MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
MARCH 2017

STAFF REPORT

MICHIGAN BEACH MONITORING YEAR 2016 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) began awarding funds from the Beaches Environmental Assessment and Coastal Health Act (BEACH Act) for monitoring Great Lakes beaches. In 2015, the MDEQ provided $500,000 for the purchase of rapid testing equipment and $58,000 for quantitative polymerase chain reaction (QPCR) training. In 2016, the MDEQ provided an additional $24,183 from the CMI-CWF for ongoing 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 offered reliable funding for the monitoring of surface water over a period of approximately 15 years. Since 2000, the MDEQ has awarded $1,862,205. This amount includes 13 awards totaling $200,000 (Appendix A) for monitoring beaches in 2015 and 2016 with a supplement of 12 more awards totaling $150,000 for testing selected beaches in 2016 with QPCR methods.

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 $3,291,494 including 24 awards in 2016 totaling $157,107 for beach monitoring using the culture-based and/or QPCR method (Appendix B).

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.

2. 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.

3. 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 1,165 routine sanitary surveys at 130 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 1,161 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, 2016) 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.

4. 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 614 identified public beaches on inland lakes and rivers and 614 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 2016, monitoring was conducted at 417 public beaches in 53 counties. Local beach managers collected 4,761 daily water samples and 188 (4 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 2016 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	2012	2013	2014	2015	2016	10-Year Average
Number of Beaches with Exceedances	114	98	76	98	80	94
Percent of Beaches with Exceedances	27	24	23	25	19	21
Number of Samples Exceeding WQS	224	162	129	212	188	191
Percent of Samples Exceeding WQS	4	3	4	5	4	4

Notification data in 2016 for beach actions are shown in Table 2. A total of 340 of the 417 public beaches (82 percent) that were monitored were open during the entire swimming season. The number of beaches reporting an action was 77. 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	2012	2013	2014	2015	2016	10-Year Average
Total Actions For All Beaches	166	112	112	147	122	128
Total of Monitored Beaches with an Action	112	84	74	96	77	84
Percent of Monitored Beaches with an Action	26	20	22	25	18	20
Total of Monitored Beaches with no Action	311	329	260	291	340	333
Percent of Monitored Beaches with no Action	74	80	78	75	82	72

Synopsis of Data from Great Lakes Beaches

In 2016, 2,527 daily samples were collected at 209 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 is similar as previous years while the number of beaches with an action has decreased (Table 4).

Table 3. Number of exceedances and actions for Great Lakes beaches monitored in 2016.

a. Number of exceedances Reported per Beach	b. Number of Beaches with Exceedances	**Total Number of Exceedances (a*b)**	c. Number of Closures of Advisories per Beach	d. Number of Beaches with Closures or Advisories	**Total Number of Closures or Advisories (c*d)**
1	17	**17**	1	26	**26**
2	10	**20**	2	10	**20**
3	7	**21**	3	3	**9**
4	4	**16**	4	1	**4**
5	2	**10**	5	3	**15**
6	2	**12**			
8	1	**8**			
10	1	**10**			
Total	44	**114**	**Total**	43	**74**

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

Year	2012	2013	2014	2015	2016	10-Year Average
GL Monitored Beaches with an Action	89	54	50	65	43	54
GL Monitored Beaches with no Action	171	185	110	138	166	165
Total GL Monitored Beaches	260	239	160	203	209	218

A summary of the 2016 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	305	119	4	14	**614**
Number of Monitored Beaches	2	52	127	19	4	5	**209**
Number of Beaches with exceedance	2	17	19	2	2	2	**44**
Number of exceedances	6	47	28	8	14	11	**114**
Number of Beaches with Actions	2	18	18	1	2	2	**43**
Number of Actions	4	28	25	1	10	6	**74**
Total Number of Days with Actions	69	89	34	2	70	9	**273**

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	10	16	10
Runoff	1	2	1
Sanitary Sewer Overflow	4	12	4
Wildlife	2	2	1
Other	1	1	1
Unknown	56	240	27
Total	**74**	**273**	**44***

*Multiple sources reported for some beaches.

Synopsis of Data from Inland Beaches

In 2016, 2,234 daily samples were collected at 208 inland lake public beaches in 37 counties in Michigan. Of the 34 beaches that reported actions, 6 beaches contributed 76 percent of the total days impacted by an action. The remaining 28 beaches issued an action lasting 1 to 20 days and contributed 24 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 2016 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 2016.

a. Number of exceedances Reported per beach	b. Number of Beaches with Exceedances	**Total Number of exceedances(a*b)**	c. number of actions per beach	d. number of beaches with actions	**Total Number of Actions (c*d)**
1	22	**22**	1	23	**23**
2	8	**16**	2	8	**16**
3	2	**6**			
4	1	**4**	3	3	**9**
7	1	**7**			
9	1	**9**			
10	1	**10**			
Total	**36**	**74**	**Total**	**34**	**48**

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

Year	2012	2013	2014	2015	2016	10-Year Average
Inland Lake Monitored Beaches with an Action	22	28	24	31	34	33
Inland Lake Monitored Beaches with no Action	137	146	150	153	174	168
Total Inland Lake Monitored Beaches	163	174	174	184	208	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 with reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Storm Water	12	21	10
Runoff	1	2	1
Wildlife	5	46	4
Unknown	30	323	21
Total	**48**	**392**	**36***

*Multiple sources reported for some beaches.

5. 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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USEPA. 2001. Protocol for Developing Pathogen TMDLs. January 2001. EPA 84/R-00-002.

USEPA. 2012. Recreational Water Quality Criteria. EPA-820-F-12-058

USEPA. 2014. National Beach Guidance and Required Performance Criteria for Grants.

EPA-823-B-14-001.

MDEQ. 2016. Sanitary Sewer Discharge Information.

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. 2016 BEACH Act Grants for Great Lakes Beaches.

Local Health Department	Allocated Amount
Allegan County Health Department	$5,000
Bay County Health Department	$5,000
Berrien County Health Department	$8,135
Central Michigan District Health Department	$7,688
Chippewa County Health Department	$6,344
Delta-Menominee District Health Department	$5,000
Detroit Belle Isle (DNR)	$2,500
District Health Department #2	$9,031
District Health Department #4	$7,688
District Health Department #10	$9,703
Huron County Health Department	$7,912
Luce-Mackinac-Alger-Schoolcraft District Health Department	$5,000
Macomb	$5,000
Marquette (City of Marquette)	$5,000
Monroe County Health Department	$5,000
Muskegon County Health Department	$7,912
Northwest Michigan Community Health Agency	$11,943
Ottawa County Health Department	$7,016
St. Clair County Health Department	$8,359
Sanilac County Health Department	$5,000
Van Buren/Cass District Health Department	$5,000
Watershed Center (Grand Traverse & Benzie-Leelanau)	$7,912
Wayne County Health Department	$2,500
Western Upper Peninsula District Health Department	$7,464
Total	$157,107

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 2016.

		County	Water Body		Location
1	1	**Alcona**	Alcona Pond	1	Alcona Park East Campground
	2	Alcona	Brownlee Lake	2	Village of Lincoln Park
	3	Alcona	Cedar Lake	3	Greenbush Township beach
	4	Alcona	Hubbard Lake	4	Caledonia Township Park
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**	Kawkawlin River	1	Boat Launch on Kawkawlin River
	16	Bay	Saginaw River	2	Vet's Park North Bay City
7	17	**Benzie**	Crystal Lake	1	Bellows Beach
	18	Benzie	Crystal Lake	2	Beulah Beach
	19	Benzie	Otter Creek	3	Sleeping Bear Dunes -Otter Creek
	20	Benzie	Lake Ann	4	Almira Township Park Beach
8	21	**Charlevoix**	Thumb Lake	1	Thumb Lake Beach
	22	Charlevoix	Walloon Lake	2	Melrose Township Park
9	23	**Chippewa**	Dukes Lake	1	Dukes Lake
	24	Chippewa	Kinross Lake	2	Kinross Lake
	25	Chippewa	Monocle Lake	3	Monocle Lake
10	26	**Clare**	Budd Lake	1	Wilson State Park
	27	Clare	Crooked Lake	2	Crooked Lake/Camp Neyati Beach
11	28	**Eaton**	Fox Memorial Park Beach	1	Fox Memorial Park
12	29	**Emmet**	Crooked Lake	1	Little Traverse Township Beach
	30	Emmet	Crooked Lake	2	Oden Beach
	31	Emmet	Pickerel Lake	3	Camp Petosega
	32	Emmet	Pickerel Lake	4	Channel Beach
	33	Emmet	Larks Lake	5	Poiner Picnic Park
	34	Emmet	Walloon Lake	6	Resort Pike Road Beach
13	35	**Gladwin**	Cedar River	1	Gladwin City Park
	36	Gladwin	Ross Lake	2	Beaverton City Park
14	37	**Gogebic**	Lake Gogebic	1	Gogebic County Park
	38	Gogebic	Lake Gogebic	2	Lake Gogebic State Park Beach
	39	Gogebic	Sunday Lake	3	Sunday Lake Beach
15	40	**Grand Traverse**	Duke Lake	1	Interlochen State Park
	41	Grand Traverse	Long Lake	2	Gilbert Beach
	42	Grand Traverse	Long Lake	3	Taylor Park
	43	Grand Traverse	North Twin Lake	4	Twin Lakes Camp Beach
16	44	**Houghton**	Lake Roland	1	Twin Lakes State Park

Appendix D.1. Inland Beaches Monitored 2016.

