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 (https://www.egle.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 (https://www.egle.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 https://www.epa.gov/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 https://beacon.epa.gov/ords/beacon2/r/beacon_apex/beacon2/map-page.

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 Exceedancs (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**			
TOTAL	67	**142**	**TOTAL**	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	**617**
Number of Monitored Beaches	2	53	121	18	4	5	**203**
Number of Beaches with Exceedance	1	28	29	2	4	3	**67**
Number of Exceedances	1	60	38	8	27	8	**142**
Number of Beaches with an Action	1	29	28	2	3	3	**65**
Number of Actions	1	48	33	4	14	7	**107**
Total Number of Days with Actions	2	132	53	8	130	15	**340**

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
TOTAL	**107**	**340**	**75***

*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**			
TOTAL	**31**	**70**	**TOTAL**	**31**	**40**

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
TOTAL	**40**	**570**	**33***

*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."

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

2015-2016 CMI-CWF Grantees	Granted Amount	Total Monitored Beaches
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
Total	$243,353

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 enterolitica	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.

		County	Water Body		Location
1	1	**Alcona**	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
2	5	**Alpena**	Long Lake	1	Long Lake Park
3	6	**Antrim**	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
4	11	**Arenac**	Oasis Lake	1	Oasis Lake County Park
5	12	**Barry**	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
6	15	**Bay**	Saginaw River	1	Vet's Park North Bay City
7	16	**Benzie**	Crystal Lake	1	Bellows
	17	Benzie	Crystal Lake	2	Beulah Beach
	18	Benzie	Lake Ann	3	Almira Township Park Beach
8	19	**Charlevoix**	Thumb Lake	1	Thumb Lake Beach
	20	Charlevoix	Walloon Lake	2	Melrose Township Park
9	21	**Chippewa**	Dukes Lake	1	Dukes Lake
	22	Chippewa	Kinross Lake	2	Kinross Lake
	23	Chippewa	Monocle Lake	3	Monocle Lake
10	24	**Clare**	Crooked Lake	1	Crooked Lake/Camp Neyati Beach
	25	Clare	Budd Lake	2	Wilson State Park
11	26	**Eaton**	Fox Memorial Park Beach	1	Fox Memorial Park
12	27	**Emmet**	Crooked Lake	1	Little Traverse Township Beach
	28	Emmet	Crooked Lake	2	Oden Beach
	29	Emmet	Pickerel Lake	3	Camp Petosega
	30	Emmet	Pickerel Lake	4	Channel Beach
	31	Emmet	Walloon Lake	5	Resort Pike Road Beach
13	32	**Genesee**	Byram Lake	1	Clover Beach
	33	Genesee	Holloway Reservoir	2	Buttercup Beach

Appendix D.1. Inland Beaches Monitored 2015.

		County	Water Body		Location
	34	Genesee	Kelly Lake	3	Kelly Lake
	35	Genesee	Mott Lake	4	Bluebell Beach
	36	Genesee	Silver Lake	5	City Park Beach
14	37	**Gladwin**	Ross Lake	1	Beaverton City Park
	38	Gladwin	Cedar River	2	Gladwin City Park
15	39	**Gogebic**	Lake Gogebic	1	Gogebic County Park
	40	Gogebic	Lake Gogebic	2	Lake Gogebic State Park Beach
	41	Gogebic	Sunday Lake	3	Sunday Lake Beach
16	42	**Grand Traverse**	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
17	46	**Houghton**	Lake Roland	1	Twin Lakes State Park
18	47	**Ingham**	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
19	51	**Iosco**	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
20	55	**Isabella**	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
21	60	**Kalamazoo**	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.

		County	Water Body		Location
	68	Kalamazoo	Woods Lake	9	Woods Lake Beach
22	69	**Leelanau**	Lake Leelanau	1	Nedow's (Barthalomew) Beach
	70	Leelanau	South Bar Lake	2	South Bar Lake- South End
23	71	**Livingston**	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
24	82	**Macomb**	Stony Creek Lake-Impoundment	1	Stony Creek Metropark-Baypoint Beach
	83	Macomb	Stony Creek Lake-Impoundment	2	Stony Creek Metropark-Eastwood Beach
25	84	**Manistee**	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
26	90	**Marquette**	Dead River Reservoir	1	Marquette Tourist Park Beach
27	91	**Oakland**	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

	County	Water Body		Location
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
28 145	**Ogemaw**	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

