total Number of Actions (c x d)
1	15	15	1	24	24
2	9	18	2	5	10
3	2	6	3	2	6
4	1	4			
5	2	10			
6	1	6			
11	1	11			
<b>TOTAL</b>	<b>31</b>	<b>70</b>	<b>TOTAL</b>	<b>31</b>	<b>40</b>

Table 8. Number of monitored inland lake beaches with and without an action.

Year	2011	2012	2013	2014	2015	10-Year Average
Inland Lake Monitored Beaches with an Action	22	26	28	24	31	32
Inland Lake Monitored Beaches with no Action	131	137	146	150	153	169
Total Inland Lake Monitored Beaches	153	163	174	174	184	201

Table 9. Contamination sources reported for actions, days affected, and the number of beaches reporting the specific cause of an action for inland lakes.

Contamination Source	Number of Actions Reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Storm Water	11	124	11
Wildlife	6	59	4
Unknown	23	395	18
<b>TOTAL</b>	<b>40</b>	<b>570</b>	<b>33*</b>

\*Multiple sources reported for some beaches.

#### 4. EVALUATE THE EFFECTIVENESS OF MDEQ PROGRAMS IN ATTAINING WQS FOR PATHOGEN INDICATORS

##### Beach Water Quality Data that do not Meet WQS

Water quality protection continues to be a great concern in Michigan and depends on the collective efforts of multiple pollution prevention programs. As part of the beach monitoring program, health departments and the MDEQ routinely review beach water quality data. This information is used in federal, state, and local pollution prevention programs to determine which water bodies are not meeting WQS and to help identify sources of pollution that affect beach water quality.

Section 303(d) of the federal Clean Water Act and the USEPA's Water Quality Planning and Management Regulations (Title 40 of the Code of Federal Regulations, Part 130) require states to develop Total Maximum Daily Loads (TMDLs) for water bodies that are not meeting WQS. The TMDL process establishes the allowable loadings of pollutants to a water body based on the relationship between pollution sources and water quality conditions. TMDLs provide a basis for determining the pollutant reductions necessary from both point and nonpoint sources to restore and maintain the quality of the water resources.

Waters associated with public beaches are considered to not be attaining WQS when *E. coli* monitoring data collected by county health departments during the total body contact recreation season of May 1 to October 31 (as described by R 323.1100(2)) meet one or more of the following decision elements:

- Ten percent of the monthly geometric mean samples exceed the monthly geometric mean WQS of 130 *E. coli* per 100 ml based on weekly samples collected over a minimum of 5 weeks.
- Ten percent of the daily geometric mean samples exceed the daily maximum WQS of 300 *E. coli* per 100 ml based on weekly samples collected over a minimum of 5 weeks.
- Two or more sample results collected at any time during the total body contact recreation season of May 1 to October 31 exceed the partial body WQS of 1,000 *E. coli* per 100 ml.

The water bodies that exceed WQS and require a TMDL are placed on the Section 303(d) list and TMDL development schedule. A water body is not placed on the TMDL development schedule if a remedial action plan is already in place. The beaches that exceed WQS per the decision elements are listed on the Section 303(d) list, which is available in the most recent "Water Quality and Pollution Control in Michigan Sections 303(d), 305(b), and 314 Integrated Report."

Prepared by: Lauren Wisnieski, Student Assistant  
Geneva Langeland, Student Intern  
Surface Water Assessment Section  
Water Resources Division

Shannon Briggs, Ph.D.  
Surface Water Assessment Section  
Water Resources Division

## REFERENCES

- MDEQ. 1997. A Strategic Environmental Quality Monitoring Program for Michigan's Surface Waters. Michigan Department of Environmental Quality. Staff Report #MI/DEQ/SWQ-96/152. January 1997.
- USEPA. 1986. Ambient Water Quality Criteria for Bacteria-1986. EPA 440/5-84/002.
- USEPA. 2001. Protocol for Developing Pathogen TMDLs. January 2001. EPA 84/R-00-002.
- USEPA. 2012. Recreational Water Quality Criteria. EPA-820-F-12-058
- USEPA. 2014. National Beach Guidance and Required Performance Criteria for Grants. EPA-823-B-14-001.
- MDEQ. 2015. Sanitary Sewer Discharge Information. <http://www.deq.state.mi.us/csosso/>.

Appendix A. CMI-CWF Grants for Inland Lake Beaches 2015-2016.

<b>2015-2016 CMI-CWF Grantees</b>	<b>Granted Amount</b>	<b>Total Monitored Beaches</b>
Barry-Eaton District Health Department	\$9,739.37	4
Central Michigan District Health Department	\$23,200.00	14
Chippewa County Health Department	\$6,700.00	3
District Health Department #2	\$32,200.00	20
District Health Department #4	\$6,700.00	3
Health Department of Northwest Michigan	\$20,540.00	16
Luce-Mackinac-Alger-Schoolcraft District Health Department	\$5,200.00	2
Macomb County Health Department	\$5,200.00	2
Oakland County Health Department	\$45,079.48	45
Watershed Center Grand Traverse Bay	\$15,700.00	9
Wayne County Health Department	\$9,800.00	5
Western UP District Health Department	\$8,753.15	6
Wexford County Drain Commission	\$11,188.00	6
Total	\$200,000.00	135

Appendix B. 2015 BEACH Act Grants for Great Lakes Beaches.

Local Health Department	Allocated Amount
Allegan County Health Department	\$5,000
Bay County Health Department	\$6,614
Berrien County Health Department	\$16,153
Central Michigan District Health Department	\$11,073
Chippewa County Health Department	\$8,704
Delta-Menominee District Health Department	\$5,000
Detroit (DNR)	\$3,000
District Health Department #2	\$8,942
District Health Department #4	\$8,103
District Health Department #10	\$21,988
Huron County Health Department	\$15,356
Luce-Mackinac-Alger-Schoolcraft District Health Department	\$7,690
Macomb	\$5,000
Marquette (City of Marquette)	\$7,152
Monroe County Health Department	\$5,000
Muskegon County Health Department	\$15,097
Northwest Michigan Community Health Agency	\$29,695
Ottawa County Health Department	\$12,170
St. Clair County Health Department	\$12,645
Sanilac County Health Department	\$5,000
Van Buren/Cass District Health Department	\$7,152
Watershed Center (Grand Traverse & Benzie-Leelanau)	\$13,784
Wayne County Health Department	\$3,038
Western Upper Peninsula District Health Department	\$9,997
<b>Total</b>	<b>\$243,353</b>

Appendix C. Waterborne Pathogens

Pathogen		Disease	Effects
Bacteria	Escherichia coli (enteropathogenic)	Gastroenteritis	Vomiting, diarrhea, death in susceptible populations
	Helicobacter pylori	Gastritis	Diarrhea. Peptic ulcers are a long-term sequela
	Legionella pneumophila	Legionellosis	Acute respiratory illness
	Leptospira	Leptospirosis	Jaundice, fever
	Pseudomonas	Infections in immunocompromised individuals	Urinary tract infections, respiratory system infections, dermatitis, soft tissue infections, bacteremia, and a variety of systemic infections
	Salmonella typhi	Typhoid fever	High fever, diarrhea, ulceration of the small intestine
	Salmonella	Salmonellosis	Diarrhea, dehydration
	Shigella		Bacterial dysentery
	Vibrio cholera	Cholera	Extremely heavy diarrhea, dehydration
	Yersinia enterocolitica	Yersinosis	Diarrhea
Protozoans	Balantidium coli	Balantidiasis	Diarrhea, dysentery
	Cryptosporidium	Cryptosporidiosis	Diarrhea
	Entamoeba histolytica	Ameobiasis (amoebic dysentery)	Prolonged diarrhea with bleeding, abscesses of the liver and small intestine
	Giardia lamblia	Giardiasis	Mild to severe diarrhea, nausea, indigestion
	Naegleria fowleri	Amoebic meningoencephalitis	Fatal disease; inflammation of the brain
Viruses	Adenovirus (31 types)	Respiratory disease	Eye infections, diarrhea
	Astroviruses	Gastroenteritis	Vomiting, diarrhea
	Enteroviruses (67 types, e.g., polio, echo, and Coxsackie viruses)	Gastroenteritis	Diarrhea. Heart anomalies and meningitis are long-term sequela and are very rare
	Hepatitis A and E	Infectious hepatitis	Jaundice, fever
	Caliciviruses (Norwalk- and Sapporo-like viruses)	Gastroenteritis	Vomiting, diarrhea
	Reovirus	Gastroenteritis	Vomiting, diarrhea
	Rotavirus	Gastroenteritis	Vomiting, diarrhea

Source: USEPA, 2001

Appendix D.1. Inland Beaches Monitored 2015.

		<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b>	1	<b>Alcona</b>	Brownlee Lake	1	Village of Lincoln Park
	2	Alcona	Cedar Lake	2	Greenbush Township beach
	3	Alcona	Hubbard Lake	3	Caledonia Township Park
	4	Alcona	Alcona Pond	4	Alcona Park East Campground
<b>2</b>	5	<b>Alpena</b>	Long Lake	1	Long Lake Park
<b>3</b>	6	<b>Antrim</b>	Central Lake	1	Thurston Park
	7	Antrim	Ellsworth Lake	2	Wooden Shoe Park
	8	Antrim	Lake Bellaire	3	Richardi Park
	9	Antrim	Torch Lake	4	Day Park
	10	Antrim	Torch Lake	5	Eastport
<b>4</b>	11	<b>Arenac</b>	Oasis Lake	1	Oasis Lake County Park
<b>5</b>	12	<b>Barry</b>	Gun Lake	1	Main Beach - Day Use Area
	13	Barry	Gun Lake	2	Yankee Springs Recreation Area Campground Beach
	14	Barry	Thornapple Lake	3	Charlton Park
<b>6</b>	15	<b>Bay</b>	Saginaw River	1	Vet's Park North Bay City
<b>7</b>	16	<b>Benzie</b>	Crystal Lake	1	Bellows
	17	Benzie	Crystal Lake	2	Beulah Beach
	18	Benzie	Lake Ann	3	Almira Township Park Beach
<b>8</b>	19	<b>Charlevoix</b>	Thumb Lake	1	Thumb Lake Beach
	20	Charlevoix	Walloon Lake	2	Melrose Township Park
<b>9</b>	21	<b>Chippewa</b>	Dukes Lake	1	Dukes Lake
	22	Chippewa	Kinross Lake	2	Kinross Lake
	23	Chippewa	Monocle Lake	3	Monocle Lake
<b>10</b>	24	<b>Clare</b>	Crooked Lake	1	Crooked Lake/Camp Neyati Beach
	25	Clare	Budd Lake	2	Wilson State Park
<b>11</b>	26	<b>Eaton</b>	Fox Memorial Park Beach	1	Fox Memorial Park
<b>12</b>	27	<b>Emmet</b>	Crooked Lake	1	Little Traverse Township Beach
	28	Emmet	Crooked Lake	2	Oden Beach
	29	Emmet	Pickereel Lake	3	Camp Petosega
	30	Emmet	Pickereel Lake	4	Channel Beach
	31	Emmet	Walloon Lake	5	Resort Pike Road Beach
<b>13</b>	32	<b>Genesee</b>	Byram Lake	1	Clover Beach
	33	Genesee	Holloway Reservoir	2	Buttercup Beach

Appendix D.1. Inland Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
34	Genesee	Kelly Lake	3	Kelly Lake
35	Genesee	Mott Lake	4	Bluebell Beach
36	Genesee	Silver Lake	5	City Park Beach
<b>14</b> 37	<b><u>Gladwin</u></b>	Ross Lake	1	Beaverton City Park
38	Gladwin	Cedar River	2	Gladwin City Park
<b>15</b> 39	<b><u>Gogebic</u></b>	Lake Gogebic	1	Gogebic County Park
40	Gogebic	Lake Gogebic	2	Lake Gogebic State Park Beach
41	Gogebic	Sunday Lake	3	Sunday Lake Beach
<b>16</b> 42	<b><u>Grand Traverse</u></b>	Duke Lake	1	Interlochen State Park
43	Grand Traverse	Long Lake	2	Gilbert Beach
44	Grand Traverse	Long Lake	3	Taylor Park
45	Grand Traverse	North Twin Lake	4	Twin Lakes Camp Beach
<b>17</b> 46	<b><u>Houghton</u></b>	Lake Roland	1	Twin Lakes State Park
<b>18</b> 47	<b><u>Ingham</u></b>	Burchfield Pond	1	Burchfield Park
48	Ingham	Hawk Island	2	Hawk Island County Park
49	Ingham	Lake Lansing	3	Lake Lansing Park South
50	Ingham	Valhalla Pond	4	Valhalla Park
<b>19</b> 51	<b><u>Iosco</u></b>	Foote Pond	1	Old Orchard Park
52	Iosco	Long Lake	2	Long Lake Public Access
53	Iosco	Sand Lake	3	Sand Lake- Sand Lake Road Access
54	Iosco	Van Ettan Lake	4	Oscoda Township Park- Van Ettan Lake
<b>20</b> 55	<b><u>Isabella</u></b>	Borrow Pit	1	Herrick County Park
56	Isabella	Littlefield Lake	2	Littlefield Lake
57	Isabella	Coldwater Lake	3	Coldwater Park
58	Isabella	Halls Lake	4	Halls Lake
59	Isabella	Chippewa River	5	Deerfield County Park
<b>21</b> 60	<b><u>Kalamazoo</u></b>	Blue Lake	1	Cold Brook County Park
61	Kalamazoo	Campbell Lake	2	Robert Morris Park
62	Kalamazoo	Eagle Lake	3	Fort Custer Recreation Area Beach
63	Kalamazoo	Gull Lake	4	Ross Township Park
64	Kalamazoo	Hogsett Lake	5	Prairie View County Park
65	Kalamazoo	Long Lake	6	Ramona Park
66	Kalamazoo	Sunset Lake	7	Sunset Lake Park
67	Kalamazoo	Swimmers Lake	8	Markin Glen County Park