		County	Water Body		Location
17	45	**Ingham**	Burchfield Pond	1	Burchfield Park
	46	Ingham	Hawk Island	2	Hawk Island County Park
	47	Ingham	Lake Lansing	3	Lake Lansing Park South
	48	Ingham	Valhalla Pond	4	Valhalla Park
18	49	**Iosco**	Foote Pond	1	Old Orchard Park
	50	Iosco	Long Lake	2	Long Lake Public Access
	51	Iosco	Sand Lake	3	Sand Lake- Sand Lake Road Access
	52	Iosco	Van Ettan Lake	4	Oscoda Township Park- Van Ettan Lake
19	53	**Isabella**	Borrow Pit	1	Herrick County Park
	54	Isabella	Chippewa River	2	Deerfield County Park
	55	Isabella	Coldwater Lake	3	Coldwater Park
	56	Isabella	Halls Lake	4	Halls Lake
	57	Isabella	Littlefield Lake	5	Littlefield Lake
20	58	**Kalamazoo**	Blue Lake	1	Cold Brook County Park
	59	Kalamazoo	Campbell Lake	2	Robert Morris Park
	60	Kalamazoo	Eagle Lake	3	Fort Custer Recreation Area Beach
	61	Kalamazoo	Gull Lake	4	Ross Township Park
	62	Kalamazoo	Hogsett Lake	5	Prairie View County Park
	63	Kalamazoo	Long Lake	6	Ramona Park
	64	Kalamazoo	Sunset Lake	7	Sunset Lake Park
	65	Kalamazoo	Swimmers Lake	8	Markin Glen County Park
	66	Kalamazoo	Woods Lake	9	Woods Lake Beach
21	67	**Leelanau**	Lake Leelanau	1	Nedow's (Barthalomew) Beach
	68	Leelanau	Inland Lake-	2	Sleeping Bear Dunes-Little Glen Lake
	69	Leelanau	Inland lake-	3	Sleeping Bear Dunes-north Bar Lake
	70	Leelanau	South Bar Lake	4	South Bar Lake- South End
	71	Leelanau	Good Harbor Creek Outlet	5	Good Harbor Creek
22	72	**Livingston**	Bishop Lake	1	Brighton State Recreation Area
	73	Livingston	Chenango Lake	2	Camp Talahi
	74	Livingston	Church Lake	3	Wildwood Ranch
	75	Livingston	Cook Lake	4	Taylor's Beach
	76	Livingston	Kent Lake	5	Island Lake Recreation Area - Kent Lake
	77	Livingston	Lake Chemung	6	Lake Chemung Outdoor Resort
	78	Livingston			Waldenwoods Resort
	79	Livingston	Pleasant Lake	8	Howell Nature Center
	80	Livingston	Sandy Bottom Lake	9	Water's Edge Camp
	81	Livingston	Spring Mill Pond	10	Island Lake Recreation Area
	82	Livingston	Thompson Lake	11	Howell City Park
	83	Livingston	Cordley Lake	12	Varsity Day Camp* - PV
	84	Livingston	Haynor Lake	13	Hamburg Fitness Center & Camp*- PV
	85	Livingston	Patterson Lake	14	North Star Reach Camp*- PV
	86	Livingston	Winans Lake	15	Lakelands Golf & Country Club* - PV
23	87	**Macomb**	Stony Creek Lake-Impoundment	1	Stony Creek Metropark-Baypoint Beach
	88	Macomb	Stony Creek Lake-Impoundment	2	Stony Creek Metropark-Eastwood Beach
24	89	**Marquette**	Dead River Reservoir	1	Marquette Tourist Park Beach
25	90	**Oakland**	Adams Lake	1	Addison Oaks County Park
	91	Oakland	Big Seven Lake	2	Seven Lakes Park
	92	Oakland	Bush Lake	3	Holly Village Beach
	93	Oakland	Carter Lake	4	Thelma Spencer Park
	94	Oakland	Cass Lake	5	Dodge Park #4
	95	Oakland	Cass Lake	6	Keego Harbor City Beach
	96	Oakland	Cass Lake	7	Pontiac Yacht Club
	97	Oakland	Commerce Lake	8	Log Cabin Sub.
	98	Oakland	Crooked Lake	9	Independence Oaks County Park

	County	Water Body		Location
99	Oakland	Deer Lake	10	Independence Township Village Beach
100	Oakland	Fish Lake	11	Camp Ohiyesa - North
101	Oakland	Green Lake	12	Bay Court Park
102	Oakland	Green Lake	13	Camp Wathana
103	Oakland	Green Lake	14	Green Acres/ Green Valley Park
104	Oakland	Green Lake	15	Clear Water Resort
105	Oakland	Haas Lake	16	Haas Lake Park #1
106	Oakland	Haas Lake	17	Haas Lake Park #2
107	Oakland	Haas Lake	18	Haas Lake Park #3
108	Oakland	Haas Lake	19	Haas Lake Park #4
109	Oakland	Handsome Lake	20	Crossroads For Youth
110	Oakland	Harvery Lake	21	Harvery Lake Heights
111	Oakland	Heron Lake	22	Holly Recreation Area - Heron Beach
112	Oakland	Kent Lake	23	Kensington - Martindale Beach
113	Oakland	Kent Lake	24	Kensington- Maple Beach
114	Oakland	Long Lake	25	Christ the King Church Camp
115	Oakland	Loon Lake	26	Indianwood
116	Oakland	Loon Lake	27	Birch Park
117	Oakland	Lower Trout	28	Bald Mountain Recreation Area
118	Oakland	Mill Pond	29	Davisburg Village Beach (Hart Community Center)
119	Oakland	Orchard lake	30	Country Club (5000 W. Shore Dr)
120	Oakland	Orion Lake	31	Greens Park Village Beach
121	Oakland	Phillips Lake	32	Camp Dearborn - Lake #1
122	Oakland	Phillips Lake	33	Camp Dearborn - Lake #5
123	Oakland	Phipps Lake	34	Camp Maas - Rodecker
124	Oakland	Phipps Lake	35	Camp Maas- Sobell Beach
125	Oakland	Pontiac Lake	36	Pontiac Recreation Area
126	Oakland	Prince Lake	37	Upland Hills Farm
127	Oakland	Proud Lake	38	Proud Lake Recreation Area Campground
128	Oakland	Round Lake	39	Scripter Village Park Township Beach
129	Oakland	Sand Lake	40	Seven Lakes State Park - Campground
130	Oakland	Scotch Lake	41	Scotch Lake Residents
131	Oakland	Stewart Lake	42	Groveland Oaks County Park - Paradise Beach
132	Oakland	Stony Lake	43	Stony Lake Park
133	Oakland	Sun Lake	44	Finnish Day Camp
134	Oakland	Sylvan Lake	45	Ferndale
135	Oakland	Teeple Lake	46	Teeple Lake Recreation Area- Highland State Park
136	Oakland	Tipsico Lake	47	Brown's Landing Mobile Home Park
137	Oakland	Tommys Lake	48	Camp Agawam Boy Scout Camp
138	Oakland	Walled Lake	49	E.V. Mercer City Beach
139	Oakland	Walled Lake	50	Lakeshore Park
140	Oakland	Walnut Lake	51	Bloomfield Parks and Recreation/West Hills M.S.
141	Oakland	Woodhull Lake	52	Woodhull Lake Civic Association
142	Oakland	Allen Lake	53	Fox Bay Civic Association*-Pv
143	Oakland	Chalmers Lake	54	Woodcrest Farms Subdivision - Claridion Street*- PV
144	Oakland	Charlick Lake	55	Highland Hills - Charlick Outlot*- PV
145	Oakland	Childs Lake	56	Child Lake Estates*-PV
146	Oakland	Commerce Lake	57	Oakley Park*- PV
147	Oakland	Commerce Lake	58	Van Stone #1* - Private
148	Oakland	Crescent Lake	59	Crescent Lake Sub. Association*- PV
149	Oakland	Duck Lake	60	Axford Acres - Ramada Road*- PV
150	Oakland	Duck Lake	61	Seven Craven Association*- PV
151	Oakland	Eagle Lake	62	Eagle Lake Road- PV
152	Oakland	Eagle Lake	63	Lakeland Estates*- PV
153	Oakland	Flanders Lake	64	Flanders Lake Beach Association*- PV
154	Oakland	Gilbert Lake	65	Gilbert Lake Estates*- PV
155	Oakland	Gilbert Lake	66	Lone Pine Estates* - PV
156	Oakland	Schoolhouse Lake	67	Indian Manor Subdivision*- PV
157	Oakland	Shorewood Lake	68	Shorewood Hills*- PV
158	Oakland	Square Lake	69	Square Lake Hills Apt. #2 * PV
159	Oakland	Square Lake	70	Square Lake Hills Apt/Bloomfield Square Lake Condo* -PV
160	Oakland	Troy Lake	71	Troy Lake Estates*-PV