		County	Water Body		Location
	149	Ogemaw	Elbow Lake	5	Mills Township Park
	150	Ogemaw	Hardwood Lake	6	Hardwood Lake
29	151	**Ontonagon**	Lake Gogebic	1	Bergland Township Park
	152	Ontonagon	Lake Gogebic	2	Ontonagon County Park
30	153	**Osceola**	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
31	157	**Oscoda**	Perry Lake	1	Comins Township Park
	158	Oscoda	Smith Lake	2	Oscoda County Park
32	159	**Otsego**	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
33	164	**Presque Isle**	Grand Lake	1	Grand Lake Public Access
34	165	**Roscommon**	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
35	170	**Schoolcraft**	Quarry Lake	1	Quarry Beach
36	171	**Washtenaw**	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
37	176	**Wayne**	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
38	179	**Wexford**	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.

		County	Water Body		Location
1	1	**Alcona**	Alcona Pond	1	Hubbard Lake- Alcona Township Park
	2	Alcona	Alcona Pond	2	Alcona Pond West Campground
2	3	**Alger**	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
3	8	**Allegan**	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
4	13	**Alpena**	Beaver Lake	1	Beaver Lake Park
	14	Alpena	Lake Avalon	2	Lake Avalon Public Access
	15	Alpena	Long Lake	3	Long Lake Day Use
5	16	**Antrim**	Torch Lake	1	Torch River Bridge
	17	Antrim	Torch River	2	Torch River Sand Bar
6	18	**Arenac**	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
7	23	**Barry**	Gull Lake	1	Prairieville Township Park
	24	Barry	Gun Lake	2	Old Beach- Day Use Area
8	25	**Bay**	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
9	28	**Benzie**	Crystal Lake	1	South Shore near Beulah
10	29	**Berrien**	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
11	33	**Branch**	First Lake	1	Quincy Park
	34	Branch	Messenger Lake	2	Memorial Park
12	35	**Calhoun**	Duck Lake	1	Springport

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		County	Water Body		Location
	36	Calhoun	Goguac Lake	2	Willard Beach in Battle Creek
13	37	**Charlevoix**	Huffman Lake	1	Hudson Township Park
14	38	**Cheboygan**	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.
15	54	**Chippewa**	Caribou Lake	1	Caribou Lake
	55	Chippewa	Carp Lake	2	Trout Lake
	56	Chippewa	Soldiers Lake	3	Soldiers Lake
16	57	**Clare**	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
17	73	**Clinton**	Lake Ovid	1	Sleepy Hollow State Park Beach
18	74	**Eaton**	Grand River	1	Lincoln Brick Park

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		County	Water Body		Location
19	75	**Emmet**	Larks Lake	1	Pioneer Picnic Park
	76	Emmet	Crooked Lake	2	Oden Roadside Park
20	77	**Genesee**	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
21	109	**Gladwin**	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

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		County	Water Body		Location
	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
22	129	**Hillsdale**	Baw Beese Lake	1	Sandy Beach
	130	Hillsdale	Bird lake	2	Bird Lake Beach
23	131	**Iosco**	Chain Lake	1	Chain Lake Beach
	132	Iosco	Foote Pond	2	Footsite Park
	133	Iosco	Loon Lake	3	Loon Lake Park
24	134	**Isabella**	Millpond	1	Millpond Park
25	135	**Jackson**	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
26	147	**Kalamazoo**	Timber Lake	1	Timber Lake Campground
27	148	**Kent**	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
28	156	**Leelanau**	Lake Leelanau	1	Leelanau Township Park Beach
	157	Leelanau	Lake Leelanau	2	Popp Road End

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		County	Water Body		Location
	158	Leelanau	Sleeping Bear Dunes- Little Glen Lake	3	Little Glen Lake
	159	Leelanau	Sleeping Bear Dunes- North Bar Lake	4	North Bar Lake
29	160	**Livingston**	Dibrova Lake	1	Green Valley Camp
	161	Livingston	Bentley Lake	2	Camp Innisfree
30	162	**Luce**	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
31	172	**Mackinac**	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
32	179	**Menominee**	Hermansville lake	1	Hermansville Beach
	180	Menominee	Shakey Lakes	2	Shakey Lakes Campground
33	181	**Midland**	Sandord Lake	1	Sanford Lake Park
34	182	**Monroe**	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
35	191	**Montmorency**	Clear Lake	1	Clear Lake Day Use

Appendix D.2. Inland Beaches Not Monitored 2015.

		County	Water Body		Location
	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
36	196	**Muskegon**	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
37	212	**Oakland**	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.