Appendix D.1. Inland Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
68	Kalamazoo	Woods Lake	9	Woods Lake Beach
<b>22</b> 69	<b>Leelanau</b>	Lake Leelanau	1	Nedow's (Bartholomew) Beach
70	Leelanau	South Bar Lake	2	South Bar Lake- South End
<b>23</b> 71	<b>Livingston</b>	Bishop Lake	1	Brighton State Recreation Area
72	Livingston	Chenango Lake	2	Camp Talahi
73	Livingston	Church Lake	3	Wildwood Ranch
74	Livingston	Cook Lake	4	Taylor's Beach
75	Livingston	Kent Lake	5	Island Lake Recreation Area - Kent Lake
76	Livingston	Lake Chemung	6	Lake Chemung Outdoor Resort
77	Livingston	Lake Walden	7	Waldenwoods Resort
78	Livingston	Pleasant Lake	8	Howell Nature Center
79	Livingston	Sandy Bottom Lake	9	Water's Edge Camp
80	Livingston	Spring Mill Pond	10	Island Lake Recreation Area
81	Livingston	Thompson Lake	11	Howell City Park
<b>24</b> 82	<b>Macomb</b>	Stony Creek Lake-Impoundment	1	Stony Creek Metropark-Baypoint Beach
83	Macomb	Stony Creek Lake-Impoundment	2	Stony Creek Metropark-Eastwood Beach
<b>25</b> 84	<b>Manistee</b>	Bear Lake	1	Bear Lake- 13 Mile Road Beach
85	Manistee	Bear Lake	2	Bear Lake- 7th Street Beach
86	Manistee	Bear Lake	3	Bear Lake- Hopkins Park
87	Manistee	Bear Lake	4	Bear Lake- Myers Road Beach
88	Manistee	Bear Lake	5	Bear Lake- Pleasanton Twn. Park Beach
89	Manistee	Bear Lake	6	Bear Lake- South Shore Beach
<b>26</b> 90	<b>Marquette</b>	Dead River Reservoir	1	Marquette Tourist Park Beach
<b>27</b> 91	<b>Oakland</b>	Adams Lake	1	Addison Oaks County Park
92	Oakland	Big Seven Lake	2	Seven Lakes Park
93	Oakland	Bush Lake	3	Holly Village Beach
94	Oakland	Carter Lake	4	Thelma Spencer Park
95	Oakland	Cass Lake	5	Dodge Park #4
96	Oakland	Cass Lake	6	Keego Harbor City Beach
97	Oakland	Cass Lake	7	Pontiac Yacht Club
98	Oakland	Commerce Lake	8	Log Cabin Sub.
99	Oakland	Crooked Lake	9	Independence Oaks County Park
100	Oakland	Deer Lake	10	Independence Township Village Beach
101	Oakland	Fish Lake	11	Camp Ohiyesa - North
102	Oakland	Green Lake	12	Bay Court Park
103	Oakland	Green Lake	13	Camp Wathana
104	Oakland	Green Lake	14	Clear Water Resort
105	Oakland	Haas Lake	15	Haas Lake Park #1
106	Oakland	Haas Lake	16	Haas Lake Park #2
107	Oakland	Haas Lake	17	Haas Lake Park #3

Appendix D.1. Inland Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
108	Oakland	Haas Lake	18	Haas Lake Park #4
109	Oakland	Handsome Lake	19	Crossroads For Youth
110	Oakland	Heron Lake	20	Holly Recreation Area - Heron Beach
111	Oakland	Kent Lake	21	Kensington - Martindale Beach
112	Oakland	Kent Lake	22	Kensington- Maple Beach
113	Oakland	Long Lake	23	Christ the King Church Camp
114	Oakland	Loon Lake	24	Indianwood
115	Oakland	Loon Lake	25	Birch Park
116	Oakland	Lower Trout	26	Bald Mountain Recreation Area
117	Oakland	Mill Pond	27	Davisburg Village Beach (Hart Community Center)
118	Oakland	Orchard lake	28	Country Club (500 W. Shore Dr)
119	Oakland	Orion Lake	29	Greens Park Village Beach
120	Oakland	Phillips Lake	30	Camp Dearborn - Lake #1
121	Oakland	Phillips Lake	31	Camp Dearborn - Lake #5
122	Oakland	Phipps Lake	32	Camp Maas - Rodecker
123	Oakland	Phipps Lake	33	Camp Maas- Sobell Beach
124	Oakland	Pontiac Lake	34	Pontiac Recreation Area
125	Oakland	Prince Lake	35	Upland Hills Farm
126	Oakland	Proud Lake	36	Proud Lake Recreation Area Campground
127	Oakland	Round Lake	37	Scripter Village Park Township Beach
128	Oakland	Sand Lake	38	Seven Lakes State Park - Campground
129	Oakland	Scotch Lake	39	Scotch Lake Residents
130		Silver Lake	40	Silver Hill Road
131	Oakland	Stewart Lake	41	Groveland Oaks County Park - Paradise Beach
132	Oakland	Stony Lake	42	Stony Lake Park
133	Oakland	Sun Lake	43	Finnish Day Camp
134	Oakland	Sylvan Lake	44	Ferndale
135	Oakland	Teeple Lake	45	Teeple Lake Recreation Area- Highland State Park
136	Oakland	Tipsico Lake	46	Brown's Landing Mobile Home Park
137	Oakland	Tommys Lake	47	Camp Agawam Boy Scout Camp
138	Oakland	Walled Lake	48	E.V. Mercer City Beach
139	Oakland	Walled Lake	49	Lakeshore Park
140	Oakland	Walnut Lake	50	Bloomfield Parks and Recreation/West Hills M.S.
141	Oakland	Walnut Lake	51	Finnish American Club of Detroit
142	Oakland	Walnut Lake	52	Shenandoah Farms Association
143	Oakland	Walnut Lake	53	Walnut Lake Park
144	Oakland	Woodhull Lake	54	Woodhull Lake Civic Association
<b>28</b>	<b>Ogemaw</b>	Grousehaven Lake	1	Rifle River Recreation Area Campground Beach
146	Ogemaw	Rifle Lake	2	Shady Shores Park Subdivision Beach
147	Ogemaw	Skidway Lake	3	Skidway Lake
148	Ogemaw	Devoe Lake	4	Rifle River Recreation Area

Appendix D.1. Inland Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
149	Ogemaw	Elbow Lake	5	Mills Township Park
150	Ogemaw	Hardwood Lake	6	Hardwood Lake
<b>29</b>	<b><u>Ontonagon</u></b>	Lake Gogebic	1	Bergland Township Park
152	Ontonagon	Lake Gogebic	2	Ontonagon County Park
<b>30</b>	<b><u>Osceola</u></b>	Big Lake	1	Crittenden Park
154	Osceola	Center Lake	2	Center Lake Park
155	Osceola	Rose Lake	3	Rose Lake County Park
156	Osceola	Muskegon River	4	Crawford Park
<b>31</b>	<b><u>Oscoda</u></b>	Perry Lake	1	Comins Township Park
158	Oscoda	Smith Lake	2	Oscoda County Park
<b>32</b>	<b><u>Otsego</u></b>	Big Lake	1	Big Lake
160	Otsego	Otsego Lake	2	Arbutus Beach
161	Otsego	Otsego Lake	3	Otsego County Park
162	Otsego	Otsego Lake	4	Otsego State Park
163	Otsego	Otsego Lake	5	WahWah Soo Beach
<b>33</b>	<b><u>Presque Isle</u></b>	Grand Lake	1	Grand Lake Public Access
<b>34</b>	<b><u>Roscommon</u></b>	Higgins Lake	1	North Higgins State Park
166	Roscommon	Higgins Lake	2	South Higgins Lake State Park
167	Roscommon	Houghton Lake	3	Denton Township Public Beach
168	Roscommon	Houghton Lake	4	Houghton Lake Heights
169	Roscommon	Lake St. Helen	5	Richfield Township Public Fishing Site
<b>35</b>	<b><u>Schoolcraft</u></b>	Quarry Lake	1	Quarry Beach
<b>36</b>	<b><u>Washtenaw</u></b>	Bruin Lake	1	Pinckney Recreation Area
172	Washtenaw	Half Moon Lake	2	Pinckney Recreation Area
173	Washtenaw	Independence Lake	3	Independence Lake County Park
174	Washtenaw	Silver Lake	4	Pinckney Recreation Area
175	Washtenaw	Sugarloaf Lake	5	Waterloo Recreation Area
<b>37</b>	<b><u>Wayne</u></b>	Belleville Lake	1	Van Buren Township Park
177	Wayne	Newburgh Lake	2	Newburgh and Sumac Pointes - Hines Park
178	Wayne	Sherwood Lake	3	Sherwood Park
<b>38</b>	<b><u>Wexford</u></b>	Billings Lake	1	Manton Park
180	Wexford	Lake Cadillac	2	Cadillac City Dock
181	Wexford	Lake Cadillac	3	City Park
182	Wexford	Lake Cadillac	4	Kenwood Park
183	Wexford	Lake Meauwataka	5	Colfax Township Park
184	Wexford	Lake Mitchell	6	Mitchell State Park

Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b> 1	<b>Alcona</b>	Alcona Pond	1	Hubbard Lake- Alcona Township Park
2	Alcona	Alcona Pond	2	Alcona Pond West Campground
<b>2</b> 3	<b>Alger</b>	AuTrain Lake Campground	1	AuTrain Lake Campground USFS
4	Alger	Corner Lake	2	Corner Lake Campground
5	Alger	Deer Lake Park	3	Deer Lake Park
6	Alger	Kingston Lake	4	Kingston Lake State Forest Campground
7	Alger	Petes Lake	5	Petes Lake Campground
<b>3</b> 8	<b>Allegan</b>	Dumont Lake	1	Dumont Lake County Park Beach
9	Allegan	Ely Lake	2	Ely Lake Campground Beach
10	Allegan	Gun Lake	3	Gun Lake County Park Beach
11	Allegan	Little John Lake	4	Little John Lake County Park Beach
12	Allegan	Swan Creek Pond	5	Pine Point Campground Beach
<b>4</b> 13	<b>Alpena</b>	Beaver Lake	1	Beaver Lake Park
14	Alpena	Lake Avalon	2	Lake Avalon Public Access
15	Alpena	Long Lake	3	Long Lake Day Use
<b>5</b> 16	<b>Antrim</b>	Torch Lake	1	Torch River Bridge
17	Antrim	Torch River	2	Torch River Sand Bar
<b>6</b> 18	<b>Arenac</b>	AuGres River	1	AuGres River-DNR Access at Pier
19	Arenac	Man-Made Pond	2	Big Bend Campground
20	Arenac	Man-Made Pond	3	Outdoor Adventures
21	Arenac	Pine River	4	Pine River - Arenac County
22	Arenac	Rifle River	5	Rifle River
<b>7</b> 23	<b>Barry</b>	Gull Lake	1	Prairieville Township Park
24	Barry	Gun Lake	2	Old Beach- Day Use Area
<b>8</b> 25	<b>Bay</b>	Saginaw River	1	Independence Bridge
26	Bay	Saginaw River	2	Vet's Park South River Road
27	Bay	Kawkawlin River	3	Boat Launch on KawKawlin River
<b>9</b> 28	<b>Benzie</b>	Crystal Lake	1	South Shore near Beulah
<b>10</b> 29	<b>Berrien</b>	Paw Paw Lake	1	Paw Paw Lake
30	Berrien	St. Joseph River	2	Bertrand Park
31	Berrien	St. Joseph River	3	Niles - French Paper
32	Berrien	St. Joseph River	4	Niles - Marmont
<b>11</b> 33	<b>Branch</b>	First Lake	1	Quincy Park
34	Branch	Messenger Lake	2	Memorial Park
<b>12</b> 35	<b>Calhoun</b>	Duck Lake	1	Springport

Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
36	Calhoun	Goguac Lake	2	Willard Beach in Battle Creek
<b>13</b> 37	<b>Charlevoix</b>	Huffman Lake	1	Hudson Township Park
<b>14</b> 38	<b>Cheboygan</b>	Black Lake	1	Bluffs Beach
39	Cheboygan	Burt Lake	2	Burt Lake State Park
40	Cheboygan	Burt Lake	3	Devoe Beach
41	Cheboygan	Burt Lake	4	Hoppie's Launch
42	Cheboygan	Burt Lake	5	Maple Bay Park
43	Cheboygan	Douglass Lake	6	Ryder's Landing
44	Cheboygan	Mullett Lake	7	Aloha State Park
45	Cheboygan	Mullett Lake	8	Boy Scout Launch
46	Cheboygan	Mullett Lake	9	Foot Road Park
47	Cheboygan	Mullett Lake	10	Grand View Beach
48	Cheboygan	Mullett Lake	11	Hobert's Launch
49	Cheboygan	Mullett Lake	12	Orchard Beach
50	Cheboygan	Mullett Lake	13	Polish Line Beach
51	Cheboygan	Mullett Lake	14	Topinabee Park
52	Cheboygan	Webber Lake	15	Webber Lake State Park
53	Cheboygan	Black Lake	16	Black Lake S.F.C.G.
<b>15</b> 54	<b>Chippewa</b>	Caribou Lake	1	Caribou Lake
55	Chippewa	Carp Lake	2	Trout Lake
56	Chippewa	Soldiers Lake	3	Soldiers Lake
<b>16</b> 57	<b>Clare</b>	Arnold Lake	1	Arnold Lake Beach
58	Clare	Bertha Lake	2	Bertha Lake Beach
59	Clare	Cranberry lake	3	Cranberry Lake South
60	Clare	Crooked Lake	4	Hillcrest Public Landing
61	Clare	Doc and Tom Lake	5	Lake of the Pines
62	Clare	Dodge Lake	6	Dodge Lake Beach
63	Clare	George Lake	7	Lake George Public Landing
64	Clare	Grass Lake	8	Sandy Shores Beach
65	Clare	Hayes Lake (Cranberry Lake)	9	Oak Hills Children's Camp
66	Clare	Lilly Lake	10	Lilly Lake Beach
67	Clare	Long Lake	11	Long Lake Beach
68	Clare	Muskegon River	12	Muskegon River Township Park
69	Clare	Sand Lake	13	Sand Lake Beach
70	Clare	Shingle Lake	14	Shingle Lake Park
71	Clare	Silver Lake	15	Silver Lake Park
72	Clare	Townline Lake	16	Cedar Shores Beach
<b>17</b> 73	<b>Clinton</b>	Lake Ovid	1	Sleepy Hollow State Park Beach
<b>18</b> 74	<b>Eaton</b>	Grand River	1	Lincoln Brick Park

Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>19</b> 75	<b>Emmet</b>	Larks Lake	1	Pioneer Picnic Park
76	Emmet	Crooked Lake	2	Oden Roadside Park
<b>20</b> 77	<b>Genesee</b>	Barnum Lake	1	Barnum Lake
78	Genesee	Buell Lake	2	Boat Ramp at Buell Lake
79	Genesee	Copneconic Lake	3	Camp Copneconic
80	Genesee	Copneconic Lake	4	Copneconic Day Beach
81	Genesee	Covenant Hill Camp	5	Covenant Hill Camp
82	Genesee	Fenton Lake	6	DNR Boat Dock-Fenton Lake
83	Genesee	Fenton Lake	7	Fenton Lake Marina
84	Genesee	Fenton Lake	8	Township Hall
85	Genesee	Flagstone Point	9	Flagstone Point Beach
86	Genesee	Golden Rod Lake	10	Golden Rod Beach
87	Genesee	Hasler Lake	11	Beach at Hasler Lake
88	Genesee	Hasler Lake	12	Hasler Lake Campground
89	Genesee	Holloway Reservoir	13	Walleye Pike Dock
90	Genesee	Kearsley Reservoir	14	Kearsley Reservoir Beach
91	Genesee	Lake Helene	15	Lake Helene Beach
92	Genesee	Lake Linda	16	Lake Linda
93	Genesee	Lake Ponemah	17	DNR Boat Launch at Lake Ponemah
94	Genesee	Lake Shinangaug	18	Lake Shinangaug
95	Genesee	Linden Mill Pond	19	Linden Mill Pond Beach
96	Genesee	Lobdell Lake	20	DNR Boat Launch at Lobdell Lake
97	Genesee	McCaslin Lake	21	McCaslin Lake Beach
98	Genesee	McKane Lake	22	McKane Lake Beach
99	Genesee	Mott Lake	23	Bluegill Boat Ramp
100	Genesee	Mott Lake	24	Mott Lake Beach
101	Genesee	Mott Lake Stepping Stone	25	Mott Lake Stepping Stone Beach
102	Genesee	Myers Lake	26	Myers Lake
103	Genesee	Otter Lake	27	Griswold Park
104	Genesee	Pinewood Lake	28	Beach at Pinewood Lake
105	Genesee	Silver Lake	29	Silver Lake Marina
106	Genesee	Smokerise Lake	30	Smokerise Beach
107	Genesee	Thread Lake	31	Thread Lake Beach
108	Genesee	West Sister Lake	32	West Sister Lake
<b>21</b> 109	<b>Gladwin</b>	Cedar River	1	Cedar River Campground Beach
110	Gladwin	Cedar River	2	Gladwin North Park
111	Gladwin	Flowing well/pond	3	Gilman Springs Swimming Area
112	Gladwin	Hoister Lake	4	Hoister Lake Beach
113	Gladwin	House Lake	5	House Lake
114	Gladwin	Lake Four	6	Lake Four
115	Gladwin	Lake Lancer	7	Sugar Springs/Lake Lancer
116	Gladwin	Lyle Drain/Tobacco River	8	Lost Haven Beach
117	Gladwin	Pratt Lake	9	Pratt Lake
118	Gladwin	Secord Lake	10	Secord Lake

Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
119	Gladwin	Secord Lake	11	Secord Lake - East
120	Gladwin	Secord Lake	12	West River Drive Boat Launch
121	Gladwin	Tittabawassee River	13	Estey Road Access
122	Gladwin	Tittabawassee River	14	Gilman Springs Canoe Launch
123	Gladwin	Tittabawassee River	15	Good News Camp
124	Gladwin	Tittabawassee River	16	Pine Street Public Access
125	Gladwin	Trout Lake	17	Trout Lake SFCG
126	Gladwin	Wiggins Lake North	18	Wiggins Lake Road to Boat Launch
127	Gladwin	Wiggins Lake South	19	Clendening Road
128	Gladwin	Wixon Lake	20	Wixon Lake - West
<b>22</b> 129	<b>Hillsdale</b>	Baw Beese Lake	1	Sandy Beach
130	Hillsdale	Bird lake	2	Bird Lake Beach
<b>23</b> 131	<b>Iosco</b>	Chain Lake	1	Chain Lake Beach
132	Iosco	Foote Pond	2	Footsite Park
133	Iosco	Loon Lake	3	Loon Lake Park
<b>24</b> 134	<b>Isabella</b>	Millpond	1	Millpond Park
<b>25</b> 135	<b>Jackson</b>	Clark Lake	1	Clark Lake County Park
136	Jackson	Clear Lake	2	Clear Lake County Park
137	Jackson	Gilletts Lake	3	Gilletts Lake County Park
138	Jackson	Grass Lake	4	Grass Lake County Park
139	Jackson	Lime Lake	5	Lime Lake County Park
140	Jackson	Little Wolf Lake	6	Little Wolf Lake County Park
141	Jackson	Pleasant Lake	7	Pleasant Lake County Park & Campground
142	Jackson	Portage Lake	8	Portage Lake County Park
143	Jackson	Round Lake	9	Round Lake County Park
144	Jackson	Swains Lake	10	Swains Lake County Park
145	Jackson	Vandercook Lake	11	Vandercook Lake County Park
146	Jackson	Vineyard Lake	12	Vineyard Lake County Park
<b>26</b> 147	<b>Kalamazoo</b>	Timber Lake	1	Timber Lake Campground
<b>27</b> 148	<b>Kent</b>	Lincoln Lake	1	Lincoln Lake Baptist Camp
149	Kent	Lincoln Lake	2	Lincoln Pines Resort
150	Kent	Long Lake	3	Long Lake County Park
151	Kent	Myers Lake	4	Myers Lake County Park
152	Kent	Reeds Lake	5	Collins Park
153	Kent	Scalley Lake	6	Scalley Lake Park
154	Kent	Versluis Lake	7	Versluis Park
155	Kent	Wabasis Lake	8	Wabasis Lake County Park
<b>28</b> 156	<b>Leelanau</b>	Lake Leelanau	1	Leelanau Township Park Beach
157	Leelanau	Lake Leelanau	2	Popp Road End

Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
158	Leelanau	Sleeping Bear Dunes- Little Glen Lake	3	Little Glen Lake
159	Leelanau	Sleeping Bear Dunes- North Bar Lake	4	North Bar Lake
<b>29</b>	<b>Livingston</b>	Dibrova Lake	1	Green Valley Camp
161	Livingston	Bentley Lake	2	Camp Innisfree
<b>30</b>	<b>Luce</b>	Bass Lake	1	Bass Lake SFC
163	Luce	Bodi Lake	2	Bodi Lake SFC
164	Luce	Culhane Lake	3	Culhane Lake SFC
165	Luce	HeadQuarters SFC	4	HeadQuarters SFC
166	Luce	Holland Lake SFC	5	Holland Lake SFC
167	Luce	Muskallonge Lake	6	Muskallonge Lake SFC
168	Luce	Perch Lake	7	Perch Lake SFC
169	Luce	Pretty Lake	8	Pretty Lake SFC
170	Luce	Luke County Park	9	Luce County Park Campground
171	Luce	Pike Lake	10	Pike Lake SFC
<b>31</b>	<b>Mackinac</b>	Brevort Lake	1	Brevort Lake Campground Beach
173	Mackinac	Garnet Lake	2	Garnet Lake SFC
174	Mackinac	Little Brevort Lake	3	Little Brevort Lake State Campground North
175	Mackinac	Little Brevort Lake	4	Little Brevort Lake State Campground South
176	Mackinac	Milakokia Lake	5	Milakokia Lake SFC
177	Mackinac	Millecoquins Lake	6	Millecoquins Lake SFC
178	Mackinac	South Manistique Lake	7	South Manistique Lake SFC
<b>32</b>	<b>Menominee</b>	Hermansville lake	1	Hermansville Beach
180	Menominee	Shakey Lakes	2	Shakey Lakes Campground
<b>33</b>	<b>Midland</b>	Sandord Lake	1	Sanford Lake Park
<b>34</b>	<b>Monroe</b>	Camp Lord Willing Pond	1	Camp Lord Willing
183	Monroe	Covered Wagon Campground Pond	2	Covered Wagon Campground
184	Monroe	Heath Beach Pond	3	Heath Beach
185	Monroe	K.C. Campground Pond	4	K.C. Campground
186	Monroe	Man-Made Pond	5	Totem Pole Campground Pond
187	Monroe	Monroe KOA Campground Pond	6	Monroe K.O.A. Campground
188	Monroe	Pirollis Campground Pond	7	Pirolli's Campground
189	Monroe	The Vine Campground Pond	8	The Vine
190	Monroe	Wilderness Retreat Campground Pond	9	Wilderness Retreat Campground
<b>35</b>	<b>Montmorency</b>	Clear Lake	1	Clear Lake Day Use



Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
192	Montmorency	Clear Lake	2	Clear Lake State Park
193	Montmorency	Crooked Lake	3	Crooked Lake Beach
194	Montmorency	East Twin Lake	4	East Twin Beach/Albert Township Park
195	Montmorency	Ess Lake	5	Ess Lake State Campground
<b>36</b>	<b>Muskegon</b>	Goose Egg Lake	1	Kattulpa
197	Muskegon	Bear Lake	2	Laketon Township Beach
198	Muskegon	Big Blue Lake	3	Blue Lake County Park Beach
199	Muskegon	Duck Lake	4	Duck Lake State Park Beach
200	Muskegon	Fox Lake	5	Fox Lake Park Beach
201	Muskegon	Half Moon Lake	6	Moore County Park Beach
202	Muskegon	Mona Lake	7	Mona Lake Park Beach
203	Muskegon	Mona Lake	8	Ross Park Beach
204	Muskegon	Muskegon Lake	9	Harbor Towne Beach
205	Muskegon	Muskegon Lake	10	Muskegon State Park- Muskegon Lake Side
206	Muskegon	Muskegon Lake	11	Water Sports Park
207	Muskegon	Twin Lake	12	Twin Lake County Park Beach
208	Muskegon	West Lake	13	Paddley Park
209	Muskegon	White Lake	14	Maple Park
210	Muskegon	Wolf Lake	15	Sunset Park
211	Muskegon	Wolf Lake	16	Wolf Lake County Park
<b>37</b>	<b>Oakland</b>	Bass Lake	1	Idlewild Subdivision
213	Oakland	Bogie Lake	2	Bogie Lake Property Owners - Beryl Drive
214	Oakland	Bogie Lake	3	Pinecrest Shores
215	Oakland	Brendel Lake	4	Brendle Heights - Hillwood
216	Oakland	Carpenter Lake	5	Lakeview Recreation
217	Oakland	Carpenter Lake	6	Silver Valley Subdivision
218	Oakland	Cass Lake	7	Keego Harbor Trailer Park
219	Oakland	Cass Lake	8	Cass Lake Woods
220	Oakland	Cass Lake	9	Sylvan-on-the-Lakes
221	Oakland	Cass Lake	10	Willow Beach Subdivision
222	Oakland	Cedar Island Lake	11	Cedar Crest Subdivision
223	Oakland	Cedar Island Lake	12	Sunset Subdivision
224	Oakland	Clear Lake	13	Lakeland Improvement Association -Keith Street
225	Oakland	Charnwood Lake	14	Charnwood
226	Oakland	Cranberry Lake	15	Cranberry Lake Village
227	Oakland	Crescent Lake	16	Crescent Highlands
228	Oakland	Crescent Lake	17	Crescent Lake Park
229	Oakland	Darb Lake	18	Mission Springs Subdivision
230	Oakland	Davis Lake	19	Meagher Park/Woodland Manor
231	Oakland	Deer Lake	20	Deer Lake Estates
232	Oakland	Ekelund Lake	21	Camp Gordanwood
233	Oakland	Elizabeth Lake	22	ECHPOA
234	Oakland	Elizabeth Lake	23	Cass-Elizabeth Heights
235	Oakland	Elizabeth Lake	24	Elizabeth Lake Estates Improvement Assocl

## Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
236	Oakland	Elizabeth Lake	25	Elizabeth Lakeshore
237	Oakland	Elizabeth Lake	26	Elizabeth Shores
238	Oakland	Elizabeth Lake	27	Rangate Park
239	Oakland	Elizabeth Lake	28	Terrace
240	Oakland	Elizabeth Lake	29	Walters
241	Oakland	Emerald Lake	30	Emerald Lake Homeowners Assoc. - Lyster Road
242	Oakland	Fox Lake	31	Cloister-on-the-Lakes
243	Oakland	Geneva Lake	32	Lakewood Farms - Crocus Street
244	Oakland	Geneva Lake	33	Lakewood Farms - Sharon Street
245	Oakland	Green Lake	34	Green Acres / Green Valley Park
246	Oakland	Hammond Lake	35	Hammond Estates
247	Oakland	Harvey Lake	36	Harvey Lake Estates
248	Oakland	Harvey Lake	37	Harvey Lake Heights
249	Oakland	Huntoon Lake	38	Burlingham Lake Park I
250	Oakland	Huntoon Lake	39	Burlingham Lake Park II
251	Oakland	Huntoon Lake	40	Broadway Civic Association
252	Oakland	Huntoon Lake	41	Huntoon Village
253	Oakland	Indian Lake	42	Indian Lake Improvement Association
254	Oakland	Lakeville Lake	43	Doll's Dock (Skip's Landing)
255	Oakland	Long Lake	44	Annex 1
256	Oakland	Long Lake	45	Bunny Run C.C.
257	Oakland	Long Lake	46	Twin Shores Subdivision
258	Oakland	Loon Lake	47	Sandy Beach
259	Oakland	Lotus Lake	48	Harris Park
260	Oakland	Lotus Lake	49	Lotus Park
261	Oakland	Lotus Lake	50	Mountain View
262	Oakland	Lower Straits	51	Maple Point
263	Oakland	Lower Straits Lake	52	Lower Straits Beach Club
264	Oakland	Maceday Lake	53	Mountain View C.C. Subdivision
265	Oakland	Maceday Lake	54	Whitfield-Maceday Association - North
266	Oakland	Maceday Lake	55	Whitfield-Maceday Association - South
267	Oakland	Marion Lake	56	Locklin Pines Association
268	Oakland	Meadow Lake	57	Meadow Lake Association
269	Oakland	Middle Straits Lake	58	Crystal Echo
270	Oakland	Middle Straits Lake	59	Crystal Echo (the point)
271	Oakland	Middle Straits Lake	60	Stony Beach
272	Oakland	Middle Straits Lake	61	Tripps Subdivision Park
273	Oakland	Middle Straits Lake	62	Twin Beach Park
274	Oakland	Middle Straits Lake	63	West Acres
275	Oakland	Morgan Lake	64	Lake Angelus Lakeview Estates
276	Oakland	Mud Lake	65	Rose Hill Center
277	Oakland	Narrin Lake	66	Camp Narrin
278	Oakland	Neva Lake	67	Lakewood Village Subdivision
279	Oakland	Oakland Lake	68	Bird Island Subdivision
280	Oakland	Oakland Lake	69	Lake Oakland Heights
281	Oakland	Oakland Lake	70	Lake Oakland Shores

Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
282	Oakland	Orchard Lake	71	St. Mary's Park
283	Oakland	Orion Lake	72	Lake Orion Heights
284	Oakland	Orion Lake	73	Sunset Club
285	Oakland	Pine Lake	74	Pine Lake Manor
286	Oakland	Reed Lake	75	Reed Lake Property Owners
287	Oakland	Round Lake	76	Family Park
288	Oakland	Rowe Lake	77	Jacksina Subdivision
289	Oakland	Sherwood Lake	78	Ledgewood
290	Oakland	Sherwood Lake	79	Sherwood Boat Ramp
291	Oakland	Sherwood Lake	80	Sherwood Property Owners
292	Oakland	Square Lake	81	Pleasant View Subdivision
293	Oakland		82	Pleasant View Subdivision- Kempster St.
294	Oakland	Sugden Lake	83	Oakridge Subdivision
295	Oakland	Sylvan Lake	84	Cunningham Park
296	Oakland	Sylvan Lake	85	Pioneer Highlands
297	Oakland	Sylvan Lake	86	Sylvan Shores Improvement Association
298	Oakland	Sylvan Lake	87	Lakeview
299	Oakland	Tan Lake	88	Mary K. Subdivision
300	Oakland	Union Lake	89	Alpha Beach
301	Oakland	Union Lake	90	Burley & Barnsbury Streets
302	Oakland	Union Lake	91	Union Lake Beach Club
303	Oakland	Union Lake	92	Union Lake Heights Subdivision #2
304	Oakland	Upper Pettibone Lake	93	657 Dunleavy
305	Oakland	Upper Straits Lake	94	Banker's Subdivision
306	Oakland	Upper Straits Lake	95	Bayside Beach Association
307	Oakland	Upper Straits Lake	96	Outlet A
308	Oakland	Upper Straits Lake	97	Shady Beach
309	Oakland	Van Norman Lake	98	Waterford Hill
310	Oakland	Voorheis Lake	99	Keatington Subdivision - Eaton Gate - off Baldwin
311	Oakland	Voorheis Lake	100	Keatington Subdivision - Joslyn Court
312	Oakland	Walled Lake	101	Beachwalk Apartments
313	Oakland	Walnut Lake	102	North Cove
314	Oakland	Walters Lake	103	Sunny Beach #1 - Eston Road
315	Oakland	Walters Lake	104	Sunny Beach #2 - Clarkston Road
316	Oakland	Watkins Lake	105	Heitch Street
317	Oakland	Watkins Lake	106	Lanarh Street
318	Oakland	Watkins Lake	107	Whitney Street
319	Oakland	Waumegah Lake	108	Lake Waumegah Homeowners Association
320	Oakland	Whipple Lake	109	Whipple Shores Subdivision
321	Oakland	White Lake	110	Rolling Acres
322	Oakland	White Lake	111	Stanley Beach
323	Oakland	Wildwood Lake	112	Holly Recreation Area - Wildwood Beach
324	Oakland	Wing Lake	113	Wing Lake Farms Association
325	Oakland	Wing Lake	114	Wing Lake Property Owners Association
<b>38</b>	<b>326</b>	<b>Ogemaw</b>		Grousehaven Lake
			1	Rifle River Recreation Area Day Use Area

Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
327	Ogemaw	Lake George	2	Lake George Campground
<b>39</b> 328	Osceola	Center Lake	1	Center Lake Bible Camp
329	Osceola	Center Lake	2	Kettunen Center
330	Osceola	Diamond Lake	3	Diamond Lake
331	Osceola	Diamond Lake	4	DNR Access Diamond Lake
332	Osceola	Hicks Lake	5	DNR Access Hicks Lake
333	Osceola	McCoy Lake	6	DNR Access McCoy Lake
334	Osceola	Muskegon River	7	City of Evart Campground
335	Osceola	Muskegon River	8	Hersey Road Access
336	Osceola	Rose Lake	9	Rose Lake Youth Camp
337	Osceola	Sunrise Lake	10	Sunrise Lake Park
338	Osceola	Todd Lake	11	DNR Access Todd Lake
339	Osceola	Wells Lake	12	DNR Access Wells Lake
<b>40</b> 340	<b>Oscoda</b>	Mio Pond	1	Mio Pond Campground
<b>41</b> 341	<b>Otsego</b>	Bear Lake	1	Bear Lake State Forest Campground
342	Otsego	Dixon Lake	2	Dixon Lake Access
343	Otsego	Otsego Lake	3	Otsego Lake State Park North
344	Otsego	Pickeral Lake	4	Pickeral Lake State Forest Campground
<b>42</b> 345	<b>Ottawa</b>	Lake Macatawa	1	Fallen Leaf Park
346	Ottawa	Crockery Lake	2	Grose Park
347	Ottawa	Georgetown Lake	3	Georgetown Community Park
348	Ottawa	Lake Macatawa	4	Dunton Park
349	Ottawa	Lake Macatawa	5	Holland State Park
350	Ottawa	Maplewood Lake	6	Maplewood Lake Park
351	Ottawa	Pottawattomie Bayou	7	Pottawattomie Park
352	Ottawa	Spring Lake	8	Lakeside Beach
<b>43</b> 353	<b>Presque Isle</b>	Black Lake	1	Onaway State Park
354	Presque Isle	Grand Lake	2	Grand Lake Northwest
355	Presque Isle	Lake May	3	Lake May Public Access
356	Presque Isle	Ocquoec River	4	Millersburg Park
357	Presque Isle	Ocquoec River	5	Ocquoec Falls Park
358	Presque Isle	Shoepac Lake	6	Shoepac Lake Campground
359	Presque Isle	Sunken Lake	7	Sunken Lake County Park
360	Presque Isle	Tomahawk Lake	8	Tomahawk Lake Campground
<b>44</b> 361	<b>Roscommon</b>	Backus Pond	1	Backus Township Park
362	Roscommon	Bambi Lake/Sinkhole Lake	2	Bambi Lake Camp
363	Roscommon	Higgins Lake	3	Beaver Creek Road End
364	Roscommon	Higgins Lake	4	DNR Public Fishing Site
365	Roscommon	Higgins Lake	5	Gerrish Township Park
366	Roscommon	Higgins Lake	6	Higgins Lake Public Fishing Site

Appendix D.2. Inland Beaches Not Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
367	Roscommon	Higgins Lake	7	Kelly Beach
368	Roscommon	Higgins Lake	8	Phoenix Park
369	Roscommon	Higgins Lake	9	Sam-O-Set Road End
370	Roscommon	Houghton Lake	10	Houghton Lake DNR Boat Launch and Park
371	Roscommon	Houghton Lake	11	Houghton Lake Public Fishing Site
372	Roscommon	Houghton Lake	12	Houghton Lake State Forest Campground
373	Roscommon	Houghton Lake	13	Old 27 DNR Access
374	Roscommon	Owens Lake	14	Camp Co-Be-Ac
<b>45</b> 375	<b><u>Saginaw</u></b>	Haithco Lake	1	Haithco Recreation Area
376	Saginaw	Lake of Dreams	2	Lake of Dreams Campground
<b>46</b> 377	<b><u>Sanilac</u></b>	Forester Creek	1	Forester Creek
<b>47</b> 378	<b><u>Schoolcraft</u></b>	Clear Lake	1	Clear Lake Camp
379	Schoolcraft	Clear Lake	2	Cowell Lake Campground
380	Schoolcraft	Gulliver Lake	3	Gulliver Lake
381	Schoolcraft	Swan lake	4	Swan Lake
382	Schoolcraft	Triangle Lake	5	Triangle Lake Site #1
383	Schoolcraft	Triangle Lake	6	Triangle Lake Site #2
<b>48</b> 384	<b><u>St. Clair</u></b>	Emmett K.O.A. Pond	1	Emmett K.O.A.
385	St. Clair	Fort Trodd Lake	2	Fort Trodd Campground North
386	St. Clair	Fort Trodd Lake	3	Fort Trodd South
387	St. Clair	Kimball Pond	4	Kimball Township Pond
388	St. Clair	Ruby Campground Pond	5	Ruby Campground
<b>49</b> 389	<b><u>St. Joseph</u></b>	Cade Lake	1	Cade Lake Beach
390	St. Joseph	Palmer Lake	2	Palmer Lake Beach
391	St. Joseph	Sand Lake	3	Nottawa Park
<b>50</b> 392	<b><u>Tuscola</u></b>	Murphy Lake	1	Murphy Lake
<b>51</b> 393	<b><u>Wayne</u></b>	Newburgh Lake	1	Newburgh Lake

Appendix E.1. Great Lakes Beaches Monitored 2015.

		<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b>	1	<b>Alcona</b>	Lake Huron	1	Harrisville State Park
	2	Alcona	Lake Huron	2	Greenbush Township
<b>2</b>	3	<b>Allegan</b>	Lake Michigan	1	Casco Township Park
	4	Allegan	Lake Michigan	2	Douglas Beach
	5	Allegan	Lake Michigan	3	Laketown Township Park
	6	Allegan	Lake Michigan	4	Oval Beach
	7	Allegan	Lake Michigan	5	Pier Cove Beach
	8	Allegan	Lake Michigan	6	Saugatuck Dunes State Park Shoreline Beach
	9	Allegan	Lake Michigan	7	West Side County Park Beach
<b>3</b>	10	<b>Alpena</b>	Lake Huron	1	Blair Street Park
	11	Alpena	Lake Huron	2	Starlite Beach
<b>4</b>	12	<b>Antrim</b>	Lake Michigan	1	Barnes Park
	13	Antrim	Lake Michigan	2	Elk Rapids
	14	Antrim	Lake Michigan	3	Veterans Memorial Park
	15	Antrim	Lake Michigan	4	Antrim County Day Park South
	16	Antrim	Lake Michigan	5	Banks Township Park
	17	Antrim	Lake Michigan	6	Echo Township Park
<b>5</b>	18	<b>Arenac</b>	Saginaw Bay-Lake Huron	1	Arenac County Park
	19	Arenac	Saginaw Bay-Lake Huron	2	Bessinger Road Beach
	20	Arenac	Saginaw Bay-Lake Huron	3	Cemetery Beach
	21	Arenac	Saginaw Bay-Lake Huron	4	Dyer Road Beach
	22	Arenac	Saginaw Bay-Lake Huron	5	Foster Road Beach
	23	Arenac	Saginaw Bay-Lake Huron	6	Hammel Beach Road Access
	24	Arenac	Saginaw Bay-Lake Huron	7	Singing Bridge Beach
	25	Arenac	Saginaw Bay-Lake Huron	8	Twining Road Beach
	26	Arenac	Saginaw Bay	9	Whites Beach
<b>6</b>	27	<b>Baraga</b>	Keweenaw Bay/Lake Superior	1	L'Anse Waterfront Park
<b>7</b>	28	<b>Bay</b>	Saginaw Bay-Lake Huron	1	Bay City State Recreation Area
	29	Bay	Saginaw Bay-Lake Huron	2	Brissette Beach Township Park
	30	Bay	Saginaw Bay-Lake Huron	3	Pinconning Park
	31	Bay	Saginaw Bay-Lake Huron	4	South Linwood Beach Township Park
	32	Bay	Saginaw Bay-Lake Huron	5	Wenona Beach
<b>8</b>	33	<b>Benzie</b>	Lake Michigan	1	Frankfort: Anchor Road Beach
<b>9</b>	34	<b>Berrien</b>	Lake Michigan	1	Cherry Beach
	35	Berrien	Lake Michigan	2	Grand Beach
	36	Berrien	Lake Michigan	3	Hagar Township Park
	37	Berrien	Lake Michigan	4	Jean Klock Park
	38	Berrien	Lake Michigan	5	Lions Park

Appendix E.1. Great Lakes Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
39	Berrien	Lake Michigan	6	Michiana Village
40	Berrien	Lake Michigan	7	New Buffalo City
41	Berrien	Lake Michigan	8	Silver Beach
42	Berrien	Lake Michigan	9	Tiscornia Park
43	Berrien	Lake Michigan	10	Union Pier - Townline Road
44	Berrien	Lake Michigan	11	Warren Dunes Beach
45	Berrien	Lake Michigan	12	Lincoln Township Park
46	Berrien	Lake Michigan	13	Weko Beach
47	Berrien	Lake Michigan	14	Rocky Gap
<b>10</b> 48	<b>Charlevoix</b>	Lake Charlevoix	1	Elm Point Beach
49	Charlevoix	Lake Charlevoix	2	Fisherman's Island State Park
50	Charlevoix	Lake Charlevoix	3	Young State Park Beach
51	Charlevoix	Lake Michigan	4	Lake Michigan Beach
52	Charlevoix	Lake Michigan	5	Whiting Park Beach
53	Charlevoix	Lake Charlevoix	6	Depot Beach
54	Charlevoix	Lake Charlevoix	7	East Jordan Tourist Park
55	Charlevoix	Lake Charlevoix	8	Ferry Beach
56	Charlevoix	Lake Charlevoix	9	Glenwood Beach
57	Charlevoix	Lake Charlevoix	10	Hayes Township Park
58	Charlevoix	Lake Charlevoix	11	Peninsula Beach
59	Charlevoix	Lake Charlevoix	12	Tannery Park
60	Charlevoix	Lake Charlevoix	13	Washington Street Beach
61	Charlevoix	Lake Michigan	14	Michigan Avenue
62	Charlevoix	Lake Michigan	15	Norwood Township Park
<b>11</b> 63	<b>Chippewa</b>	Lake Superior	1	Brimley State Park
64	Chippewa	Lake Superior	2	Sherman Park
65	Chippewa	St. Mary's River	3	Four Mile Beach
66	Chippewa	St. Mary's River	4	Sugar Island Township Beach
<b>12</b> 67	<b>Delta</b>	Lake Michigan	1	Escanaba Bathing Beach
68	Delta	Lake Michigan	2	Gladstone Bathing Beach/Van Cleve Park
<b>13</b> 69	<b>Emmet</b>	Lake Michigan	1	Petoskey State Park
70	Emmet	Lake Michigan	2	Zorn Park - Harbor Springs
71	Emmet	Lake Michigan	3	Cross Village Beach
72	Emmet	Lake Michigan	4	Mackinaw City Beach #1
73	Emmet	Lake Michigan	5	Mackinaw City Beach #2
74	Emmet	Lake Michigan	6	Magnus Park
75	Emmet	Lake Michigan	7	Middle Village Park
76	Emmet	Lake Michigan	8	Readmond Township Beach
77	Emmet	Lake Michigan	9	Sturgeon Bay Township Beach
78	Emmet	Lake Michigan	10	Wilderness State Park
79	Emmet	Lake Michigan	11	Zoll Street Beach

Appendix E.1. Great Lakes Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>14</b> 80	<b>Grand Traverse</b>	Grand Traverse Bay-East	1	Bayside Acme Township Park
81	Grand Traverse	Grand Traverse Bay-East	2	East Bay Park (Milliken Park)
82	Grand Traverse	Grand Traverse Bay-East	3	Traverse City State Park
83	Grand Traverse	Grand Traverse Bay-West	4	Bryant Park Beach
84	Grand Traverse	Grand Traverse Bay-West	5	Clinch Park
85	Grand Traverse	Grand Traverse Bay-West	6	Sayler Park
86	Grand Traverse	Grand Traverse Bay-West	7	West End Beach
87	Grand Traverse	Grand Traverse Bay-West	8	Sunset Park
88	Grand Traverse	Grand Traverse Bay-West	9	Senior Center
<b>15</b> 89	<b>Houghton</b>	Lake Superior	1	Agate Beach
90	Houghton	Lake Superior	2	McLain State Park Beach
91	Houghton	Pike Bay at Portage Canal/Lake	3	Chassell Beach
92	Houghton	Portage Canal/Lake Superior	4	Houghton City Beach
93	Houghton	Portage Canal/Lake Superior	5	Hancock City Beach
94	Houghton	Portage Canal/Lake Superior	6	Sandy Bottom Beach/Dollar Bay
95	Houghton	Torch Lake/Portage Canal/Lake	7	Lake Linden Campground Beach
<b>16</b> 96	<b>Huron</b>	Lake Huron	1	Bird Creek County Park
97	Huron	Lake Huron	2	Caseville County Park
98	Huron	Lake Huron	3	Harbor Beach City Park
99	Huron	Lake Huron	4	Jenks County Park
100	Huron	Lake Huron	5	Lighthouse County Park
101	Huron	Lake Huron	6	McGraw County Park
102	Huron	Lake Huron	7	Oak Beach County Park
103	Huron	Lake Huron	8	Philp County Park
104	Huron	Lake Huron	9	Port Crescent State Park - Camping Area
105	Huron	Lake Huron	10	Port Crescent State Park - Day Use
106	Huron	Lake Huron	11	Sleeper State Park
107	Huron	Lake Huron	12	Thompson Park
108	Huron	Lake Huron	13	Veterans Park
<b>17</b> 109	<b>Iosco</b>	Lake Huron	1	Au Sable Township Park
110	Iosco	Lake Huron	2	MDOT Roadside Park - Three Mile Park
111	Iosco	Lake Huron	3	Oscoda Township Beach
112	Iosco	Lake Huron	4	Tawas Point State Park Campground
113	Iosco	Lake Huron	5	Tawas Point State Park-Day Use area
114	Iosco	Lake Huron (Tawas Bay)	6	Gateway Park Beach
115	Iosco	Tawas Bay	7	East Tawas City Park
116	Iosco	Tawas Bay	8	Tawas City Park
117	Iosco	Lake Huron	9	Alabaster Township Douglas Drive Beach Use Area
<b>18</b> 118	<b>Keeweenaw</b>	Lake Superior	1	Eagle Harbor Beach