		County	Water Body		Location
	161	Oakland	Williams Lake	72	Crest Beach - Landowners* PV
	162	Oakland	Wolverine Lake	73	Spring Lake Heights*-PV
	163	Oakland	Wolverine Lake	74	Wolverine Lake Manor*-PV
	164	Oakland	Wormer Lake	75	Lake Angelus - Golfview Estates*-PV
26	165	**Ogemaw**	Grousehaven Lake	1	Rifle River Recreation Area Campground Beach
	166	Ogemaw	Rifle Lake	2	Shady Shores Park Subdivision Beach
	167	Ogemaw	Skidway Lake	3	Skidway Lake
	168	Ogemaw	Devoe Lake	4	Rifle River Recreation Area
	169	Ogemaw	Elbow Lake	5	Mills Township Park
	170	Ogemaw	Hardwood Lake	6	Hardwood Lake
27	171	**Ontonagon**	Lake Gogebic	1	Bergland Township Park
	172	Ontonagon	Lake Gogebic	2	Ontonagon County Park
28	173	**Osceola**	Big Lake	1	Crittenden Park
	174	Osceola	Center Lake	2	Center Lake Park
	175	Osceola	Muskegon River	3	Crawford Park
	176	Osceola	Rose Lake	4	Rose Lake County Park
29	177	**Oscoda**	Perry Lake	1	Comins Township Park
	178	Oscoda	Smith Lake	2	Oscoda County Park
30	179	**Otsego**	Big Lake	1	Big Lake
	180	Otsego	Otsego Lake	2	Arbutus Beach
	181	Otsego	Otsego Lake	3	Otsego County Park
	182	Otsego	Otsego Lake	4	Otsego State Park
	183	Otsego	Otsego Lake	5	WahWah Soo Beach
31	184	**Presque Isle**	Grand Lake	1	Grand Lake Public Access
32	185	**Roscommon**	Higgins Lake	1	North Higgins State Park
	186	Roscommon	Higgins Lake	2	South Higgins Lake State Park
	187	Roscommon	Houghton Lake	3	Denton Township Public Beach
	188	Roscommon	Houghton Lake	4	Houghton Lake Heights
	189	Roscommon	Lake St. Helen	5	Richfield Township Public Fishing Site
33	190	**St.Clair**	Emmett K.O.A Pond	1	Emmett K.O.A.
34	191	**Schoolcraft**	Quarry Lake	1	Quarry Beach
	192		Indian lake	2	Indian Lake State Park
35	193	**Washtenaw**	Bruin Lake	1	Pinckney Recreation Area
	194	Washtenaw	Half Moon Lake	2	Pinckney Recreation Area
	195	Washtenaw	Independence Lake	3	Independence Lake County Park
	196	Washtenaw	Silver Lake	4	Pinckney Recreation Area
	197	Washtenaw	Sugarloaf Lake	5	Waterloo Recreation Area
36	198	**Wayne**	Belleville Lake	1	Van Buren Township Park
	199	Wayne	Newburgh Lake	2	Newburgh and Sumac Pointes - Hines Park
	200	Wayne	Sherwood Lake	3	Sherwood Park
	201	Wayne	Blue Heron Pond	4	Blue Heron Condominiums Pond*- Private
	202	Wayne	Silver Spring Lake	5	Silver Spring Lake*- Private
37	203	**Wexford**	Billings Lake	1	Manton Park
	204	Wexford	Lake Cadillac	2	Cadillac City Dock
	205	Wexford	Lake Cadillac	3	City Park
	206	Wexford	Lake Cadillac	4	Kenwood Park
	207	Wexford	Lake Meauwataka	5	Colfax Township Park
	208	Wexford	Lake Mitchell	6	Mitchell State Park

Appendix D.2. Inland Beaches Not Monitored 2016.

		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
9	26	**Benzie**	Crystal Lake	1	South Shore near Beulah
	27	Benzie	Otter Creek beach	2	Otter Creek Beach
	28	Benzie	Otter Creek beach	3	Sleeping Bear Dunes national Lakeshore
	29	Benzie	Otter Creek beach	4	Sleeping Bear Dunes National Lakeshore
10	30	**Berrien**	Paw Paw Lake	1	Independence Bridge
	31	Berrien	St. Joseph River	2	Vet's Park South River Road
	32	Berrien	St. Joseph River	3	Niles - French Paper
	33	Berrien	St. Joseph River	4	Niles - Marmont

Appendix D.2. Inland Beaches Not Monitored 2016.

		County	Water Body		Location
11	34	**Branch**	First Lake	1	Quincy Park
	35	Branch	Messenger Lake	2	Memorial Park
12	36	**Calhoun**	Duck Lake	1	Springport
	37	Calhoun	Goguac Lake	2	Willard Beach in Battle Creek
13	38	**Charlevoix**	Huffman Lake	1	Hudson Township Park
14	39	**Cheboygan**	Black Lake	1	Bluffs Beach
	40	Cheboygan	Burt Lake	2	Burt Lake State Park
	41	Cheboygan	Burt Lake	3	Devoe Beach
	42	Cheboygan	Burt Lake	4	Hoppie's Launch
	43	Cheboygan	Burt Lake	5	Maple Bay Park
	44	Cheboygan	Douglass Lake	6	Ryder's Landing
	45	Cheboygan	Mullett Lake	7	Aloha State Park
	46	Cheboygan	Mullett Lake	8	Boy Scout Launch
	47	Cheboygan	Mullett Lake	9	Foot Road Park
	48	Cheboygan	Mullett Lake	10	Grand View Beach
	49	Cheboygan	Mullett Lake	11	Hobert's Launch
	50	Cheboygan	Mullett Lake	12	Orchard Beach
	51	Cheboygan	Mullett Lake	13	Polish Line Beach
	52	Cheboygan	Mullett Lake	14	Topinabee Park
	53	Cheboygan	Webber Lake	15	Webber Lake State Park
	54	Cheboygan	Black Lake	16	Black Lake S.F.C.G.
15	55	**Chippewa**	Caribou Lake	1	Caribou Lake
	56	Chippewa	Carp Lake	2	Trout Lake
	57	Chippewa	Soldiers Lake	3	Soldiers Lake
16	58	**Clare**	Arnold Lake	1	Arnold Lake Beach
	59	Clare	Bertha Lake	2	Bertha Lake Beach
	60	Clare	Cranberry lake	3	Cranberry Lake South
	61	Clare	Crooked Lake	4	Hillcrest Public Landing
	62	Clare	Doc and Tom Lake	5	Lake of the Pines
	63	Clare	Dodge Lake	6	Dodge Lake Beach
	64	Clare	George Lake	7	Lake George Public Landing
	65	Clare	Grass Lake	8	Sandy Shores Beach
	66	Clare	Hayes Lake (Cranberry Lake)	9	Oak Hills Children's Camp
	67	Clare	Lilly Lake	10	Lilly Lake Beach
	68	Clare	Long Lake	11	Long Lake Beach
	69	Clare	Muskegon River	12	Muskegon River Township Park
	70	Clare	Sand Lake	13	Sand Lake Beach
	71	Clare	Shingle Lake	14	Shingle Lake Park
	72	Clare	Silver Lake	15	Silver Lake Park
	73	Clare	Townline Lake	16	Cedar Shores Beach

Appendix D.2. Inland Beaches Not Monitored 2016.

		County	Water Body		Location
17	74	**Clinton**	Lake Ovid	1	Sleepy Hollow State Park Beach
18	75	**Eaton**	Grand River	1	Lincoln Brick Park
19	76	**Emmet**	Crooked Lake	1	Oden Roadside Park
20	77	**Genesee**	Barnum Lake	1	Barnum Lake
	78	Genesee	Buell Lake	2	Boat Ramp at Buell Lake
	79	Genesee	Byram Lake	3	Clover Beach
	80	Genesee	Copneconic Lake	4	Camp Copneconic
	81	Genesee	Copneconic Lake	5	Copneconic Day Beach
	82	Genesee	Covenant Hill Camp	6	Covenant Hill Camp
	83	Genesee	Fenton Lake	7	DNR Boat Dock-Fenton Lake
	84	Genesee	Fenton Lake	8	Fenton Lake Marina
	85	Genesee	Fenton Lake	9	Township Hall
	86	Genesee	Flagstone Point	10	Flagstone Point Beach
	87	Genesee	Golden Rod Lake	11	Golden Rod Beach
	88	Genesee	Hasler Lake	12	Beach at Hasler Lake
	89	Genesee	Hasler Lake	13	Hasler Lake Campground
	90	Genesee	Holloway Reservoir	14	Walleye Pike Dock
	91	Genesee	Holloway Reservoir	15	Buttercup Beach
	92	Genesee	Kelly Lake	16	Kelly Lake
	93	Genesee	Kearsley Reservoir	17	Kearsley Reservoir Beach
	94	Genesee	Lake Helene	18	Lake Helene Beach
	95	Genesee	Lake Linda	19	Lake Linda
	96	Genesee	Lake Ponemah	20	DNR Boat Launch at Lake Ponemah
	97	Genesee	Lake Shinangaug	21	Lake Shinangaug
	98	Genesee	Linden Mill Pond	22	Linden Mill Pond Beach
	99	Genesee	Lobdell Lake	23	DNR Boat Launch at Lobdell Lake
	100	Genesee	McCaslin Lake	24	McCaslin Lake Beach
	101	Genesee	McKane Lake	25	McKane Lake Beach
	102	Genesee	Mott Lake	26	Bluegill Boat Ramp
	103	Genesee	Mott Lake	27	Mott Lake Beach
	104	Genesee	Mott Lake Stepping Stone	28	Mott Lake Stepping Stone Beach
	105	Genesee	Mott Lake	29	Bluebell Beach
	106	Genesee	Myers Lake	30	Myers Lake
	107	Genesee	Otter Lake	31	Griswold Park
	108	Genesee	Pinewood Lake	32	Beach at Pinewood Lake
	109	Genesee	Silver Lake	33	City Park Beach
	110	Genesee	Silver Lake	34	Silver Lake Marina
	111	Genesee	Smokerise Lake	35	Smokerise Beach
	112	Genesee	Thread Lake	36	Thread Lake Beach
	113	Genesee	West Sister Lake	37	West Sister Lake
21	114	**Gladwin**	Cedar River	1	Cedar River Campground Beach
	115	Gladwin	Cedar River	2	Gladwin North Park