	County	Water Body		Location
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.

	County	Water Body		Location
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
38 326	**Ogemaw**	Grousehaven Lake	1	Rifle River Recreation Area Day Use Area

Appendix D.2. Inland Beaches Not Monitored 2015.

		County	Water Body		Location
	327	Ogemaw	Lake George	2	Lake George Campground
39	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
40	340	**Oscoda**	Mio Pond	1	Mio Pond Campground
41	341	**Otsego**	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
42	345	**Ottawa**	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
43	353	**Presque Isle**	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
44	361	**Roscommon**	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.

		County	Water Body		Location
	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
45	375	**Saginaw**	Haithco Lake	1	Haithco Recreation Area
	376	Saginaw	Lake of Dreams	2	Lake of Dreams Campground
46	377	**Sanilac**	Forester Creek	1	Forester Creek
47	378	**Schoolcraft**	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
48	384	**St. Clair**	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
49	389	**St. Joseph**	Cade Lake	1	Cade Lake Beach
	390	St. Joseph	Palmer Lake	2	Palmer Lake Beach
	391	St. Joseph	Sand Lake	3	Nottawa Park
50	392	**Tuscola**	Murphy Lake	1	Murphy Lake
51	393	**Wayne**	Newburgh Lake	1	Newburgh Lake

Appendix E.1. Great Lakes Beaches Monitored 2015.

		County	Water Body		Location
1	1	**Alcona**	Lake Huron	1	Harrisville State Park
	2	Alcona	Lake Huron	2	Greenbush Township
2	3	**Allegan**	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
3	10	**Alpena**	Lake Huron	1	Blair Street Park
	11	Alpena	Lake Huron	2	Starlite Beach
4	12	**Antrim**	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
5	18	**Arenac**	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
6	27	**Baraga**	Keweenaw Bay/Lake Superior	1	L'Anse Waterfront Park
7	28	**Bay**	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
8	33	**Benzie**	Lake Michigan	1	Frankfort: Anchor Road Beach
9	34	**Berrien**	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.

		County	Water Body		Location
	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
10	48	**Charlevoix**	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
11	63	**Chippewa**	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
12	67	**Delta**	Lake Michigan	1	Escanaba Bathing Beach
	68	Delta	Lake Michigan	2	Gladstone Bathing Beach/Van Cleve Park
13	69	**Emmet**	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.

		County	Water Body		Location
14	80	**Grand Traverse**	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
15	89	**Houghton**	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
16	96	**Huron**	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
17	109	**Iosco**	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
18	118	**Keeweenaw**	Lake Superior	1	Eagle Harbor Beach

Appendix E.1. Great Lakes Beaches Monitored 2015.

		County	Water Body		Location
19	119	**Leelanau**	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
20	124	**Mackinac**	Lake Huron	1	Kiwanis Beach
	125	Mackinac	Lake Michigan	2	US-2 Sand Dunes Beach (East of Brevort)
21	126	**Macomb**	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
22	129	**Manistee**	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	Onekama 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
23	138	**Marquette**	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
24	143	**Mason**	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
25	150	**Menominee**	Lake Michigan	1	Henes Park
	151	Menominee	Lake Michigan	2	Memorial Beach
26	152	**Monroe**	Lake Erie	1	Luna Pier City Beach
	153	Monroe	Lake Erie	2	Sterling State Park
27	154	**Muskegon**	Lake Michigan	1	Bronson/Kruse Park
	155	Muskegon	Lake Michigan	2	Meinert County Park

Appendix E.1. Great Lakes Beaches Monitored 2015.

		County	Water Body		Location
	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
28	167	**Oceana**	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
29	172	**Ontonagon**	Lake Superior	1	Ontonagon Township Park and Campground
	173	Ontonagon	Lake Superior	2	Porcupine Mountains State Park- Union Bay
30	174	**Ottawa**	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
31	182	**Sanilac**	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
32	188	**Schoolcraft**	Lake Michigan	1	Public Shoreline Beach-Thompson
	189	Schoolcraft	Lake Michigan	2	Rogers Park-MDOT
33	190	**St. Clair**	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.

		County	Water Body		Location
	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
34	198	**Van Buren**	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
35	202	**Wayne**	Detroit River	1	Belle Isle Beach
	203	Wayne	Lake St. Clair	2	Pier Park

Appendix E.2. Great Lakes Beaches Not Monitored.

		County	Water Body		Location
1	1	**Alcona**	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
2	8	**Alger**	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
3	26	**Alpena**	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
4	38	**Antrim**	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.