Appendix E.1. Great Lakes Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>19</b> 119	<b>Leelanau</b>	Grand Traverse Bay-West	1	Elmwood/Greilikville Park and Beach
120	Leelanau	Grand Traverse Bay-West	2	Northport Bay Marina
121	Leelanau	Grand Traverse Bay-West	3	Suttons Bay Marina Park and Beach South
122	Leelanau	Grand Traverse Bay-West	4	Suttons Bay Park
123	Leelanau	Lake Michigan	5	Empire Municipal Beach
<b>20</b> 124	<b>Mackinac</b>	Lake Huron	1	Kiwanis Beach
125	Mackinac	Lake Michigan	2	US-2 Sand Dunes Beach (East of Brevort)
<b>21</b> 126	<b>Macomb</b>	Lake St. Clair	1	H.C.M.A. - Lake St. Clair Metropark Beach
127	Macomb	Lake St. Clair	2	New Baltimore Park Beach
128	Macomb	Lake St. Clair	3	St. Clair Shores Memorial Park Beach
<b>22</b> 129	<b>Manistee</b>	Lake Michigan	1	Arcadia Park
130	Manistee	Lake Michigan	2	Bar Lake Outlet
131	Manistee	Lake Michigan	3	Fifth Avenue Beach
132	Manistee	Lake Michigan	4	First Street Beach
133	Manistee	Lake Michigan	5	Magoon Creek
134	Manistee	Lake Michigan	6	Onkama Township Beach
135	Manistee	Lake Michigan	7	Orchard Beach State Park
136	Manistee	Lake Michigan	8	Pierport Township Beach
137	Manistee	Lake Michigan	9	Sundling Park
<b>23</b> 138	<b>Marquette</b>	Lake Superior	1	Marquette South Beach
139	Marquette	Lake Superior	2	McCarty's Cove
140	Marquette	Lake Superior	3	North Beach
141	Marquette	Lake Superior	4	North of Picnic Rocks
142	Marquette	Lake Superior	5	Shiras Park Beach
<b>24</b> 143	<b>Mason</b>	Lake Michigan	1	Bass Lake Outlet Beach
144	Mason	Lake Michigan	2	Buttersville Park Beach
145	Mason	Lake Michigan	3	Ludington State Park Campground Beach
146	Mason	Lake Michigan	4	South Pier Beach
147	Mason	Lake Michigan	5	South Summit Beach - Sunset Boulevard Beach
148	Mason	Lake Michigan	6	Stearns Park Beach
149	Mason	Lake Michigan	7	Summit Township Beach
<b>25</b> 150	<b>Menominee</b>	Lake Michigan	1	Henes Park
151	Menominee	Lake Michigan	2	Memorial Beach
<b>26</b> 152	<b>Monroe</b>	Lake Erie	1	Luna Pier City Beach
153	Monroe	Lake Erie	2	Sterling State Park
<b>27</b> 154	<b>Muskegon</b>	Lake Michigan	1	Bronson/Kruse Park
155	Muskegon	Lake Michigan	2	Meinert County Park

Appendix E.1. Great Lakes Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
156	Muskegon	Lake Michigan	3	Muskegon State Park
157	Muskegon	Lake Michigan	4	P.J. Hoffmaster State Park - Public Beach Area
158	Muskegon	Lake Michigan	5	Pere Marquette Park
159	Muskegon	Lake Michigan	6	Lake Harbor Park
160	Muskegon	Lake Michigan	7	Lighthouse/Sylvan Beach
161	Muskegon	Lake Michigan	8	Medbury Park Beach
162	Muskegon	Lake Michigan	9	Muskegon State Park- North Campground Beach
163	Muskegon	Lake Michigan	10	Old Channel Beach
164	Muskegon	Lake Michigan	11	P.J. Hoffmaster State Park- Campground
165	Muskegon	Lake Michigan	12	Pioneer County Park
166	Muskegon	Lake Michigan	13	Duck Lake Channel Beach
<b>28</b>	<b><u>Oceana</u></b>	Lake Michigan	1	Claybanks Township Park
168	Oceana	Lake Michigan	2	Lighthouse Beach at Silver Lake State Park
169	Oceana	Lake Michigan	3	Mears State Park
170	Oceana	Lake Michigan	4	Whiskey Creek
171	Oceana	Stony Lake and Lake Michigan	5	Stony Lake Channel
<b>29</b>	<b><u>Ontonagon</u></b>	Lake Superior	1	Ontonagon Township Park and Campground
173	Ontonagon	Lake Superior	2	Porcupine Mountains State Park- Union Bay
<b>30</b>	<b><u>Ottawa</u></b>	Lake Michigan	1	Grand Haven State Park
175	Ottawa	Lake Michigan	2	Grand Haven City Beach
176	Ottawa	Lake Michigan	3	Holland State Park
177	Ottawa	Lake Michigan	4	Kirk Park
178	Ottawa	Lake Michigan	5	North Beach Park
179	Ottawa	Lake Michigan	6	Rosy Mound Recreation Area
180	Ottawa	Lake Michigan	7	Tunnel Park
181	Ottawa	Lake Michigan	8	Windsnest Park
<b>31</b>	<b><u>Sanilac</u></b>	Lake Huron	1	Blue Water Beach
183	Sanilac	Lake Huron	2	Forester County Park
184	Sanilac	Lake Huron	3	Forestville Beach
185	Sanilac	Lake Huron	4	Lexington Beach
186	Sanilac	Lake Huron	5	Lexington County Park
187	Sanilac	Lake Huron	6	Port Sanilac Park
<b>32</b>	<b><u>Schoolcraft</u></b>	Lake Michigan	1	Public Shoreline Beach-Thompson
189	Schoolcraft	Lake Michigan	2	Rogers Park-MDOT
<b>33</b>	<b><u>St. Clair</u></b>	Lake Huron	1	Lakeport State Campground
191	St. Clair	Lake Huron	2	Conger-Lighthouse Beach
192	St. Clair	Lake Huron	3	Fort Gratiot County Park
193	St. Clair	Lake Huron	4	Holland Road Beach
194	St. Clair	Lake Huron	5	Lakeside Beach

Appendix E.1. Great Lakes Beaches Monitored 2015.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
195	St. Clair	Lake Huron	6	Keewadhin Road Beach
196	St. Clair	St. Clair River	7	Chrysler Park Beach
197	St. Clair	St. Clair River	8	Marine City Beach
<b>34</b> 198	<b><u>Van Buren</u></b>	Lake Michigan	1	Covert Township Park Beach
199	Van Buren	Lake Michigan	2	South Haven North Beach
200	Van Buren	Lake Michigan	3	South Haven South Beach
201	Van Buren	Lake Michigan	4	Van Buren State Park Beach
<b>35</b> 202	<b><u>Wayne</u></b>	Detroit River	1	Belle Isle Beach
203	Wayne	Lake St. Clair	2	Pier Park

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b>	<b>Alcona</b>	Lake Huron	1	Black River Public Access
2	Alcona	Lake Huron	2	Negwegon State Park
3	Alcona	Lake Huron	3	Point Road Beach
4	Alcona	Lake Huron	4	Public Shoreline Beach-Huron National Forest North
5	Alcona	Lake Huron	5	Public Shoreline Beach-Huron National Forest South
6	Alcona	Lake Huron	6	Trask Lake Road Beach
7	Alcona	Lake Huron	7	Harrisville Public Access
<b>2</b>	<b>Alger</b>	Lake Superior	1	Au Train Beach
9	Alger	Lake Superior	2	Bay Furnance Recreation Area Beach
10	Alger	Lake Superior	3	Christmas Beach
11	Alger	Lake Superior	4	Grand Marais Harbor Beach
12	Alger	Lake Superior	5	Grand Marais Township Beach
13	Alger	Lake Superior	6	Hurricane Campground Beach
14	Alger	Lake Superior	7	Miners Beach
15	Alger	Lake Superior	8	Munising Beach
16	Alger	Lake Superior	9	Public Shoreline Beach-Au Train Bay
17	Alger	Lake Superior	10	Public Shoreline Beach-Au Train to Five Mile Pts
18	Alger	Lake Superior	11	Public Shoreline Beach-East County Border area
19	Alger	Lake Superior	12	Public Shoreline Beach-Grand Sable Dunes
20	Alger	Lake Superior	13	Public Shoreline-Grand Portal Point
21	Alger	Lake Superior	14	Public Shoreline-Sand Point to Miners Castle Point
22	Alger	Lake Superior	15	Rathfoot Park Beach
23	Alger	Lake Superior	16	Roadside Park
24	Alger	Lake Superior	17	Sand Point
25	Alger	Lake Superior	18	Twelve-Mile Beach
<b>3</b>	<b>Alpena</b>	Lake Huron	1	Bay View Park
27	Alpena	Lake Huron	2	Elcajon Bay
28	Alpena	Lake Huron	3	Issineke Hardwood Point
29	Alpena	Lake Huron	4	Michekewis Beach
30	Alpena	Lake Huron	5	Negwegon State Park-Ossineke South Point
31	Alpena	Lake Huron	6	Ossineke Beach
32	Alpena	Lake Huron	7	Ossineke Campground
33	Alpena	Lake Huron	8	Ossineke State Park
34	Alpena	Lake Huron	9	Partridge Point
35	Alpena	Lake Huron	10	Rock Port Beach
36	Alpena	Lake Huron	11	Thompson Park
37	Alpena	Lake Huron	12	Whitefish Bay
<b>4</b>	<b>Antrim</b>	Grand Traverse Bay-East	1	Petobego Pond Area
39	Antrim	Lake Michigan	2	Antrim County Day Park North
40	Antrim	Lake Michigan	3	Antrim Creek Natural Area

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
41	Antrim	Lake Michigan	4	Elk Rapids Park
42	Antrim	Lake Michigan	5	Erickson Road
43	Antrim	Lake Michigan	6	Lore Road End Beach
44	Antrim	Lake Michigan	7	Michigan Trail
45	Antrim	Lake Michigan	8	Nature Preserve
46	Antrim	Lake Michigan	9	North Bay Shore (Conservancy)
47	Antrim	Lake Michigan	10	O'Dell Road
48	Antrim	Lake Michigan	11	Road Crossing near Winters Road
<b>5</b>	<b><u>Arenac</u></b>	Inner Saginaw Bay	1	Augres Township Park Beach
50	Arenac	Inner Saginaw Bay	2	Booth Road Beach
51	Arenac	Inner Saginaw Bay	3	City of Au Gres Public Access
52	Arenac	Inner Saginaw Bay	4	Gordon Road Beach
53	Arenac	Inner Saginaw Bay	5	Terrace Road
54	Arenac	Saginaw Bay	6	Whites Beach - Circle Rd Camp
55	Arenac	Saginaw Bay	7	Whites Beach - Isle Rd Ramp
56	Arenac	Saginaw Bay	8	Whites Beach - Point Rd - Culvert
57	Arenac	Saginaw Bay	9	Whites Beach - Wenonah Rd - West Ramp
58	Arenac	Saginaw Bay Inner-Lake Huron	10	Au Sable State Forest- Greens Point
59	Arenac	Saginaw Bay- Lake Huron	11	16th Street Beach
60	Arenac	Saginaw Bay- Lake Huron	12	28th Street Beach
<b>6</b>	<b><u>Baraga</u></b>	Huron Bay-Lake Superior	1	Arvon Township Park
62	Baraga	Keweenaw Bay-Lake Superior	2	Baraga State Park
63	Baraga	Keweenaw Bay-Lake Superior	3	First Sand Beach
64	Baraga	Keweenaw Bay-Lake Superior	4	L'Anse Township Park
65	Baraga	Keweenaw Bay-Lake Superior	5	Second Sands Beach
66	Baraga	Lake Superior	6	Keweenaw Bay Village Public Roadside Park
67	Baraga	Lake Superior	7	Mouth of the Huron River
68	Baraga	Lake Superior	8	Public Shoreline Beach-Cooper Country Huron Bay
69	Baraga	Lake Superior	9	Public Shoreline Beach-Northwest Abbaye Peninsula
70	Baraga	Lake Superior	10	Public Shoreline Beach-Point Abbaye
71	Baraga	Lake Superior	11	Public Shoreline Beach-Sand Point
<b>7</b>	<b><u>Bay</u></b>	Saginaw Bay	1	Nayanquing Point Wildlife Area
<b>8</b>	<b><u>Benzie</u></b>	Lake Michigan	1	Elberta Village Beach & Bluffs
74	Benzie	Lake Michigan	2	County Road # 669
75	Benzie	Lake Michigan	3	Sleeping Bear Dunes- Otter Creek Beach

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
76	Benzie	Lake Michigan	4	Platte River Point
77	Benzie	Lake Michigan	5	Point Betsie Lighthouse Beach
78	Benzie	Lake Michigan	6	Zettenberg Preserve
79	Benzie	Lake Michigan	7	Sleeping Bear Dunes- Platte River Outlet
80	Benzie	Lake Michigan	8	Sleeping Bear Dunes- Esch Road Beach
81	Benzie	Lake Michigan	9	Sleeping Bear Dunes- Platte Point Bay
<b>9</b>	<b>Berrien</b>	Lake Michigan	1	Galien River Park
83	Berrien	Lake Michigan	2	Gordon Beach
84	Berrien	Lake Michigan	3	Grand Mere State Park- Rosemary Beach
85	Berrien	Lake Michigan	4	Grand Mere State Park- Shoreline Beach
86	Berrien	Lake Michigan	5	Grand Mere State Park- Waverland Beach
87	Berrien	Lake Michigan	6	Harbert Beach
88	Berrien	Lake Michigan	7	Lincoln Township Park
89	Berrien	Lake Michigan	8	Mizpah Park
90	Berrien	Lake Michigan	9	Warren Dunes State Park North
<b>10</b>	<b>Charlevoix</b>	Lake Charlevoix	1	Lower Lake Drive
92	Charlevoix	Lake Michigan	2	Bill Wagner Memorial Campground Beach
93	Charlevoix	Lake Michigan	3	Cables Bay Beach
94	Charlevoix	Lake Michigan	4	Donegal Bay
95	Charlevoix	Lake Michigan	5	Harbor Beach
96	Charlevoix	Lake Michigan	6	Iron Ore Bay Beach
97	Charlevoix	Lake Michigan	7	Mt. McSauba Beach
<b>11</b>	<b>Cheboygan</b>	Lake Huron	1	Alexander Henry Park
99	Cheboygan	Lake Huron	2	Cheboygan City Park
100	Cheboygan	Lake Huron	3	Cheboygan State Park Duncan Bay
101	Cheboygan	Lake Huron	4	Cheboygan State Park- Lighthouse Point
102	Cheboygan	Lake Huron	5	Ditta Park
103	Cheboygan	Lake Huron	6	Huron Street Beach
104	Cheboygan	Lake Huron	7	Mackinaw City Beach
105	Cheboygan	Lake Huron	8	Mackinaw City Lighthouse Park
106	Cheboygan	Lake Huron	9	Mill Creek Public Access
107	Cheboygan	Lake Huron	10	Pinewood Circle Road End Beach
108	Cheboygan	Lake Huron	11	Roadside Park MDOT, US-23
109	Cheboygan	Lake Huron	12	Stoney Point Road End Beach
110	Cheboygan	Lake Huron	13	Wawatam City Park
<b>12</b>	<b>Chippewa</b>	Lake Huron	1	Bass Cove Beach-Drummond Island
112	Chippewa	Lake Huron	2	Betsey Seaman Memorial Park-Drummond Island
113	Chippewa	Lake Huron	3	Big Shoal Cove
114	Chippewa	Lake Huron	4	De Tour State Park Shoreline Beach
115	Chippewa	Lake Huron	5	Detour Albany Beach
116	Chippewa	Lake Huron	6	Drummond Island Township Park
117	Chippewa	Lake Huron	7	Sand Bay Beach-Drummond Island