		County	Water Body		Location
	116	Gladwin	Flowing well/pond	3	Gilman Springs Swimming Area
	117	Gladwin	Hoister Lake	4	Hoister Lake Beach
	118	Gladwin	House Lake	5	House Lake
	119	Gladwin	Lake Four	6	Lake Four
	120	Gladwin	Lake Lancer	7	Sugar Springs/Lake Lancer
	121	Gladwin	Lyle Drain/Tobacco River	8	Lost Haven Beach
	122	Gladwin	Pratt Lake	9	Pratt Lake
	123	Gladwin	Secord Lake	10	Secord Lake
	124	Gladwin	Secord Lake	11	Secord Lake - East
	125	Gladwin	Secord Lake	12	West River Drive Boat Launch
	126	Gladwin	Tittabawassee River	13	Estey Road Access
	127	Gladwin	Tittabawassee River	14	Gilman Springs Canoe Launch
	128	Gladwin	Tittabawassee River	15	Good News Camp
	129	Gladwin	Tittabawassee River	16	Pine Street Public Access
	130	Gladwin	Trout Lake	17	Trout Lake SFCG
	131	Gladwin	Wiggins Lake North	18	Wiggins Lake Road to Boat Launch
	132	Gladwin	Wiggins Lake South	19	Clendening Road
	133	Gladwin	Wixon Lake	20	Wixon Lake - West
22	134	**Hillsdale**	Baw Beese Lake	1	Sandy Beach
	135	Hillsdale	Bird lake	2	Bird Lake Beach
23	136	**Iosco**	Chain Lake	1	Chain Lake Beach
	137	Iosco	Foote Pond	2	Footsite Park
	138	Iosco	Loon Lake	3	Loon Lake Park
24	139	**Isabella**	Millpond	1	Millpond Park
25	140	**Jackson**	Clark Lake	1	Clark Lake County Park
	141	Jackson	Clear Lake	2	Clear Lake County Park
	142	Jackson	Gilletts Lake	3	Gilletts Lake County Park
	143	Jackson	Grass Lake	4	Grass Lake County Park
	144	Jackson	Lime Lake	5	Lime Lake County Park
	145	Jackson	Little Wolf Lake	6	Little Wolf Lake County Park
	146	Jackson	Pleasant Lake	7	Pleasant Lake County Park & Campground
	147	Jackson	Portage Lake	8	Portage Lake County Park
	148	Jackson	Round Lake	9	Round Lake County Park
	149	Jackson	Swains Lake	10	Swains Lake County Park
	150	Jackson	Vandercook Lake	11	Vandercook Lake County Park
	151	Jackson	Vineyard Lake	12	Vineyard Lake County Park
26	152	**Kalamazoo**	Timber Lake	13	Timber Lake Campground
27	153	**Kent**	Lincoln Lake	1	Lincoln Lake Baptist Camp
	154	Kent	Lincoln Lake	2	Lincoln Pines Resort

		County	Water Body		Location
	155	Kent	Long Lake	3	Long Lake County Park
	156	Kent	Myers Lake	4	Myers Lake County Park
	157	Kent	Reeds Lake	5	Collins Park
	158	Kent	Scalley Lake	6	Scalley Lake Park
	159	Kent	Versluis Lake	7	Versluis Park
	160	Kent	Wabasis Lake	8	Wabasis Lake County Park
28	161	**Leelanau**	Lake Leelanau	1	Leelanau Township Park Beach
	162	Leelanau	Lake Leelanau	2	Popp Road End
29	163	**Livingston**	Dibrova Lake	1	Green Valley Camp
	164	Livingston	Bentley Lake	2	Camp Innisfree
30	165	**Luce**	Bass Lake	1	Bass Lake SFC
	166	Luce	Bodi Lake	2	Bodi Lake SFC
	167	Luce	Culhane Lake	3	Culhane Lake SFC
	168	Luce	HeadQuarters SFC	4	HeadQuarters SFC
	169	Luce	Holland Lake SFC	5	Holland Lake SFC
	170	Luce	Muskallonge Lake	6	Muskallonge Lake SFC
	171	Luce	Perch Lake	7	Perch Lake SFC
	172	Luce	Pretty Lake	8	Pretty Lake SFC
	173	Luce	Luke County Park	9	Luce County Park Campground
	174	Luce	Pike Lake	10	Pike Lake SFC
31	175	**Manistee**	Bear Lake	1	Bear Lake-13 mile road Beach
	176	Manistee	Bear Lake	2	bear Lake-7tth Street Beach
	177	Manistee	Bear Lake	3	Bear Lake- Hopkins Park
	178	Manistee	Bear Lake	4	Bear Lake-Myers Road Beach
	179	Manistee	Bear Lake	5	Bear Lake _Pleasanton Twn.Park Beach
	180	Manistee	Bear Lake	6	Bear Lake-South Shore Beach
32	181	**Mackinac**	Brevort Lake	1	Brevort Lake Campground Beach
	182	Mackinac	Garnet Lake	2	Garnet Lake SFC
	183	Mackinac	Little Brevort Lake	3	Little Brevort Lake State Campground North
	184	Mackinac	Little Brevort Lake	4	Little Brevort Lake State Campground South
	185	Mackinac	Milakokia Lake	5	Milakokia Lake SFC
	186	Mackinac	Millecoquins Lake	6	Millecoquins Lake SFC
	187	Mackinac	South Manistique Lake	7	South Manistique Lake SFC
33	188	**Menominee**	Hermansville lake	1	Hermansville Beach
	189	Menominee	Shakey Lakes	2	Shakey Lakes Campground
34	190	**Midland**	Sandord Lake	1	Sanford Lake Park

		County	Water Body		Location
35	191	**Monroe**	Camp Lord Willing Pond	1	Camp Lord Willing
	192	Monroe	Covered Wagon Campground Pond	2	Covered Wagon Campground
	193	Monroe	Heath Beach Pond	3	Heath Beach
	194	Monroe	K.C. Campground Pond	4	K.C. Campground
	195	Monroe	Man-Made Pond	5	Totem Pole Campground Pond
	196	Monroe	Monroe KOA Campground Pond	6	Monroe K.O.A. Campground
	197	Monroe	Pirollis Campground Pond	7	Pirolli's Campground
	198	Monroe	The Vine Campground Pond	8	The Vine
	199	Monroe	Wilderness Retreat Campground Pond	9	Wilderness Retreat Campground
36	200	**Montmorency**	Clear Lake	1	Clear Lake Day Use
	201	Montmorency	Clear Lake	2	Clear Lake State Park
	202	Montmorency	Crooked Lake	3	Crooked Lake Beach
	203	Montmorency	East Twin Lake	4	East Twin Beach/Albert Township Park
	204	Montmorency	Ess Lake	5	Ess Lake State Campground
37	205	**Muskegon**	Goose Egg Lake	1	Kattulpa
	206	Muskegon	Bear Lake	2	Laketon Township Beach
	207	Muskegon	Big Blue Lake	3	Blue Lake County Park Beach
	208	Muskegon	Duck Lake	4	Duck Lake State Park Beach
	209	Muskegon	Fox Lake	5	Fox Lake Park Beach
	210	Muskegon	Half Moon Lake	6	Moore County Park Beach
	211	Muskegon	Mona Lake	7	Mona Lake Park Beach
	212	Muskegon	Mona Lake	8	Ross Park Beach
	213	Muskegon	Muskegon Lake	9	Harbor Towne Beach
	214	Muskegon	Muskegon Lake	10	Muskegon State Park- Muskegon Lake Side
	215	Muskegon	Muskegon Lake	11	Water Sports Park
	216	Muskegon	Twin Lake	12	Twin Lake County Park Beach
	217	Muskegon	West Lake	13	Paddley Park
	218	Muskegon	White Lake	14	Maple Park
	219	Muskegon	Wolf Lake	15	Sunset Park
	220	Muskegon	Wolf Lake	16	Wolf Lake County Park
38	221	**Oakland**	Bass Lake	1	Idlewild Subdivision
	222	Oakland	Bogie Lake	2	Bogie Lake Property Owners - Beryl Drive
	223	Oakland	Bogie Lake	3	Pinecrest Shores
	224	Oakland	Brendel Lake	4	Brendle Heights - Hillwood
	225	Oakland	Carpenter Lake	5	Lakeview Recreation
	226	Oakland	Carpenter Lake	6	Silver Valley Subdivision

	County	Water Body		Location
227	Oakland	Cass Lake	7	Keego Harbor Trailer Park
228	Oakland	Cass Lake	8	Cass Lake Woods
229	Oakland	Cass Lake	9	Sylvan-on-the-Lakes
230	Oakland	Cass Lake	10	Willow Beach Subdivision
231	Oakland	Cedar Island Lake	11	Cedar Crest Subdivision
232	Oakland	Cedar Island Lake	12	Sunset Subdivision
233	Oakland	Clear Lake	13	Lakeland Improvement Association -Keith Street
234	Oakland	Charnwood Lake	14	Charnwood
235	Oakland	Cranberry Lake	15	Cranberry Lake Village
236	Oakland	Crescent Lake	16	Crescent Highlands
237	Oakland	Crescent Lake	17	Crescent Lake Park
238	Oakland	Darb Lake	18	Mission Springs Subdivision
239	Oakland	Davis Lake	19	Meagher Park/Woodland Manor
240	Oakland	Deer Lake	20	Deer Lake Estates
241	Oakland	Ekelund Lake	21	Camp Gordanwood
242	Oakland	Elizabeth Lake	22	ECHPOA
243	Oakland	Elizabeth Lake	23	Cass-Elizabeth Heights
244	Oakland	Elizabeth Lake	24	Elizabeth Lake Estates Improvement Assocl
245	Oakland	Elizabeth Lake	25	Elizabeth Lakeshore
246	Oakland	Elizabeth Lake	26	Elizabeth Shores
247	Oakland	Elizabeth Lake	27	Rangate Park
248	Oakland	Elizabeth Lake	28	Terrace
249	Oakland	Elizabeth Lake	29	Walters
250	Oakland	Emerald Lake	30	Emerald Lake Homeowners Assoc. - Lyster Road
251	Oakland	Fox Lake	31	Cloister-on-the-Lakes
252	Oakland	Geneva Lake	32	Lakewood Farms - Crocus Street
253	Oakland	Geneva Lake	33	Lakewood Farms - Sharon Street
254	Oakland	Hammond Lake	34	Hammond Estates
255	Oakland	Harvey Lake	35	Harvey Lake Estates
256	Oakland	Huntoon Lake	36	Burlingham Lake Park I
257	Oakland	Huntoon Lake	37	Burlingham Lake Park II
258	Oakland	Huntoon Lake	38	Broadway Civic Association
259	Oakland	Huntoon Lake	39	Huntoon Village
260	Oakland	Indian Lake	40	Indian Lake Improvement Association
261	Oakland	Lakeville Lake	41	Doll's Dock (Skip's Landing)
262	Oakland	Long Lake	42	Annex 1
263	Oakland	Long Lake	43	Bunny Run C.C.
264	Oakland	Long Lake	44	Twin Shores Subdivision
265	Oakland	Loon Lake	45	Sandy Beach
266	Oakland	Lotus Lake	46	Harris Park
267	Oakland	Lotus Lake	47	Lotus Park
268	Oakland	Lotus Lake	48	Mountain View
269	Oakland	Lower Straits	49	Maple Point