		County	Water Body		Location
	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
5	49	**Arenac**	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
6	61	**Baraga**	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
7	72	**Bay**	Saginaw Bay	1	Nayanquing Point Wildlife Area
8	73	**Benzie**	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.

		County	Water Body		Location
	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
9	82	**Berrien**	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
10	91	**Charlevoix**	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
11	98	**Cheboygan**	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	Cheboygen 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
12	111	**Chippewa**	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.

		County	Water Body		Location
	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
13	146	**Delta**	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.

		County	Water Body		Location
	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
14	173	**Emmet**	Lake Michigan	1	Bliss Township Beach
	174	Emmet	Lake Michigan	2	Church Beach
	175	Emmet	Lake Michigan	3	Colonial Michilimamackinac 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
15	183	**Gogebic**	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
16	190	**Grand Traverse**	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.

		County	Water Body		Location
	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
17	213	Houghton	Lake Superior	1	Calument Waterworks Beach
	214	Houghton	Lake Superior	2	Mink Farm
	215	Houghton	Lake Superior	3	Public Shoreline Beach-Le Chance Creek
	216	Houghton	Lake Superior	4	Public Shoreline Beach-Mc Lain State Park
	217	Houghton	Lake Superior	5	Public Shoreline Beach-S. of Portage Entry
	218	Houghton	Lake Superior	6	Public Shoreline Beach-Southwest County Border
	219	Houghton	Lake Superior	7	White City
	220	Houghton	Torch Lake-Portage Canal-Lake Superior	8	Hubbell Park
18	221	**Huron**	Lake Huron	1	County Road End
	222	Huron	Lake Huron	2	Geiger Road Public Access
	223	Huron	Lake Huron	3	Grindstone Public Access
	224	Huron	Lake Huron	4	Harbor Beach Marina
	225	Huron	Lake Huron	5	Helena Road End
	226	Huron	Lake Huron	6	Kinch Road End
	227	Huron	Lake Huron	7	Larned Road End
	228	Huron	Lake Huron	8	Lighthouse County Park-South
	229	Huron	Lake Huron	9	Mud Creek Public Acess
	230	Huron	Lake Huron	10	Stafford County Park
	231	Huron	Lake Huron	11	Wagener County Park
19	232	**Iosco**	Lake Huron	1	Alabaster Township-Alabaster Road
	233	Iosco	Lake Huron	2	Au Sable Point Beach

		County	Water Body		Location
	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
20	239	**Keweenaw**	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
21	252	**Leelanau**	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.

		County	Water Body		Location
	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
22	288	**Luce**	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
23	303	**Mackinac**	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

		County	Water Body		Location
	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
24	342	**Manistee**	Lake Michigan	1	Portage Park
25	343	**Marquette**	Lake Superior	1	Public Shoreline Beach-Big Huron River
	344	Marquette	Lake Superior	2	Public Shoreline Beach-Little Presque Isle
26	345	**Mason**	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.

		County	Water Body		Location
27	351	**Menominee**	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
28	357	**Oceana**	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
29	360	**Ontonagon**	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
30	369	**Ottawa**	Lake Michigan	1	Kouw Park
	370	Ottawa	Lake Michigan	2	Mountain Beach
	371	Ottawa	Lake Michigan	3	P.J. Hoffmaster State Park- Shoreline Beach
31	372	**Presque Isle**	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.

		County	Water Body		Location
	392	Presque Isle	Lake Huron	21	US-23 Roger City
32	393	**Sanilac**	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
33	401	**Schoolcraft**	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
34	408	**St. Clair**	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.

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

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

		County		Location	Sampling Date	*E. coli* Test Results
	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
11	56	**Otsego**	1	Otsego State Park	11-Aug-15	2419.6
	57	Otsego	2	WahWahSoo Beach	14-Jul-15	410.6
12	58	**Roscommon**	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
13	61	**Washtenaw**	1	Independence Lake County Park	7-Aug-15	324.2753
14	62	**Wayne**	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
15	69	**Wexford**	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.