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
118	Chippewa	Lake Superior	8	Back Bay Boat Launch
119	Chippewa	Lake Superior	9	Bayview Campground
120	Chippewa	Lake Superior	10	Big Pines Day Use Area
121	Chippewa	Lake Superior	11	Hiawatha National Forest- Nodoway Point Area
122	Chippewa	Lake Superior	12	Hiawatha National Forest- North of Big Pine Picnic
123	Chippewa	Lake Superior	13	Hiawatha National Forest- Pendills Bay
124	Chippewa	Lake Superior	14	Hiawatha National Forest- Pendills Lake
125	Chippewa	Lake Superior	15	Hiawatha National Forest- Point Iroquois Light
126	Chippewa	Lake Superior	16	Hiawatha National Forest- Tahquamenon Bay
127	Chippewa	Lake Superior	17	Hiawatha National Forest- West of Salt Point
128	Chippewa	Lake Superior	18	Pendills Beach
129	Chippewa	Lake Superior	19	Public Shoreline Beach-Browns Creek Area
130	Chippewa	Lake Superior	20	Public Shoreline Beach-Marsh Lake Area
131	Chippewa	Lake Superior	21	Public Shoreline Beach-Northwest of Two Mile Lake
132	Chippewa	Lake Superior	22	Public Shoreline Beach-Weatherhog Lake East Area
133	Chippewa	Lake Superior	23	Public Shoreline Beach-Weatherhog Lake West
134	Chippewa	Lake Superior	24	Public Shoreline Beach-West of Whitefish Point
135	Chippewa	Lake Superior	25	Superior Township Public Access
136	Chippewa	Lake Superior	26	Tahquamenon Falls State Park-River Mouth Unit
137	Chippewa	Lake Superior	27	Whitefish Bay Picnic Area
138	Chippewa	St. Mary's River	28	Dunbar Park
139	Chippewa	St. Mary's River	29	Hiawatha National Forest- North Pond
140	Chippewa	St. Mary's River	30	Hiawatha National Forest- Waiska Bay
141	Chippewa	St. Mary's River	31	Lake Superior State Forest- Munuscong Lake
142	Chippewa	St. Mary's River	32	Public Shoreline Beach-Brush Point
143	Chippewa	St. Mary's River	33	Public Shoreline Beach-Point Aux Frenes
144	Chippewa	St. Mary's River	34	Public Shoreline Beach-Raber Bay stretch
145	Chippewa	St. Mary's River	35	Wilderness Beach
<b>13</b>	<b>Delta</b>	Fishdam River	1	Big Bay De Noc/Fishdam River Public Access
147	Delta	Lake Michigan	2	Fayette State Park
148	Delta	Lake Michigan	3	Fuller Park
149	Delta	Lake Michigan	4	Little Bay De Noc Public Beach Access
150	Delta	Lake Michigan	5	Portage Bay Forest Campground
151	Delta	Lake Michigan	6	Public Shoreline Beach-Charboneau Point
152	Delta	Lake Michigan	7	Public Shoreline Beach-County Road 481
153	Delta	Lake Michigan	8	Public Shoreline Beach-East Wilsey Bay
154	Delta	Lake Michigan	9	Public Shoreline Beach-Fishdam River
155	Delta	Lake Michigan	10	Public Shoreline Beach-Gilnet Haven
156	Delta	Lake Michigan	11	Public Shoreline Beach-Indian Point
157	Delta	Lake Michigan	12	Public Shoreline Beach-Indian Town Lake USFS
158	Delta	Lake Michigan	13	Public Shoreline Beach-Jacks Bluff
159	Delta	Lake Michigan	14	Public Shoreline Beach-Martin Bay

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
160	Delta	Lake Michigan	15	Public Shoreline Beach-Nahma
161	Delta	Lake Michigan	16	Public Shoreline Beach-North End of Kregg Bay
162	Delta	Lake Michigan	17	Public Shoreline Beach-North of Stonington
163	Delta	Lake Michigan	18	Public Shoreline Beach-Ogontz Bay
164	Delta	Lake Michigan	19	Public Shoreline Beach-Peninsula Point
165	Delta	Lake Michigan	20	Public Shoreline Beach-Point Detour
166	Delta	Lake Michigan	21	Public Shoreline Beach-Portage Bay
167	Delta	Lake Michigan	22	Public Shoreline Beach-Portage Peninsula
168	Delta	Lake Michigan	23	Public Shoreline Beach-St. Vital's Island
169	Delta	Lake Michigan	24	Public Shoreline Beach-USFS West Wilsey Bay
170	Delta	Lake Michigan	25	Public Shoreline Beach-West Side of Kregg Bay
171	Delta	Lake Michigan	26	Sac Bay County Park
172	Delta	Lake Michigan	27	Twin Springs Campground and Bathing Beach
<b>14</b>	<b>Emmet</b>	Lake Michigan	1	Bliss Township Beach
174	Emmet	Lake Michigan	2	Church Beach
175	Emmet	Lake Michigan	3	Colonial Michilimackinac State Park
176	Emmet	Lake Michigan	4	Forest Beach
177	Emmet	Lake Michigan	5	Petoskey Harbor
178	Emmet	Lake Michigan	6	The Headlands County Park
179	Emmet	Lake Michigan	7	Thorne Swift Preserve
180	Emmet	Lake Michigan	8	Wilderness State Park-East of the Beach
181	Emmet	Lake Michigan	9	Wilderness State Park-Sturgeon Bay
182	Emmet	Lake Michigan	10	Wilderness State Park-West of Beach
<b>15</b>	<b>Gogebic</b>	Lake Superior	1	Black River Harbor Beach
184	Gogebic	Lake Superior	2	Little Girls Point Park
185	Gogebic	Lake Superior	3	Mouth of the Montreal River
186	Gogebic	Lake Superior	4	Porcupine Mountain State Park-North
187	Gogebic	Lake Superior	5	Presque Isle Beach
188	Gogebic	Lake Superior	6	Presque Isle State Campground
189	Gogebic	Lake Superior	7	Public Shoreline Beach-West of Black River
<b>16</b>	<b>Grand Traverse</b>	Grand Traverse Bay	1	Archie Park
191	Grand Traverse	Grand Traverse Bay	2	Old Mission - Center Road Natural Area
192	Grand Traverse	Grand Traverse Bay	3	Old Mission - MDOT Right of Way-South of M-37
193	Grand Traverse	Grand Traverse Bay	4	Old Mission - Old Mission Point State Park
194	Grand Traverse	Grand Traverse Bay-East	5	Acme Roadside Park (DNR)
195	Grand Traverse	Grand Traverse Bay-East	6	Acme Roadside Park and Beach MDOT
196	Grand Traverse	Grand Traverse Bay-East	7	Deep Water Point
197	Grand Traverse	Grand Traverse Bay-East	8	East Bay Township Four Mile Road
198	Grand Traverse	Grand Traverse Bay-East	9	Yuba Beach
199	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	10	Bowers Harbor Public Access
200	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	11	DNR Launch/Beach Center Road



Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
201	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	12	Haserot Beach
202	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	13	Kroupa Road Access M-22 South of Crain Hill Road
203	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	14	Leffingwell Point Beach
204	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	15	Old Mission Lighthouse
205	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	16	Old Mission Peninsula Twp Park-East of Light House
206	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	17	Old Mission Peninsula Twp Park-West of Light House
207	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	18	Old Mission Road
208	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	19	Peninsula Volunteer Fire Station Point #2
209	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	20	Swaney Road
210	Grand Traverse	Grand Traverse Bay-West	21	Mouth of Boardman
211	Grand Traverse	Grand Traverse Bay-West	22	Power Island Bay Park
212	Grand Traverse	Grand Traverse Bay-West	23	Rose Street Access at Peninsula Drive
<b>17</b>	Houghton	Lake Superior	1	Calument Waterworks Beach
	Houghton	Lake Superior	2	Mink Farm
	Houghton	Lake Superior	3	Public Shoreline Beach-Le Chance Creek
	Houghton	Lake Superior	4	Public Shoreline Beach-Mc Lain State Park
	Houghton	Lake Superior	5	Public Shoreline Beach-S. of Portage Entry
	Houghton	Lake Superior	6	Public Shoreline Beach-Southwest County Border
	Houghton	Lake Superior	7	White City
	Houghton	Torch Lake-Portage Canal-Lake Superior	8	Hubbell Park
<b>18</b>	<b>Huron</b>	Lake Huron	1	County Road End
	Huron	Lake Huron	2	Geiger Road Public Access
	Huron	Lake Huron	3	Grindstone Public Access
	Huron	Lake Huron	4	Harbor Beach Marina
	Huron	Lake Huron	5	Helena Road End
	Huron	Lake Huron	6	Kinch Road End
	Huron	Lake Huron	7	Larned Road End
	Huron	Lake Huron	8	Lighthouse County Park-South
	Huron	Lake Huron	9	Mud Creek Public Access
	Huron	Lake Huron	10	Stafford County Park
	Huron	Lake Huron	11	Wagener County Park
<b>19</b>	<b>Iosco</b>	Lake Huron	1	Alabaster Township-Alabaster Road
	Iosco	Lake Huron	2	Au Sable Point Beach

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
234	Iosco	Lake Huron	3	Interlake Road
235	Iosco	Lake Huron	4	Lake To Lake Road
236	Iosco	Lake Huron	5	Tawas Point State Park-Central
237	Iosco	Lake Huron (Tawas Bay)	6	County Road End off Tawas Beach Road
238	Iosco	Lake Huron (Tawas Bay)	7	MDNR Access E. Tawas - Boat Launch
<b>20</b>	<b><u>Keweenaw</u></b>	Lake Superior at Bete de Gris Bay	1	Bete de Gris Beach
240	Keweenaw	Lake Superior	2	Brunette Park
241	Keweenaw	Lake Superior	3	Cat Harbor Beach
242	Keweenaw	Lake Superior	4	Cooper Harbor Lighthouse Complex
243	Keweenaw	Lake Superior	5	Eagle River Beach
244	Keweenaw	Lake Superior	6	Fort Wilkins State Park
245	Keweenaw	Lake Superior	7	Fort Wilkins State Park-East
246	Keweenaw	Lake Superior	8	Fort Wilkins State Park-West
247	Keweenaw	Lake Superior	9	Great Sands Bay Beach
248	Keweenaw	Lake Superior	10	Mouth of the Gratiot River Beach
249	Keweenaw	Lake Superior	11	Point Isabelle Beach
250	Keweenaw	Lake Superior	12	Public Shoreline Beach-Big Traverse Bay
251	Keweenaw	Lake Superior	13	Public Shoreline Beach-Gay Park
<b>21</b>	<b><u>Leelanau</u></b>	Grand Traverse Bay	1	Boughy Park and Beach
253	Leelanau	Grand Traverse Bay-West	2	Cathead Bay, Leelanau State Park
254	Leelanau	Grand Traverse Bay-West	3	Christmas Cove
255	Leelanau	Grand Traverse Bay-West	4	Graham Green Park
256	Leelanau	Grand Traverse Bay-West	5	Hendryx County Roadside Park
257	Leelanau	Grand Traverse Bay-West	6	M-22 at M-72 Public Access
258	Leelanau	Grand Traverse Bay-West	7	MDOT Roadside Park and Beach
259	Leelanau	Grand Traverse Bay-West	8	MDOT Roadside Park and Beach M-22 North of Cherry Bend Drive
260	Leelanau	Grand Traverse Bay-West	9	Northport 4th Street Beach
261	Leelanau	Grand Traverse Bay-West	10	Northport 5th Street Beach
262	Leelanau	Grand Traverse Bay-West	11	Northport 7th Street Beach
263	Leelanau	Grand Traverse Bay-West	12	Northport Haserot Beach, Rose Street
264	Leelanau	Grand Traverse Bay-West	13	Omena Beach and Park
265	Leelanau	Grand Traverse Bay-West	14	Stoney Point County Roadside Park
266	Leelanau	Grand Traverse Bay-West	15	Suttons Bay North Shore Park
267	Leelanau	Grand Traverse Bay-West	16	Suttons Bay South Shore Park
268	Leelanau	Lake Michigan	17	Bay Front Park
269	Leelanau	Lake Michigan	18	Cedar Street Beach
270	Leelanau	Lake Michigan	19	G. Marsten Dame Marina
271	Leelanau	Lake Michigan	20	Gils Pier
272	Leelanau	Lake Michigan	21	Glen Arbor/Manitou Boulevard Beach
273	Leelanau	Lake Michigan	22	Lake Street Beach, Glen Arbor
274	Leelanau	Lake Michigan	23	Leelanau State Park, Lighthouse
275	Leelanau	Lake Michigan	24	Leland Harbor

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
276	Leelanau	Lake Michigan	25	North Bar
277	Leelanau	Lake Michigan	26	North Street Beach
278	Leelanau	Lake Michigan	27	Peterson Park
279	Leelanau	Lake Michigan	28	Reynolds Street Beach
280	Leelanau	Lake Michigan	29	Smith Street Beach Northport
281	Leelanau	Lake Michigan	30	Thompson Street Beach
282	Leelanau	Lake Michigan	31	Sleeping Bear Dunes- CR 669 Good Harbor Bay
283	Leelanau	Lake Michigan	32	Sleeping Bear Dunes- CR 651 Good Harbor Bay
284	Leelanau	Lake Michigan	33	Sleeping Bear Dunes- DH Day Campground
285	Leelanau	Lake Michigan	34	Sleeping Bear Dunes- Glen Haven Beach
286	Leelanau	Lake Michigan	35	Sleeping Bear Dunes- North Bar Lake MI Beach
287	Leelanau	Lake Michigan	36	Sleeping Bear Dunes- Shalda Creek
<b>22</b>	<b>Luce</b>	Lake Superior	1	Blind Sucker River #1
289	Luce	Lake Superior	2	Blind Sucker River #2
290	Luce	Lake Superior	3	Crisp Point Lighthouse
291	Luce	Lake Superior	4	Lake Superior Campground Beach
292	Luce	Lake Superior	5	Mouth of the Two Hearted River Campground
293	Luce	Lake Superior	6	Public Shoreline Beach-Blind Sucker Flooding Area
294	Luce	Lake Superior	7	Public Shoreline Beach-Coast Guard Line Road
295	Luce	Lake Superior	8	Public Shoreline Beach-County Road 407
296	Luce	Lake Superior	9	Public Shoreline Beach-County Road 412 and Crisp Point
297	Luce	Lake Superior	10	Public Shoreline Beach-Little Sucker/Two Hearted River
298	Luce	Lake Superior	11	Public Shoreline Beach-Three Mile Creek Area
299	Luce	Lake Superior	12	Public Shoreline Beach-West County Border Beach
300	Luce	Lake Superior	13	Unnamed Road End #1
301	Luce	Lake Superior	14	Unnamed Road End #2
302	Luce	Lake Superior	15	Unnamed Road End #3
<b>23</b>	<b>Mackinac</b>	Lake Huron	1	American Legion Memorial Park
304	Mackinac	Lake Huron	2	Antoine Road End
305	Mackinac	Lake Huron	3	Boot Island
306	Mackinac	Lake Huron	4	Coast Guard Pier Boat Launch and City Park
307	Mackinac	Lake Huron	5	Foley Creek Campground
308	Mackinac	Lake Huron	6	Government Island-Hiawatha National Forest
309	Mackinac	Lake Huron	7	Harbour Light
310	Mackinac	Lake Huron	8	Hazelton Road End
311	Mackinac	Lake Huron	9	Hiawatha National Forest- Carp River Access
312	Mackinac	Lake Huron	10	Horseshoe Bay Wilderness-North
313	Mackinac	Lake Huron	11	Horseshoe Bay Wilderness-South
314	Mackinac	Lake Michigan	12	Big Knob State Forest Campground
315	Mackinac	Lake Michigan	13	Black River State Forest Campground