	County	Water Body		Location
270	Oakland	Lower Straits Lake	50	Lower Straits Beach Club
271	Oakland	Maceday Lake	51	Mountain View C.C. Subdivision
272	Oakland	Maceday Lake	52	Whitfield-Maceday Association - North
273	Oakland	Maceday Lake	53	Whitfield-Maceday Association - South
274	Oakland	Marion Lake	54	Locklin Pines Association
275	Oakland	Meadow Lake	55	Meadow Lake Association
276	Oakland	Middle Straits Lake	56	Crystal Echo
277	Oakland	Middle Straits Lake	57	Crystal Echo (the point)
278	Oakland	Middle Straits Lake	58	Stony Beach
279	Oakland	Middle Straits Lake	59	Tripps Subdivision Park
280	Oakland	Middle Straits Lake	60	Twin Beach Park
281	Oakland	Middle Straits Lake	61	West Acres
282	Oakland	Morgan Lake	62	Lake Angelus Lakeview Estates
283	Oakland	Mud Lake	63	Rose Hill Center
284	Oakland	Narrin Lake	64	Camp Narrin
285	Oakland	Neva Lake	65	Lakewood Village Subdivision
286	Oakland	Oakland Lake	67	Bird Island Subdivision
287	Oakland	Oakland Lake	68	Lake Oakland Heights
288	Oakland	Oakland Lake	69	Lake Oakland Shores
289	Oakland	Orchard Lake	70	St. Mary's Park
290	Oakland	Orion Lake	71	Lake Orion Heights
291	Oakland	Orion Lake	72	Sunset Club
292	Oakland	Pine Lake	73	Pine Lake Manor
293	Oakland	Reed Lake	74	Reed Lake Property Owners
294	Oakland	Round Lake	75	Family Park
295	Oakland	Rowe Lake	76	Jacksina Subdivision
296	Oakland	Silver Lake	78	Silver Hill Road
297	Oakland	Sherwood Lake	79	Ledgewood
298	Oakland	Sherwood Lake	80	Sherwood Boat Ramp
299	Oakland	Sherwood Lake	81	Sherwood Property Owners
300	Oakland	Square Lake	82	Pleasant View Subdivision
301	Oakland	Square Lake	83	Pleasant View Subdivision- Kempster St.
302	Oakland	Sugden Lake	84	Oakridge Subdivision
303	Oakland	Sylvan Lake	85	Cunningham Park
304	Oakland	Sylvan Lake	86	Pioneer Highlands
305	Oakland	Sylvan Lake	87	Sylvan Shores Improvement Association
306	Oakland	Sylvan Lake	88	Lakeview
307	Oakland	Tan Lake	89	Mary K. Subdivision
308	Oakland	Union Lake	90	Alpha Beach
309	Oakland	Union Lake	91	Burley & Barnsbury Streets
310	Oakland	Union Lake	92	Union Lake Beach Club
311	Oakland	Union Lake	93	Union Lake Heights Subdivision #2
312	Oakland	Upper Pettibone Lake	94	657 Dunleavy
313	Oakland	Upper Straits Lake	95	Banker's Subdivision

		County	Water Body		Location
	314	Oakland	Upper Straits Lake	96	Bayside Beach Association
	315	Oakland	Upper Straits Lake	97	Outlet A
	316	Oakland	Upper Straits Lake	98	Shady Beach
	317	Oakland	Van Norman Lake	99	Waterford Hill
	318	Oakland	Voorheis Lake	100	Keatington Subdivision - Eaton Gate - off Baldwin
	319	Oakland	Voorheis Lake	101	Keatington Subdivision - Joslyn Court
	320	Oakland	Walled Lake	102	Beachwalk Apartments
	321	Oakland	Walnut Lake	103	Finnish American Club of Detroit
	322	Oakland	Walnut Lake	104	Shenandoah Farms Association
	323	Oakland	Walnut Lake	105	Walnut Lake Park
	324	Oakland	Walnut Lake	106	North Cove
	325	Oakland	Walters Lake	107	Sunny Beach #1 - Eston Road
	326	Oakland	Walters Lake	108	Sunny Beach #2 - Clarkston Road
	327	Oakland	Watkins Lake	109	Heitch Street
	328	Oakland	Watkins Lake	110	Lanarh Street
	329	Oakland	Watkins Lake	111	Whitney Street
	330	Oakland	Waumegah Lake	112	Lake Waumegah Homeowners Association
	331	Oakland	Whipple Lake	113	Whipple Shores Subdivision
	332	Oakland	White Lake	114	Rolling Acres
	333	Oakland	White Lake	115	Stanley Beach
	334	Oakland	Wildwood Lake	116	Holly Recreation Area - Wildwood Beach
	335	Oakland	Wing Lake	117	Wing Lake Farms Association
	336	Oakland	Wing Lake	118	Wing Lake Property Owners Association
	337	Oakland	Walnut Lake	119	Finnish American Club of Detroit
	338	Oakland	Walnut Lake	120	Shenandoah Farms Association
	339	Oakland	Walnut Lake	121	Walnut Lake Park
39	340	**Ogemaw**	Grousehaven Lake	1	Rifle River Recreation Area Day Use Area
	341	Ogemaw	Lake George	2	Lake George Campground
40	342	**Osceola**	Center Lake	1	Center Lake Bible Camp
	343	Osceola	Center Lake	2	Kettunen Center
	344	Osceola	Diamond Lake	3	Diamond Lake
	345	Osceola	Diamond Lake	4	DNR Access Diamond Lake
	346	Osceola	Hicks Lake	5	DNR Access Hicks Lake
	347	Osceola	McCoy Lake	6	DNR Access McCoy Lake
	348	Osceola	Muskegon River	7	City of Evart Campground
	349	Osceola	Muskegon River	8	Hersey Road Access
	350	Osceola	Rose Lake	9	Rose Lake Youth Camp
	351	Osceola	Sunrise Lake	10	Sunrise Lake Park
	352	Osceola	Todd Lake	11	DNR Access Todd Lake

		County	Water Body		Location
	353	Osceola	Wells Lake	12	DNR Access Wells Lake
41	354	**Oscoda**	Mio Pond	1	Mio Pond Campground
42	355	**Otsego**	Bear Lake	1	Bear Lake State Forest Campground
	356	Otsego	Dixon Lake	2	Dixon Lake Access
	357	Otsego	Otsego Lake	3	Otsego Lake State Park North
	358	Otsego	Pickeral Lake	4	Pickeral Lake State Forest Campground
43	359	**Ottawa**	Lake Macatawa	1	Fallen Leaf Park
	360	Ottawa	Crockery Lake	2	Grose Park
	361	Ottawa	Georgetown Lake	3	Georgetown Community Park
	362	Ottawa	Lake Macatawa	4	Dunton Park
	363	Ottawa	Lake Macatawa	5	Holland State Park
	364	Ottawa	Maplewood Lake	6	Maplewood Lake Park
	365	Ottawa	Pottawattomie Bayou	7	Pottawattomie Park
	366	Ottawa	Spring Lake	8	Lakeside Beach
44	367	**Presque Isle**	Black Lake	1	Onaway State Park
	368	Presque Isle	Grand Lake	2	Grand Lake Northwest
	369	Presque Isle	Lake May	3	Lake May Public Access
	370	Presque Isle	Ocquoec River	4	Millersburg Park
	371	Presque Isle	Ocquoec River	5	Ocquoec Falls Park
	372	Presque Isle	Shoepac Lake	6	Shoepac Lake Campground
	373	Presque Isle	Sunken Lake	7	Sunken Lake County Park
	374	Presque Isle	Tomahawk Lake	8	Tomahawk Lake Campground
45	375	**Roscommon**	Backus Pond	1	Backus Township Park
	376	Roscommon	Bambi Lake/Sinkhole Lake	2	Bambi Lake Camp
	377	Roscommon	Higgins Lake	3	Beaver Creek Road End
	378	Roscommon	Higgins Lake	4	DNR Public Fishing Site
	379	Roscommon	Higgins Lake	5	Gerrish Township Park
	380	Roscommon	Higgins Lake	6	Higgins Lake Public Fishing Site
	381	Roscommon	Higgins Lake	7	Kelly Beach
	382	Roscommon	Higgins Lake	8	Phoenix Park
	383	Roscommon	Higgins Lake	9	Sam-O-Set Road End
	384	Roscommon	Houghton Lake	10	Houghton Lake DNR Boat Launch and Park
	385	Roscommon	Houghton Lake	11	Houghton Lake Public Fishing Site
	386	Roscommon	Houghton Lake	12	Houghton Lake State Forest Campground
	387	Roscommon	Houghton Lake	13	Old 27 DNR Access
	388	Roscommon	Owens Lake	14	Camp Co-Be-Ac
46	389	**Saginaw**	Haithco Lake	1	Haithco Recreation Area

		County	Water Body		Location
	390	Saginaw	Lake of Dreams	2	Lake of Dreams Campground
47	391	**Sanilac**	Forester Creek	1	Forester Creek
48	392	**Schoolcraft**	Clear Lake	1	Clear Lake Camp
	393	Schoolcraft	Clear Lake	2	Cowell Lake Campground
	394	Schoolcraft	Gulliver Lake	3	Gulliver Lake
	395	Schoolcraft	Swan lake	4	Swan Lake
	396	Schoolcraft	Triangle Lake	5	Triangle Lake Site #1
	397	Schoolcraft	Triangle Lake	6	Triangle Lake Site #2
49	398	**St. Clair**	Fort Trodd Lake	1	Fort Trodd Campground North
	399	St. Clair	Fort Trodd Lake	2	Fort Trodd South
	400	St. Clair	Kimball Pond	3	Kimball Township Pond
	401	St. Clair	Ruby Campground Pond	4	Ruby Campground
50	402	**St. Joseph**	Cade Lake	1	Cade Lake Beach
	403	St. Joseph	Palmer Lake	2	Palmer Lake Beach
	404	St. Joseph	Sand Lake	3	Nottawa Park
51	405	**Tuscola**	Murphy Lake	1	Murphy Lake
52	406	**Wayne**	Newburgh Lake	1	Newburgh Lake

Appendix E.1. Great Lakes Beaches Monitored 2016.