		County		Location	Water Body	Sampling Date	*E. coli* Test Results
1	1	**Alcona**	1	Greenbush Township	Lake Huron	2-Jul-15	443.0345
2	2	**Arenac**	1	Arenac County Park	Saginaw Bay-Lake Huron	8-Jul-15	1075.767
	3	Arenac	2	Bessinger Road Beach	Saginaw Bay-Lake Huron	15-Jul-15	478.7008
	4	Arenac	3	Cemetery Beach	Saginaw Bay-Lake Huron	15-Jul-15	477.9303
	5	Arenac	4	Dyer Road Beach	Saginaw Bay-Lake Huron	15-Jul-15	435.853
	6	Arenac	5	Hammel Beach Road Access	Saginaw Bay-Lake Huron	29-Jul-15	434.7009
	7	Arenac	6	Singing Bridge Beach	Saginaw Bay-Lake Huron	5-Aug-15	343.7101
	8	Arenac	7	Singing Bridge Beach	Saginaw Bay-Lake Huron	15-Jul-15	399.5732
3	9	**Bay**	1	Bay City State Recreation Area	Saginaw Bay-Lake Huron	15-Jul-15	365.4
	10	Bay	2	Bay City State Recreation Area	Saginaw Bay-Lake Huron	15-Jul-15	435.2
	11	Bay	3	Bay City State Recreation Area	Saginaw Bay-Lake Huron	5-Aug-15	461.1
	12	Bay	4	Bay City State Recreation Area	Saginaw Bay-Lake Huron	5-Aug-15	547.5
	13	Bay	5	Bay City State Recreation Area	Saginaw Bay-Lake Huron	7-Jul-15	648.8
	14	Bay	6	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	27-Aug-15	344.8
	15	Bay	7	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	3-Aug-15	365.4
	16	Bay	8	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	15-Jul-15	435.2
	17	Bay	9	Wenona Beach	Saginaw Bay-Lake Huron	3-Aug-15	914
4	18	**Berrien**	1	Lincoln Township Park	Lake Michigan	14-Jul-15	360
	19	Berrien	2	New Buffalo City	Lake Michigan	31-Aug-15	420
	20	Berrien	3	Union Pier - Townline Road	Lake Michigan	3-Aug-15	340
	21	Berrien	4	Union Pier - Townline Road	Lake Michigan	14-Jul-15	420
	22	Berrien	5	Warren Dunes Beach	Lake Michigan	14-Jul-15	1553.1
5	23	**Charlevoix**	1	East Jordan Tourist Park	Lake Charlevoix	23-Jun-15	727
	24	Charlevoix	2	Elm Point Beach	Lake Charlevoix	4-Aug-15	980.4
	25	Charlevoix	3	Glenwood Beach	Lake Charlevoix	23-Jun-15	2419.6
	26	Charlevoix	4	Tannery Park	Lake Charlevoix	23-Jun-15	517.2
	27	Charlevoix	5	Washington Street Beach	Lake Charlevoix	23-Jun-15	816.4
	28	Charlevoix	6	Whiting Park Beach	Lake Charlevoix	23-Jun-15	365.4
	29	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	*E. coli* 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
6	33	**Chippewa**	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
7	46	**Emmet**	1	Sturgeon Bay Township Beach	Lake Michigan	20-Jul-15	770.1
8	47	**Grand Traverse**	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
9	53	**Huron**	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	*E. coli* 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
10	67	**Iosco**	1	Alabaster Township Douglas Drive Beach Use Area	Lake Huron	4-Aug-15	727
	68	Iosco	2	Au Sable Township Park	Lake Huron	7-Jul-15	601.9442
	69	Iosco	3	Gateway Park Beach	Lake Huron (Tawas Bay)	4-Aug-15	387.3
	70	Iosco	4	East Tawas City Park	Tawas Bay	21-Jul-15	579.4
	71	Iosco	5	Tawas City Park	Tawas Bay	4-Aug-15	435.2
	72	Iosco	6	Tawas City Park	Tawas Bay	30-Jun-15	461.1
11	73	**Leelanau**	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
12	76	**Mackinac**	1	Kiwanis Beach	Lake Huron	11-Aug-15	416.2946
13	77	**Macomb**	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.

		County		Location	Water Body	Sampling Date	*E. coli* Test Results
	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
14	103	**Manistee**	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
15	105	**Menominee**	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
16	113	**Monroe**	1	Sterling State Park	Lake Erie	23-Jun-15	2420
17	114	**Muskegon**	1	Pere Marquette Park	Lake Michigan	17-Jun-15	816
18	115	**Ottawa**	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.

		County		Location	Water Body	Sampling Date	*E. coli* Test Results
19	116	**Schoolcraft**	1	Rogers Park-MDOT	Lake Michigan	23-Jun-15	451.4668
20	117	**St. Clair**	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
21	142	**Wayne**	1	Pier Park	Lake St. Clair	30-Jun-15	313.5261