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
316	Mackinac	Lake Michigan	14	Epoufette Bay Campground
317	Mackinac	Lake Michigan	15	Hog Island Campground
318	Mackinac	Lake Michigan	16	Lake Michigan US-2 Campground Beach
319	Mackinac	Lake Michigan	17	MDOT Overlook
320	Mackinac	Lake Michigan	18	MDOT Roadside Park on US-2
321	Mackinac	Lake Michigan	19	Mouth of Cut River Roadside Beach
322	Mackinac	Lake Michigan	20	Naubinway Bay Access
323	Mackinac	Lake Michigan	21	Public Shoreline Beach #2-Little Hog Island area
324	Mackinac	Lake Michigan	22	Public Shoreline Beach #2-Manitou Paymen Highbanks
325	Mackinac	Lake Michigan	23	Public Shoreline Beach #3-Little Hog Island area
326	Mackinac	Lake Michigan	24	Public Shoreline Beach #4-Little Hog Island area
327	Mackinac	Lake Michigan	25	Public Shoreline Beach #5-Little Hog Island area
328	Mackinac	Lake Michigan	26	Public Shoreline Beach-Epoufette Bay
329	Mackinac	Lake Michigan	27	Public Shoreline Beach-Fox Point Area
330	Mackinac	Lake Michigan	28	Public Shoreline Beach-Little Hog Island area
331	Mackinac	Lake Michigan	29	Public Shoreline Beach-Manitou Paymen Highbanks
332	Mackinac	Lake Michigan	30	Public Shoreline Beach-MDNR Matrix Point Area
333	Mackinac	Lake Michigan	31	Public Shoreline Beach-Morean Township, Section 25
334	Mackinac	Lake Michigan	32	Public Shoreline Beach-Naubinway Area
335	Mackinac	Lake Michigan	33	Public Shoreline Beach-Pointe Aux Chenes Bay
336	Mackinac	Lake Michigan	34	Public Shoreline Beach-Seiners Point
337	Mackinac	Lake Michigan	35	Public Shoreline Beach-South of Brevort River
338	Mackinac	Lake Michigan	36	Public Shoreline Beach-State Forest Matrix Point
339	Mackinac	Lake Michigan	37	Sand Point
340	Mackinac	Lake Michigan	38	State Roadside Park Beach
341	Mackinac	Lake Huron	39	Straits State Park
<b>24</b>	<b>Manistee</b>	Lake Michigan	1	Portage Park
<b>25</b>	<b>Marquette</b>	Lake Superior	1	Public Shoreline Beach-Big Huron River
344	Marquette	Lake Superior	2	Public Shoreline Beach-Little Presque Isle
<b>26</b>	<b>Mason</b>	Lake Michigan	1	Ludington State Park Public Shoreline Beach North
346	Mason	Lake Michigan	2	Ludington State Park Public Shoreline Beach South
347	Mason	Lake Michigan	3	Manistee National Forest Campground Beach
348	Mason	Lake Michigan	4	Manistee National Forest-Public Shoreline Beach North
349	Mason	Lake Michigan	5	Manistee National Forest-Public Shoreline Beach South
350	Mason	Lake Michigan	6	Pere Marquette Harbor

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>27</b> 351	<b>Menominee</b>	Lake Michigan	1	Airport Park
352	Menominee	Lake Michigan	2	Fox Park
353	Menominee	Lake Michigan	3	Klienke Park
354	Menominee	Lake Michigan	4	Public Shoreline Beach-Cedar River
355	Menominee	Lake Michigan	5	Public Shoreline Beach-Fox village
356	Menominee	Lake Michigan	6	Wells State Park
<b>28</b> 357	<b>Oceana</b>	Lake Michigan	1	Cedar Point County Park
358	Oceana	Lake Michigan	2	Silver Lake State Park
359	Oceana	Silver Lake-Lake Michigan	3	Silver Creek Channel
<b>29</b> 360	<b>Ontonagon</b>	Lake Superior	1	Green Park
361	Ontonagon	Lake Superior	2	Gull Point Beach
362	Ontonagon	Lake Superior	3	Mouth of the Big Iron River Beach
363	Ontonagon	Lake Superior	4	Porcupine Mountain State Park
364	Ontonagon	Lake Superior	5	Porcupine Mountains Wilderness State Park-West
365	Ontonagon	Lake Superior	6	Public Shoreline Beach-Misery Bay
366	Ontonagon	Lake Superior	7	Public Shoreline Beach-Sleeping Bay
367	Ontonagon	Lake Superior	8	Public Shoreline Beach-Wolf Point
368	Ontonagon	Lake Superior	9	Union Bay Beach
<b>30</b> 369	<b>Ottawa</b>	Lake Michigan	1	Kouw Park
370	Ottawa	Lake Michigan	2	Mountain Beach
371	Ottawa	Lake Michigan	3	P.J. Hoffmaster State Park- Shoreline Beach
<b>31</b> 372	<b>Presque Isle</b>	Lake Huron	1	40 Mile Point Park
373	Presque Isle	Lake Huron	2	Ball Diamond Park
374	Presque Isle	Lake Huron	3	Bell Bay
375	Presque Isle	Lake Huron	4	Evergreen Beach
376	Presque Isle	Lake Huron	5	Golden Beach
377	Presque Isle	Lake Huron	6	Grace Access Site
378	Presque Isle	Lake Huron	7	Hammond Bay Access Site
379	Presque Isle	Lake Huron	8	Hammond Bay Harbor
380	Presque Isle	Lake Huron	9	Hoeft State Park-North
381	Presque Isle	Lake Huron	10	Hoeft State Park-South
382	Presque Isle	Lake Huron	11	Lakeside Park in Rogers City
383	Presque Isle	Lake Huron	12	Lakeview Park Beach
384	Presque Isle	Lake Huron	13	Manitou Beach
385	Presque Isle	Lake Huron	14	New Lighthouse Park
386	Presque Isle	Lake Huron	15	Presque Isle Harbor
387	Presque Isle	Lake Huron	16	Presque Isle Harbor Beach
388	Presque Isle	Lake Huron	17	Public Shoreline Beach-False Presque Isle Harbor
389	Presque Isle	Lake Huron	18	Seagull Point Park
390	Presque Isle	Lake Huron	19	Thompson's Harbor State Park
391	Presque Isle	Lake Huron	20	US-23 Hammond Bay

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
392	Presque Isle	Lake Huron	21	US-23 Roger City
<b>32</b> 393	<b>Sanilac</b>	Lake Huron	1	Birch Beach
394	Sanilac	Lake Huron	2	Birch Beach Middle #2
395	Sanilac	Lake Huron	3	Birch Beach North #3
396	Sanilac	Lake Huron	4	Delaware Park
397	Sanilac	Lake Huron	5	Great Lakes Beach
398	Sanilac	Lake Huron	6	Great Lakes Beach #1
399	Sanilac	Lake Huron	7	Sanilac County Park #4
400	Sanilac	Lake Huron	8	Sanilac County Roadside Park #1
<b>33</b> 401	<b>Schoolcraft</b>	Lake Michigan	1	Doyle Township Access
402	Schoolcraft	Lake Michigan	2	Goudreau's Harbor Seul Choix Point-Boat Landing
403	Schoolcraft	Lake Michigan	3	Lakeview Park
404	Schoolcraft	Lake Michigan	4	Manistique Township Park
405	Schoolcraft	Lake Michigan	5	Public Shoreline Beach-South of McDonald Lake
406	Schoolcraft	Lake Michigan	6	Public Shoreline Beach-Thompson Village
407	Schoolcraft	Lake Michigan	7	Roadside Park Beach
<b>34</b> 408	<b>St. Clair</b>	Lake Huron	1	Burthville Township Park
409	St. Clair	Lake Huron	2	Jeddo Road Beach
410	St. Clair	Lake Huron	3	Krafft Road Beach
411	St. Clair	Lake Huron	4	Lakeport State Park
412	St. Clair	Lake Huron	5	Metcalf Road Beach
413	St. Clair	Lake Huron	6	Washington Street Park
414	St. Clair	St. Clair River	7	Marine City Diving Area

Appendix F.1. Daily Water Samples from Inland Lake Beaches that Exceeded Michigan's WQS.

		<b>County</b>	<b>Location</b>	<b>Sampling Date</b>	<b><i>E. coli</i> Test Results</b>
<b>1</b>	1	<b>Barry</b>	Charlton Park	16-Jun-15	618.7418
	2	Barry	Charlton Park	14-Jul-15	365.7911
<b>2</b>	3	<b>Bay</b>	Vet's Park North Bay City	24-Aug-15	1733
	4	Bay	Vet's Park North Bay City	11-Aug-15	687
	5	Bay	Vet's Park North Bay City	15-Jun-15	359.6437
<b>3</b>	6	<b>Benzie</b>	Beulah Beach	19-Aug-15	1300
	7	Benzie	Beulah Beach	20-Aug-15	1089.618
<b>4</b>	8	<b>Chippewa</b>	Kinross Lake	1-Jul-15	344.8
<b>5</b>	9	<b>Emmet</b>	Little Traverse Township Beach	3-Aug-15	648.8
<b>6</b>	10	<b>Genesee</b>	Clover Beach	28-Jul-15	853.221
	11	Genesee	Clover Beach	27-Jul-15	659.0656
	12	Genesee	Clover Beach	15-Jun-15	547.0816
	13	Genesee	Kelly Lake	7-Jul-15	874.9533
<b>7</b>	14	<b>Gladwin</b>	Beaverton City Park	28-Jul-15	1439.391
	15	Gladwin	Beaverton City Park	15-Jun-15	1344.921
	16	Gladwin	Beaverton City Park	16-Jun-15	661.4306
	17	Gladwin	Beaverton City Park	11-Jun-15	387.9953
<b>8</b>	18	<b>Kalamazoo</b>	Prairie View County Park	8-Jun-15	336.6652
	19	Kalamazoo	Robert Morris Park	6-Jul-15	887.2516
	20	Kalamazoo	Robert Morris Park	27-Jul-15	528.6024
	21	Kalamazoo	Sunset Lake Park	8-Jun-15	999.0347
	22	Kalamazoo	Sunset Lake Park	15-Jun-15	469.2076
<b>9</b>	23	<b>Livingston</b>	Howell City Park	3-Sep-15	580
<b>10</b>	24	<b>Oakland</b>	Addison Oaks Co. Park	23-Jun-15	2420
	25	Oakland	Addison Oaks Co. Park	17-Jun-15	1697
	26	Oakland	Addison Oaks Co. Park	11-Jun-15	1636
	27	Oakland	Addison Oaks Co. Park	24-Jun-15	1363
	28	Oakland	Addison Oaks Co. Park	15-Jun-15	1057
	29	Oakland	Addison Oaks Co. Park	18-Jun-15	920
	30	Oakland	Addison Oaks Co. Park	22-Jun-15	827
	31	Oakland	Addison Oaks Co. Park	16-Jun-15	579
	32	Oakland	Addison Oaks Co. Park	9-Jun-15	548
	33	Oakland	Addison Oaks Co. Park	25-Jun-15	446
	34	Oakland	Addison Oaks Co. Park	10-Jun-15	373

Appendix F.1. Daily Water Samples from Inland Lake Beaches that Exceeded Michigan's WQS.

	<b>County</b>		<b>Location</b>	<b>Sampling Date</b>	<b><i>E. coli</i> Test Results</b>
35	Oakland	12	Camp Dearborn - Lake #5	8-Jun-15	766
36	Oakland	13	Davisburg Village Beach (Hart Commu	15-Jun-15	537
37	Oakland	14	E.V. Mercer City Beach	11-Aug-15	537
38	Oakland	15	E.V. Mercer City Beach	10-Jun-15	330
39	Oakland	16	Indianwood	8-Jun-15	316
40	Oakland	17	Lakeshore Park	28-Jul-15	670
41	Oakland	18	Log Cabin Sub.	23-Jun-15	1331
42	Oakland	19	Scotch Lake Residents	8-Jul-15	2420
43	Oakland	20	Scotch Lake Residents	24-Jun-15	2087
44	Oakland	21	Scotch Lake Residents	7-Jul-15	568
45	Oakland	22	Scotch Lake Residents	23-Jun-15	527
46	Oakland	23	Scotch Lake Residents	30-Jun-15	452
47	Oakland	24	Seven Lakes Park	11-Aug-15	1124
48	Oakland	25	Seven Lakes Park	10-Aug-15	1102
49	Oakland	26	Seven Lakes Park	4-Aug-15	445
50	Oakland	27	Seven Lakes Park	3-Aug-15	443
51	Oakland	28	Seven Lakes Park	5-Aug-15	353
52	Oakland	29	Upland Hills Farm	7-Jul-15	394
53	Oakland	30	Upland Hills Farm	6-Jul-15	381
54	Oakland	31	Woodhull Lake Civic Association	8-Jun-15	1575
55	Oakland	32	Woodhull Lake Civic Association	30-Jun-15	590
<b>11</b>	<b><u>Otsego</u></b>	1	Otsego State Park	11-Aug-15	2419.6
57	Otsego	2	WahWahSoo Beach	14-Jul-15	410.6
<b>12</b>	<b><u>Roscommon</u></b>	1	Houghton Lake Heights	3-Aug-15	1129.26
59	Roscommon	2	Richfield Township Public Fishing Site	3-Aug-15	460.219
60	Roscommon	3	Richfield Township Public Fishing Site	6-Jul-15	358.2268
<b>13</b>	<b><u>Washtenaw</u></b>	1	Independence Lake County Park	7-Aug-15	324.2753
<b>14</b>	<b><u>Wayne</u></b>	1	Newburgh and Sumac Pointes - Hines	24-Jun-15	1249.209
63	Wayne	2	Newburgh and Sumac Pointes - Hines	18-Jun-15	932.7432
64	Wayne	3	Newburgh and Sumac Pointes - Hines	29-Jul-15	774.6447
65	Wayne	4	Newburgh and Sumac Pointes - Hines	3-Jun-15	452.165
66	Wayne	5	Newburgh and Sumac Pointes - Hines	12-Aug-15	451.8929
67	Wayne	6	Newburgh and Sumac Pointes - Hines	15-Jul-15	305.4862
68	Wayne	7	Sherwood Park	24-Jun-15	480.7615
<b>15</b>	<b><u>Wexford</u></b>	1	Manton Park	9-Jul-15	601.5
70	Wexford	2	Manton Park	18-Aug-15	517.2



Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS.