		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
	34	Benzie	Lake Michigan	2	Sleeping Bear Dunes- Esch Road Beach
	35	Benzie	Lake Michigan	3	Sleeping Bear Dunes- Platte point Bay
	36	Benzie	Lake Michigan	4	Sleeping Bear Dunes- Platte River Outlet

		County	Water Body		Location
9	37	**Berrien**	Lake Michigan	1	Cherry Beach
	38	Berrien	Lake Michigan	2	Grand Beach
	39	Berrien	Lake Michigan	3	Hagar Township Park
	40	Berrien	Lake Michigan	4	Jean Klock Park
	41	Berrien	Lake Michigan	5	Lions Park
	42	Berrien	Lake Michigan	6	Michiana Village
	43	Berrien	Lake Michigan	7	New Buffalo City
	44	Berrien	Lake Michigan	8	Silver Beach
	45	Berrien	Lake Michigan	9	Tiscornia Park
	46	Berrien	Lake Michigan	10	Union Pier - Townline Road
	47	Berrien	Lake Michigan	11	Warren Dunes Beach
	48	Berrien	Lake Michigan	12	Lincoln Township Park
	49	Berrien	Lake Michigan	13	Weko Beach
	50	Berrien	Lake Michigan	14	Rocky Gap
10	51	**Charlevoix**	Lake Charlevoix	1	Elm Point Beach
	52	Charlevoix	Lake Charlevoix	2	Fisherman's Island State Park
	53	Charlevoix	Lake Charlevoix	3	Young State Park Beach
	54	Charlevoix	Lake Michigan	4	Lake Michigan Beach
	55	Charlevoix	Lake Michigan	5	Whiting Park Beach
	56	Charlevoix	Lake Charlevoix	6	Depot Beach
	57	Charlevoix	Lake Charlevoix	7	East Jordan Tourist Park
	58	Charlevoix	Lake Charlevoix	8	Ferry Beach
	59	Charlevoix	Lake Charlevoix	9	Glenwood Beach
	60	Charlevoix	Lake Charlevoix	10	Hayes Township Park
	61	Charlevoix	Lake Charlevoix	11	Peninsula Beach
	62	Charlevoix	Lake Charlevoix	12	Tannery Park
	63	Charlevoix	Lake Charlevoix	13	Washington Street Beach
	64	Charlevoix	Lake Michigan	14	Michigan Avenue
	65	Charlevoix	Lake Michigan	15	Norwood Township Park
11	66	**Chippewa**	Lake Superior	1	Brimley State Park
	67	Chippewa	Lake Superior	2	Sherman Park
	68	Chippewa	St. Mary's River	3	Four Mile Beach
	69	Chippewa	St. Mary's River	4	Sugar Island Township Beach
12	70	**Delta**	Lake Michigan	1	Escanaba Bathing Beach
	71	Delta	Lake Michigan	2	Gladstone Bathing Beach/Van Cleve Park
13	72	**Emmet**	Lake Michigan	1	Petoskey State Park
	73	Emmet	Lake Michigan	2	Zorn Park - Harbor Springs
	74	Emmet	Lake Michigan	3	Cross Village Beach
	75	Emmet	Lake Michigan	4	Mackinaw City Beach #1
	76	Emmet	Lake Michigan	5	Mackinaw City Beach #2

		County	Water Body		Location
	77	Emmet	Lake Michigan	6	Magnus Park
	78	Emmet	Lake Michigan	7	Middle Village Park
	79	Emmet	Lake Michigan	8	Readmond Township Beach
	80	Emmet	Lake Michigan	9	Sturgeon Bay Township Beach
	81	Emmet	Lake Michigan	10	Wilderness State Park
	82	Emmet	Lake Michigan	11	Zoll Street Beach
14	83	**Grand**	Grand Traverse Bay-East	1	Bayside Acme Township Park
	84	Grand Traverse	Grand Traverse Bay-East	2	East Bay Park (Milliken Park)
	85	Grand Traverse	Grand Traverse Bay-East	3	Traverse City State Park
	86	Grand Traverse	Grand Traverse Bay-West	4	Bryant Park Beach
	87	Grand Traverse	Grand Traverse Bay-West	5	Clinch Park
	88	Grand Traverse	Grand Traverse Bay-East	6	Sayler Park
	89	Grand Traverse	Grand Traverse Bay-West	7	West End Beach
	90	Grand Traverse	Grand Traverse Bay-West	8	Sunset Park
	91	Grand Traverse	Grand Traverse Bay-West	9	Senior Center
	92	Grand Traverse	Grand Traverse (West Bay)	10	Volleyball Court Beach
15	93	**Houghton**	Lake Superior	1	Agate Beach
	94	Houghton	Lake Superior	2	McLain State Park Beach
	95	Houghton	Pike Bay at Portage Canal/Lake Superior	3	Chassell Beach
	96	Houghton	Portage Canal/Lake Superior	4	Houghton City Beach
	97	Houghton	Portage Canal/Lake Superior	5	Hancock City Beach
	98	Houghton	Portage Canal/Lake Superior	6	Sandy Bottom Beach/Dollar Bay
	99	Houghton	Torch Lake/Portage Canal/Lake Superior	7	Lake Linden Campground Beach
16	100	**Huron**	Lake Huron	1	Bird Creek County Park
	101	Huron	Lake Huron	2	Caseville County Park
	102	Huron	Lake Huron	3	Harbor Beach City Park
	103	Huron	Lake Huron	4	Jenks County Park
	104	Huron	Lake Huron	5	Lighthouse County Park
	105	Huron	Lake Huron	6	McGraw County Park
	106	Huron	Lake Huron	7	Oak Beach County Park
	107	Huron	Lake Huron	8	Philp County Park
	108	Huron	Lake Huron	9	Port Crescent State Park - Camping Area
	109	Huron	Lake Huron	10	Port Crescent State Park - Day Use
	110	Huron	Lake Huron	11	Sleeper State Park
	111	Huron	Lake Huron	12	Thompson Park
	112	Huron	Lake Huron	13	Veterans Park
17	113	**Iosco**	Lake Huron	1	Au Sable Township Park
	114	Iosco	Lake Huron	2	MDOT Roadside Park - Three Mile Park

		County	Water Body		Location
	115	Iosco	Lake Huron	3	Oscoda Township Beach
	116	Iosco	Lake Huron	4	Tawas Point State Park Campground
	117	Iosco	Lake Huron	5	Tawas Point State Park-Day Use area
	118	Iosco	Lake Huron (Tawas Bay)	6	Gateway Park Beach
	119	Iosco	Tawas Bay	7	East Tawas City Park
	120	Iosco	Tawas Bay	8	Tawas City Park
	121	Iosco	Lake Huron	9	Alabaster Township Douglas Drive Beach Use Area
18	122	**Keweenaw**	Lake Superior	1	Eagle Harbor Beach
	123	Keweenaw	Lake Superior	2	Eagle River Beach
19	124	**Leelanau**	Grand Traverse Bay-West	1	Elmwood/Greilikville Park and Beach
	125	Leelanau	Grand Traverse Bay-West	2	Northport Bay Marina
	126	Leelanau	Grand Traverse Bay-West	3	Suttons Bay Marina Park and Beach South
	127	Leelanau	Grand Traverse Bay-West	4	Suttons Bay Park
	128	Leelanau	Lake Michigan	5	Empire Municipal Beach
	129	Leelanau	Grand TraverseBay- West	6	Omena Beach and Park
	130	Leelanau	Lake Michigan	7	Sleeping Bear Dunes- CR 669 Good
	131	Leelanau	Lake Michigan	8	Sleeping Bear Dunes- CR 651 Good
	132	Leelanau	Lake Michigan	9	Sleeping Bear Dunes- Glen Haven Beach
	133	Leelanau	Lake Michigan	10	Sleeping Bear Dunes- North Bar Lake MI Beach
20	134	**Mackinac**	Lake Huron	1	Kiwanis Beach
	135	Mackinac	Lake Michigan	2	US-2 Sand Dunes Beach (East of Brevort)
21	136	**Macomb**	Lake St. Clair	1	H.C.M.A. - Lake St. Clair Metropark Beach
	137	Macomb	Lake St. Clair	2	New Baltimore Park Beach
	138	Macomb	Lake St. Clair	3	St. Clair Shores Memorial Park Beach
22	139	**Manistee**	Lake Michigan	1	Arcadia Park
	140	Manistee	Lake Michigan	2	Bar Lake Outlet
	141	Manistee	Lake Michigan	3	Fifth Avenue Beach
	142	Manistee	Lake Michigan	4	First Street Beach
	143	Manistee	Lake Michigan	5	Magoon Creek
	144	Manistee	Lake Michigan	6	Onekama Township Beach
	145	Manistee	Lake Michigan	7	Orchard Beach State Park
	146	Manistee	Lake Michigan	8	Pierport Township Beach
	147	Manistee	Lake Michigan	9	Sundling Park
23	148	**Marquette**	Lake Superior	1	Marquette South Beach

		County	Water Body		Location
	149	Marquette	Lake Superior	2	McCarty's Cove
	150	Marquette	Lake Superior	3	North Beach
	151	Marquette	Lake Superior	4	North of Picnic Rocks
	152	Marquette	Lake Superior	5	Shiras Park Beach
24	153	**Mason**	Lake Michigan	1	Bass Lake Outlet Beach
	154	Mason	Lake Michigan	2	Buttersville Park Beach
	155	Mason	Lake Michigan	3	Ludington State Park Campground Beach
	156	Mason	Lake Michigan	4	South Pier Beach
	157	Mason	Lake Michigan	5	South Summit Beach - Sunset Boulevard
	158	Mason	Lake Michigan	6	Stearns Park Beach
	159	Mason	Lake Michigan	7	Summit Township Beach
25	160	**Menominee**	Lake Michigan	1	Henes Park
	161	Menominee	Lake Michigan	2	Memorial Beach
26	162	**Monroe**	Lake Erie	1	Luna Pier City Beach
	163	Monroe	Lake Erie	2	Sterling State Park
27	164	**Muskegon**	Lake Michigan	1	Bronson/Kruse Park
	165	Muskegon	Lake Michigan	2	Meinert County Park
	166	Muskegon	Lake Michigan	3	Muskegon State Park
	167	Muskegon	Lake Michigan	4	P.J. Hoffmaster State Park - Public Beach Area
	168	Muskegon	Lake Michigan	5	Pere Marquette Park
	169	Muskegon	Lake Michigan	6	Lake Harbor Park
	170	Muskegon	Lake Michigan	7	Lighthouse/Sylvan Beach
	171	Muskegon	Lake Michigan	8	Medbury Park Beach
	172	Muskegon	Lake Michigan	9	Muskegon State Park- North Campground Beach
	173	Muskegon	Lake Michigan	10	Old Channel Beach
	174	Muskegon	Lake Michigan	11	P.J. Hoffmaster State Park- Campground
	175	Muskegon	Lake Michigan	12	Pioneer County Park
	176	Muskegon	Lake Michigan	13	Duck Lake Channel Beach
28	177	**Oceana**	Lake Michigan	1	Claybanks Township Park
	178	Oceana	Lake Michigan	2	Lighthouse Beach at Silver Lake State Park
	179	Oceana	Lake Michigan	3	Mears State Park
	180	Oceana	Lake Michigan	4	Whiskey Creek
	181	Oceana	Stony Lake and Lake Michigan	5	Stony Lake Channel
29	182	**Ontonagon**	Lake Superior	1	Ontonagon Township Park and Campground

		County	Water Body		Location
	183	Ontonagon	Lake Superior	2	Porcupine Mountains State Park- Union Bay
30	184	**Ottawa**	Lake Michigan	1	Grand Haven State Park
	185	Ottawa	Lake Michigan	2	Grand Haven City Beach
	186	Ottawa	Lake Michigan	3	Holland State Park
	187	Ottawa	Lake Michigan	4	Tunnel Park
	188	Ottawa	Lake Michigan	5	Windsnest Park
31	189	**Sanilac**	Lake Huron	1	Forester County Park
	190	Sanilac	Lake Huron	2	Forestville Beach
	191	Sanilac	Lake Huron	3	Lexington Beach
	192	Sanilac	Lake Huron	4	Lexington County Park
	193	Sanilac	Lake Huron	5	Port Sanilac Park
32	194	**Schoolcraft**	Lake Michigan	1	Public Shoreline Beach-Thompson
	195	Schoolcraft	Lake Michigan	2	Rogers Park-MDOT
33	196	**St. Clair**	Lake Huron	1	Lakeport State Campground
	197	St. Clair	Lake Huron	2	Conger-Lighthouse Beach
	198	St. Clair	Lake Huron	3	Fort Gratiot County Park
	199	St. Clair	Lake Huron	4	Holland Road Beach
	200	St. Clair	Lake Huron	5	Lakeside Beach
	201	St. Clair	Lake Huron	6	Keewadhin Road Beach
	202	St. Clair	St. Clair River	7	Chrysler Park Beach
	203	St. Clair	St. Clair River	8	Marine City Beach
34	204	**Van Buren**	Lake Michigan	1	Covert Township Park Beach
	205	Van Buren	Lake Michigan	2	South Haven North Beach
	206	Van Buren	Lake Michigan	3	South Haven South Beach
	207	Van Buren	Lake Michigan	4	Van Buren State Park Beach
35	208	**Wayne**	Detroit River	1	Belle Isle Beach
	209	Wayne	Lake St. Clair	2	Pier Park

		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
	18	Alger	Lake Superior	11	Public Shoreline Beach-East County Border
	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
	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	3-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
	41	Antrim	Lake Michigan	4	Elk Rapids Park
	42	Antrim	Lake Michigan	5	Erickson Road

		County	Water Body		Location
	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
	67	Baraga	Lake Superior	7	Mouth of the Huron River
	68	Baraga	Lake Superior	8	Public Shoreline Beach-Cooper Country
	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
	76	Benzie	Lake Michigan	4	Platte River Point
	77	Benzie	Lake Michigan	5	Point Betsie Lighthouse Beach
	78	Benzie	Lake Michigan	6	Zettenberg Preserve
9	79	**Berrien**	Lake Michigan	1	Galien River Park
	80	Berrien	Lake Michigan	2	Gordon Beach
	81	Berrien	Lake Michigan	3	Grand Mere State Park- Rosemary Beach
	82	Berrien	Lake Michigan	4	Grand Mere State Park- Shoreline Beach
	83	Berrien	Lake Michigan	5	Grand Mere State Park- Waverland Beach

		County	Water Body		Location
	84	Berrien	Lake Michigan	6	Harbert Beach
	85	Berrien	Lake Michigan	7	Mizpah Park
	86	Berrien	Lake Michigan	8	Warren Dunes State Park North
10	87	**Charlevoix**	Lake Michigan	1	Bill Wagner Memorial Campground Beach
	88	Charlevoix	Lake Michigan	2	Cables Bay Beach
	89	Charlevoix	Lake Michigan	3	Donegal Bay
	90	Charlevoix	Lake Michigan	4	Harbor Beach
	91	Charlevoix	Lake Michigan	5	Iron Ore Bay Beach
	92	Charlevoix	Lake Michigan	6	Mt. McSauba Beach
11	93	**Cheboygan**	Lake Huron	1	Alexander Henry Park
	94	Cheboygan	Lake Huron	2	Cheboygan City Park
	95	Cheboygan	Lake Huron	3	Cheboygan State Park Duncan Bay
	96	Cheboygan	Lake Huron	4	Cheboygen State Park- Lighthouse Point
	97	Cheboygan	Lake Huron	5	Ditta Park
	98	Cheboygan	Lake Huron	6	Huron Street Beach
	99	Cheboygan	Lake Huron	7	Mackinaw City Beach
	100	Cheboygan	Lake Huron	8	Mackinaw City Lighthouse Park
	101	Cheboygan	Lake Huron	9	Mill Creek Public Access
	102	Cheboygan	Lake Huron	10	Pinewood Circle Road End Beach
	103	Cheboygan	Lake Huron	11	Roadside Park MDOT, US-23
	104	Cheboygan	Lake Huron	12	Stoney Point Road End Beach
	105	Cheboygan	Lake Huron	13	Wawatam City Park
12	106	**Chippewa**	Lake Huron	1	Bass Cove Beach-Drummond Island
	107	Chippewa	Lake Huron	2	Betsey Seaman Memorial Park-Drummond
	108	Chippewa	Lake Huron	3	Big Shoal Cove
	109	Chippewa	Lake Huron	4	De Tour State Park Shoreline Beach
	110	Chippewa	Lake Huron	5	Detour Albany Beach
	111	Chippewa	Lake Huron	6	Drummond Island Township Park
	112	Chippewa	Lake Huron	7	Sand Bay Beach-Drummond Island
	113	Chippewa	Lake Superior	8	Back Bay Boat Launch
	114	Chippewa	Lake Superior	9	Bayview Campground
	115	Chippewa	Lake Superior	10	Big Pines Day Use Area
	116	Chippewa	Lake Superior	11	Hiawatha National Forest- Nodoway Point
	117	Chippewa	Lake Superior	12	Hiawatha National Forest- North of Big Pine
	118	Chippewa	Lake Superior	13	Hiawatha National Forest- Pendills Bay
	119	Chippewa	Lake Superior	14	Hiawatha National Forest- Pendills Lake
	120	Chippewa	Lake Superior	15	Hiawatha National Forest- Point Iroquois
	121	Chippewa	Lake Superior	16	Hiawatha National Forest- Tahquamenon
	122	Chippewa	Lake Superior	17	Hiawatha National Forest- West of Salt
	123	Chippewa	Lake Superior	18	Pendills Beach
	124	Chippewa	Lake Superior	19	Public Shoreline Beach-Browns Creek Area
	125	Chippewa	Lake Superior	20	Public Shoreline Beach-Marsh Lake Area
	126	Chippewa	Lake Superior	21	Public Shoreline Beach-Northwest of Two

		County	Water Body		Location
	127	Chippewa	Lake Superior	22	Public Shoreline Beach-Weatherhog Lake East Area
	128	Chippewa	Lake Superior	23	Public Shoreline Beach-Weatherhog Lake
	129	Chippewa	Lake Superior	24	Public Shoreline Beach-West of Whitefish
	130	Chippewa	Lake Superior	25	Superior Township Public Access
	131	Chippewa	Lake Superior	26	Tahquamenon Falls State Park-River Mouth
	132	Chippewa	St. Mary's River	27	Dunbar Park
	133	Chippewa	St. Mary's River	28	Hiawatha National Forest- North Pond
	134	Chippewa	St. Mary's River	29	Hiawatha National Forest- Waiska Bay
	135	Chippewa	St. Mary's River	30	Lake Superior State Forest- Munuscong
	136	Chippewa	St. Mary's River	31	Public Shoreline Beach-Brush Point
	137	Chippewa	St. Mary's River	32	Public Shoreline Beach-Point Aux Frenes
	138	Chippewa	St. Mary's River	33	Public Shoreline Beach-Raber Bay stretch
	139	Chippewa	St. Mary's River	34	Wilderness Beach
	140	Chippewa	Lake Superior	35	Whitefish Bay picnic area
13	141	**Delta**	Fishdam River	1	Big Bay De Noc/Fishdam River Public
	142	Delta	Lake Michigan	2	Fayette State Park
	143	Delta	Lake Michigan	3	Fuller Park
	144	Delta	Lake Michigan	4	Little Bay De Noc Public Beach Access
	145	Delta	Lake Michigan	5	Portage Bay Forest Campground
	146	Delta	Lake Michigan	6	Public Shoreline Beach-Charboneau Point
	147	Delta	Lake Michigan	7	Public Shoreline Beach-County Road 481
	148	Delta	Lake Michigan	8	Public Shoreline Beach-East Wilsey Bay
	149	Delta	Lake Michigan	9	Public Shoreline Beach-Fishdam River
	150	Delta	Lake Michigan	10	Public Shoreline Beach-Gilnet Haven
	151	Delta	Lake Michigan	11	Public Shoreline Beach-Indian Point
	152	Delta	Lake Michigan	12	Public Shoreline Beach-Indian Town Lake
	153	Delta	Lake Michigan	13	Public Shoreline Beach-Jacks Bluff
	154	Delta	Lake Michigan	14	Public Shoreline Beach-Martin Bay
	155	Delta	Lake Michigan	15	Public Shoreline Beach-Nahma
	156	Delta	Lake Michigan	16	Public Shoreline Beach-North End of Kregg
	157	Delta	Lake Michigan	17	Public Shoreline Beach-North of Stonington
	158	Delta	Lake Michigan	18	Public Shoreline Beach-Ogontz Bay
	159	Delta	Lake Michigan	19	Public Shoreline Beach-Peninsula Point
	160	Delta	Lake Michigan	20	Public Shoreline Beach-Point Detour
	161	Delta	Lake Michigan	21	Public Shoreline Beach-Portage Bay
	162	Delta	Lake Michigan	22	Public Shoreline Beach-Portage Peninsula
	163	Delta	Lake Michigan	23	Public Shoreline Beach-St. Vital's Island
	164	Delta	Lake Michigan	24	Public Shoreline Beach-USFS West Wilsey
	165	Delta	Lake Michigan	25	Public Shoreline Beach-West Side of Kregg
	166	Delta	Lake Michigan	26	Sac Bay County Park
	167	Delta	Lake Michigan	27	Twin Springs Campground and Bathing
14	168	**Emmet**	Lake Michigan	1	Bliss Township Beach
	169	Emmet	Lake Michigan	2	Church Beach
	170	Emmet	Lake Michigan	3	Colonial Michilimamackinac State Park