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b><i>E. coli</i> Test Results</b>
<b>1</b>	<b>Alcona</b>	1	Greenbush Township	Lake Huron	2-Jul-15	443.0345
<b>2</b>	<b>Arenac</b>	1	Arenac County Park	Saginaw Bay-Lake Huron	8-Jul-15	1075.767
	Arenac	2	Bessinger Road Beach	Saginaw Bay-Lake Huron	15-Jul-15	478.7008
	Arenac	3	Cemetery Beach	Saginaw Bay-Lake Huron	15-Jul-15	477.9303
	Arenac	4	Dyer Road Beach	Saginaw Bay-Lake Huron	15-Jul-15	435.853
	Arenac	5	Hammel Beach Road Access	Saginaw Bay-Lake Huron	29-Jul-15	434.7009
	Arenac	6	Singing Bridge Beach	Saginaw Bay-Lake Huron	5-Aug-15	343.7101
	Arenac	7	Singing Bridge Beach	Saginaw Bay-Lake Huron	15-Jul-15	399.5732
<b>3</b>	<b>Bay</b>	1	Bay City State Recreation Area	Saginaw Bay-Lake Huron	15-Jul-15	365.4
	Bay	2	Bay City State Recreation Area	Saginaw Bay-Lake Huron	15-Jul-15	435.2
	Bay	3	Bay City State Recreation Area	Saginaw Bay-Lake Huron	5-Aug-15	461.1
	Bay	4	Bay City State Recreation Area	Saginaw Bay-Lake Huron	5-Aug-15	547.5
	Bay	5	Bay City State Recreation Area	Saginaw Bay-Lake Huron	7-Jul-15	648.8
	Bay	6	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	27-Aug-15	344.8
	Bay	7	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	3-Aug-15	365.4
	Bay	8	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	15-Jul-15	435.2
	Bay	9	Wenona Beach	Saginaw Bay-Lake Huron	3-Aug-15	914
<b>4</b>	<b>Berrien</b>	1	Lincoln Township Park	Lake Michigan	14-Jul-15	360
	Berrien	2	New Buffalo City	Lake Michigan	31-Aug-15	420
	Berrien	3	Union Pier - Townline Road	Lake Michigan	3-Aug-15	340
	Berrien	4	Union Pier - Townline Road	Lake Michigan	14-Jul-15	420
	Berrien	5	Warren Dunes Beach	Lake Michigan	14-Jul-15	1553.1
<b>5</b>	<b>Charlevoix</b>	1	East Jordan Tourist Park	Lake Charlevoix	23-Jun-15	727
	Charlevoix	2	Elm Point Beach	Lake Charlevoix	4-Aug-15	980.4
	Charlevoix	3	Glenwood Beach	Lake Charlevoix	23-Jun-15	2419.6
	Charlevoix	4	Tannery Park	Lake Charlevoix	23-Jun-15	517.2
	Charlevoix	5	Washington Street Beach	Lake Charlevoix	23-Jun-15	816.4
	Charlevoix	6	Whiting Park Beach	Lake Charlevoix	23-Jun-15	365.4
	Charlevoix	7	Young State Park Beach	Lake Charlevoix	23-Jun-15	387.3

Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS.

	County		Location	Water Body	Sampling Date	<i>E. coli</i> Test Results
30	Charlevoix	8	Lake Michigan Beach	Lake Michigan	23-Jun-15	307.5
31	Charlevoix	9	Lake Michigan Beach	Lake Michigan	14-Jul-15	579.4
32	Charlevoix	10	Norwood Township Park	Lake Michigan	23-Jun-15	2419.6
<b>6</b>	<b>Chippewa</b>	1	Brimley State Park	Lake Superior	19-Aug-15	344.8
34	Chippewa	2	Brimley State Park	Lake Superior	25-Aug-15	344.8
35	Chippewa	3	Brimley State Park	Lake Superior	18-Aug-15	365.4
36	Chippewa	4	Brimley State Park	Lake Superior	24-Aug-15	517.2
37	Chippewa	5	Brimley State Park	Lake Superior	17-Aug-15	816.4
38	Chippewa	6	Sherman Park	Lake Superior	24-Aug-15	980.4
39	Chippewa	7	Sherman Park	Lake Superior	3-Aug-15	1119.9
40	Chippewa	8	Sherman Park	Lake Superior	4-Aug-15	1413.6
41	Chippewa	9	Four Mile Beach	St. Mary's River	13-Jul-15	387.3
42	Chippewa	10	Four Mile Beach	St. Mary's River	24-Aug-15	461.1
43	Chippewa	11	Sugar Island Township Park	St. Mary's River	18-Aug-15	410.6
44	Chippewa	12	Sugar Island Township Park	St. Mary's River	11-Aug-15	613.1
45	Chippewa	13	Sugar Island Township Park	St. Mary's River	19-Aug-15	1203.3
<b>7</b>	<b>Emmet</b>	1	Sturgeon Bay Township Beach	Lake Michigan	20-Jul-15	770.1
<b>8</b>	<b>Grand Traverse</b>	1	East Bay Park (Milliken Park)	Grand Traverse Bay-East	19-Aug-15	1986
48	Grand Traverse	2	Traverse City State Park	Grand Traverse Bay-East	26-Aug-15	1120
49	Grand Traverse	3	Senior Center	Grand Traverse Bay-West	19-Aug-15	625.2367
50	Grand Traverse	4	Senior Center	Grand Traverse Bay-West	26-Aug-15	1194.139
51	Grand Traverse	5	Sunset Park	Grand Traverse Bay-West	19-Aug-15	686.9122
52	Grand Traverse	6	West End Beach	Grand Traverse Bay-West	26-Aug-15	308
<b>9</b>	<b>Huron</b>	1	Bird Creek County Park	Lake Huron	17-Jun-15	517.2
54	Huron	2	Bird Creek County Park	Lake Huron	4-Aug-15	517.2
55	Huron	3	Bird Creek County Park	Lake Huron	11-Aug-15	579.4
56	Huron	4	Bird Creek County Park	Lake Huron	12-Aug-15	980.4
57	Huron	5	Bird Creek County Park	Lake Huron	5-Aug-15	1119.9
58	Huron	6	Bird Creek County Park	Lake Huron	16-Jun-15	1299.7

Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS.

	County		Location	Water Body	Sampling Date	<i>E. coli</i> Test Results
59	Huron	7	Jenks County Park	Lake Huron	12-Aug-15	387.3
60	Huron	8	Jenks County Park	Lake Huron	11-Aug-15	1986.3
61	Huron	9	Lighthouse County Park	Lake Huron	16-Jun-15	727
62	Huron	10	Lighthouse County Park	Lake Huron	21-Jul-15	1119.9
63	Huron	11	Oak Beach County Park	Lake Huron	17-Aug-15	344.8
64	Huron	12	Port Crescent State Park - Camping Area	Lake Huron	16-Jun-15	547.5
65	Huron	13	Veterans Park	Lake Huron	21-Jul-15	648.8
66	Huron	14	Veterans Park	Lake Huron	4-Aug-15	686.7
<b>10</b> 67	<b>losco</b>	1	Alabaster Township Douglas Drive Beach Use Area	Lake Huron	4-Aug-15	727
68	losco	2	Au Sable Township Park	Lake Huron	7-Jul-15	601.9442
69	losco	3	Gateway Park Beach	Lake Huron (Tawas Bay)	4-Aug-15	387.3
70	losco	4	East Tawas City Park	Tawas Bay	21-Jul-15	579.4
71	losco	5	Tawas City Park	Tawas Bay	4-Aug-15	435.2
72	losco	6	Tawas City Park	Tawas Bay	30-Jun-15	461.1
<b>11</b> 73	<b>Leelanau</b>	1	Northport Bay Marina	Grand Traverse Bay-West	19-Aug-15	816
74	Leelanau	2	Suttons Bay Marina Park & Beach South	Grand Traverse Bay-West	15-Jul-15	687
75	Leelanau	3	Empire Municipal Beach	Lake Michigan	29-Jul-15	727
<b>12</b> 76	<b>Mackinac</b>	1	Kiwanis Beach	Lake Huron	11-Aug-15	416.2946
<b>13</b> 77	<b>Macomb</b>	1	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	28-Sep-15	313.83
78	Macomb	2	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	22-Jul-15	326.56
79	Macomb	3	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	20-Jul-15	335.78
80	Macomb	4	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	27-Jul-15	341.27
81	Macomb	5	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	16-Sep-15	459.49
82	Macomb	6	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	18-May-15	601.43
83	Macomb	7	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	29-Jun-15	632.63
84	Macomb	8	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	1-Jul-15	771.87
85	Macomb	9	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	27-May-15	1085.23
86	Macomb	10	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	9-Jul-15	1086.55
87	Macomb	11	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	8-Jul-15	1108.04

Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS.

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b><i>E. coli</i> Test Results</b>
88	Macomb	12	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	10-Jun-15	2341.32
89	Macomb	13	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	3-Aug-15	2419.6
90	Macomb	14	New Baltimore Park Beach	Lake St. Clair	3-Aug-15	852.67
91	Macomb	15	St. Clair Shores Memorial Park Beach	Lake St. Clair	8-Jul-15	315.35
92	Macomb	16	St. Clair Shores Memorial Park Beach	Lake St. Clair	3-Jun-15	319.29
93	Macomb	17	St. Clair Shores Memorial Park Beach	Lake St. Clair	10-Jun-15	345.53
94	Macomb	18	St. Clair Shores Memorial Park Beach	Lake St. Clair	12-Aug-15	355.97
95	Macomb	19	St. Clair Shores Memorial Park Beach	Lake St. Clair	27-May-15	379.24
96	Macomb	20	St. Clair Shores Memorial Park Beach	Lake St. Clair	1-Jul-15	394.57
97	Macomb	21	St. Clair Shores Memorial Park Beach	Lake St. Clair	16-Jun-15	425.94
98	Macomb	22	St. Clair Shores Memorial Park Beach	Lake St. Clair	9-Jul-15	691.92
99	Macomb	23	St. Clair Shores Memorial Park Beach	Lake St. Clair	1-Jun-15	882.51
100	Macomb	24	St. Clair Shores Memorial Park Beach	Lake St. Clair	6-Aug-15	1220.86
101	Macomb	25	St. Clair Shores Memorial Park Beach	Lake St. Clair	3-Aug-15	1841.66
102	Macomb	26	St. Clair Shores Memorial Park Beach	Lake St. Clair	29-Jul-15	1916.99
<b>14</b>	<b>Manistee</b>	1	Bar Lake Outlet	Lake Michigan	3-Aug-15	308.5244
104	Manistee	2	Orchard Beach State Park	Lake Michigan	14-Jul-15	497.2506
<b>15</b>	<b>Menominee</b>	1	Henes Park	Lake Michigan	19-Jun-15	305.799
106	Menominee	2	Henes Park	Lake Michigan	14-Jul-15	487.8338
107	Menominee	3	Henes Park	Lake Michigan	16-Jun-15	625.1294
108	Menominee	4	Henes Park	Lake Michigan	4-Sep-15	648.9966
109	Menominee	5	Henes Park	Lake Michigan	3-Sep-15	775.3495
110	Menominee	6	Henes Park	Lake Michigan	8-Sep-15	1813.554
111	Menominee	7	Henes Park	Lake Michigan	18-Aug-15	2419.6
112	Menominee	8	Memorial Beach	Lake Michigan	14-Jul-15	976.5508
<b>16</b>	<b>Monroe</b>	1	Sterling State Park	Lake Erie	23-Jun-15	2420
<b>17</b>	<b>Muskegon</b>	1	Pere Marquette Park	Lake Michigan	17-Jun-15	816
<b>18</b>	<b>Ottawa</b>	1	Holland State Park	Lake Michigan	21-Jul-15	850

Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS.

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b><i>E. coli</i> Test Results</b>
<b>19</b>	<b>Schoolcraft</b>	1	Rogers Park-MDOT	Lake Michigan	23-Jun-15	451.4668
<b>20</b>	<b>St. Clair</b>	1	Conger-Lighthouse Beach	Lake Huron	15-Jul-15	648.8
118	St. Clair	2	Conger-Lighthouse Beach	Lake Huron	14-Jul-15	727
119	St. Clair	3	Conger-Lighthouse Beach	Lake Huron	18-Aug-15	727
120	St. Clair	4	Conger-Lighthouse Beach	Lake Huron	24-Jun-15	770.1
121	St. Clair	5	Fort Gratiot County Park	Lake Huron	18-Aug-15	344.8
122	St. Clair	6	Fort Gratiot County Park	Lake Huron	2-Jun-15	980.4
123	St. Clair	7	Fort Gratiot County Park	Lake Huron	21-Jul-15	1299.7
124	St. Clair	8	Fort Gratiot County Park	Lake Huron	24-Jun-15	2419.6
125	St. Clair	9	Holland Road Beach	Lake Huron	14-Jul-15	547.5
126	St. Clair	10	Holland Road Beach	Lake Huron	24-Jun-15	648.8
127	St. Clair	11	Holland Road Beach	Lake Huron	11-Aug-15	686.7
128	St. Clair	12	Holland Road Beach	Lake Huron	18-Aug-15	1119.9
129	St. Clair	13	Keewadhin Road Beach	Lake Huron	16-Jun-15	387.3
130	St. Clair	14	Keewadhin Road Beach	Lake Huron	2-Jun-15	435.2
131	St. Clair	15	Keewadhin Road Beach	Lake Huron	9-Jun-15	1299.7
132	St. Clair	16	Keewadhin Road Beach	Lake Huron	24-Jun-15	1986.3
133	St. Clair	17	Lakeport State Campground	Lake Huron	21-Jul-15	307.6
134	St. Clair	18	Lakeport State Campground	Lake Huron	2-Jun-15	344.8
135	St. Clair	19	Lakeside Beach	Lake Huron	2-Jun-15	378.4
136	St. Clair	20	Lakeside Beach	Lake Huron	24-Jun-15	579.4
137	St. Clair	21	Lakeside Beach	Lake Huron	11-Aug-15	1119.9
138	St. Clair	22	Lakeside Beach	Lake Huron	18-Aug-15	1203.3
139	St. Clair	23	Chrysler Park Beach	St. Clair River	28-Jul-15	488.4
140	St. Clair	24	Chrysler Park Beach	St. Clair River	24-Jun-15	547.5
141	St. Clair	25	Chrysler Park Beach	St. Clair River	4-Aug-15	960.6
<b>21</b>	<b>Wayne</b>	1	Pier Park	Lake St. Clair	30-Jun-15	313.5261