		County	Water Body		Location
	171	Emmet	Lake Michigan	4	Forest Beach
	172	Emmet	Lake Michigan	5	Petoskey Harbor
	173	Emmet	Lake Michigan	6	The Headlands County Park
	174	Emmet	Lake Michigan	7	Thorne Swift Preserve
	175	Emmet	Lake Michigan	8	Wilderness State Park-East of the Beach
	176	Emmet	Lake Michigan	9	Wilderness State Park-Sturgeon Bay
	177	Emmet	Lake Michigan	10	Wilderness State Park-West of Beach
15	178	**Gogebic**	Lake Superior	1	Black River Harbor Beach
	179	Gogebic	Lake Superior	2	Little Girls Point Park
	180	Gogebic	Lake Superior	3	Mouth of the Montreal River
	181	Gogebic	Lake Superior	4	Porcupine Mountain State Park-North
	182	Gogebic	Lake Superior	5	Presque Isle Beach
	183	Gogebic	Lake Superior	6	Presque Isle State Campground
	184	Gogebic	Lake Superior	7	Public Shoreline Beach-West of Black River
16	185	**Grand Traverse**	Grand Traverse Bay	1	Archie Park
	186	Grand Traverse	Grand Traverse Bay	2	Old Mission - Center Road Natural Area
	187	Grand Traverse	Grand Traverse Bay	3	Old Mission - MDOT Right of Way-South of
	188	Grand Traverse	Grand Traverse Bay	4	Old Mission - Old Mission Point State Park
	189	Grand Traverse	Grand Traverse Bay-East	5	Acme Roadside Park (DNR)
	190	Grand Traverse	Grand Traverse Bay-East	6	Acme Roadside Park and Beach MDOT
	191	Grand Traverse	Grand Traverse Bay-East	7	Deep Water Point
	192	Grand Traverse	Grand Traverse Bay-East	8	East Bay Township Four Mile Road
	193	Grand Traverse	Grand Traverse Bay-East	9	Yuba Beach
	194	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	10	Bowers Harbor Public Access
	195	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	11	DNR Launch/Beach Center Road
	196	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	12	Haserot Beach
	197	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	13	Kroupa Road Access M-22 South of Crain Hill Road
	198	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	14	Leffingwell Point Beach
	199	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	15	Old Mission Lighthouse
	200	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	16	Old Mission Peninsula Twp Park-East of Light House
	201	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	17	Old Mission Peninsula Twp Park-West of Light House
	202	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	18	Old Mission Road
	203	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	19	Peninsula Volunteer Fire Station Point #2
	204	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	20	Swaney Road
	205	Grand Traverse	Grand Traverse Bay-West	21	Mouth of Boardman

		County	Water Body		Location
	206	Grand Traverse	Grand Traverse Bay-West	22	Power Island Bay Park
	207	Grand Traverse	Grand Traverse Bay-West	23	Rose Street Access at Peninsula Drive
17	208	**Houghton**	Lake Superior	1	Calument Waterworks Beach
	209	Houghton	Lake Superior	2	Mink Farm
	210	Houghton	Lake Superior	3	Public Shoreline Beach-Le Chance Creek
	211	Houghton	Lake Superior	4	Public Shoreline Beach-Mc Lain State Park
	212	Houghton	Lake Superior	5	Public Shoreline Beach-S. of Portage Entry
	213	Houghton	Lake Superior	6	Public Shoreline Beach-Southwest County
	214	Houghton	Lake Superior	7	White City
18	215	**Huron**	Lake Huron	1	County Road End
	216	Huron	Lake Huron	2	Geiger Road Public Access
	217	Huron	Lake Huron	3	Grindstone Public Access
	218	Huron	Lake Huron	4	Harbor Beach Marina
	219	Huron	Lake Huron	5	Helena Road End
	220	Huron	Lake Huron	6	Kinch Road End
	221	Huron	Lake Huron	7	Larned Road End
	222	Huron	Lake Huron	8	Lighthouse County Park-South
	223	Huron	Lake Huron	9	Mud Creek Public Acess
	224	Huron	Lake Huron	10	Stafford County Park
	225	Huron	Lake Huron	11	Wagener County Park
19	226	**Iosco**	Lake Huron	1	Alabaster Township-Alabaster Road
	227	Iosco	Lake Huron	2	Au Sable Point Beach
	228	Iosco	Lake Huron	3	Interlake Road
	229	Iosco	Lake Huron	4	Lake To Lake Road
	230	Iosco	Lake Huron	5	Tawas Point State Park-Central
	231	Iosco	Lake Huron (Tawas Bay)	6	County Road End off Tawas Beach Road
	232	Iosco	Lake Huron (Tawas Bay)	7	MDNR Access E. Tawas - Boat Launch
20	233	**Keweenaw**	Lake Superior at Bete de Gris Bay	1	Bete de Gris Beach
	234	Keweenaw	Lake Superior	2	Brunette Park
	235	Keweenaw	Lake Superior	3	Cat Harbor Beach
	236	Keweenaw	Lake Superior	4	Cooper Harbor Lighthouse Complex
	237	Keweenaw	Lake Superior	5	Fort Wilkins State Park
	238	Keweenaw	Lake Superior	6	Fort Wilkins State Park-East
	239	Keweenaw	Lake Superior	7	Fort Wilkins State Park-West
	240	Keweenaw	Lake Superior	8	Great Sands Bay Beach
	241	Keweenaw	Lake Superior	9	Mouth of the Gratiot River Beach
	242	Keweenaw	Lake Superior	10	Point Isabelle Beach
	243	Keweenaw	Lake Superior	11	Public Shoreline Beach-Big Traverse Bay
	244	Keweenaw	Lake Superior	12	Public Shoreline Beach-Gay Park
21	245	**Leelanau**	Grand Traverse Bay	1	Boughy Park and Beach
	246	Leelanau	Grand Traverse Bay-West	2	Cathead Bay, Leelanau State Park

		County	Water Body		Location
	247	Leelanau	Grand Traverse Bay-West	3	Christmas Cove
	248	Leelanau	Grand Traverse Bay-West	4	Graham Green Park
	249	Leelanau	Grand Traverse Bay-West	5	Hendryx County Roadside Park
	250	Leelanau	Grand Traverse Bay-West	6	M-22 at M-72 Public Access
	251	Leelanau	Grand Traverse Bay-West	7	MDOT Roadside Park and Beach
	252	Leelanau	Grand Traverse Bay-West	8	MDOT Roadside Park and Beach M-22 North of Cherry Bend Drive
	253	Leelanau	Grand Traverse Bay-West	9	Northport 4th Street Beach
	254	Leelanau	Grand Traverse Bay-West	10	Northport 5th Street Beach
	255	Leelanau	Grand Traverse Bay-West	11	Northport 7th Street Beach
	256	Leelanau	Grand Traverse Bay-West	12	Northport Haserot Beach, Rose Street
	257	Leelanau	Grand Traverse Bay-West	13	Stoney Point County Roadside Park
	258	Leelanau	Grand Traverse Bay-West	14	Suttons Bay North Shore Park
	259	Leelanau	Lake Michigan	15	Bay Front Park
	260	Leelanau	Lake Michigan	16	Cedar Street Beach
	261	Leelanau	Lake Michigan	17	G. Marsten Dame Marina
	262	Leelanau	Lake Michigan	18	Gils Pier
	263	Leelanau	Lake Michigan	19	Glen Arbor/Manitou Boulevard Beach
	264	Leelanau	Lake Michigan	20	Lake Street Beach, Glen Arbor
	265	Leelanau	Lake Michigan	21	Leelanau State Park, Lighthouse
	266	Leelanau	Lake Michigan	22	Leland Harbor
	267	Leelanau	Lake Michigan	23	North Bar
	268	Leelanau	Lake Michigan	24	North Street Beach
	269	Leelanau	Lake Michigan	25	Peterson Park
	270	Leelanau	Lake Michigan	26	Reynolds Street Beach
	271	Leelanau	Lake Michigan	27	Smith Street Beach Northport
	272	Leelanau	Lake Michigan	28	Thompson Street Beach
	273	Leelanau	Shalda Creek	29	Sleeping Bear Dunes -Shalda Creek
22	274	**Luce**	Lake Superior	1	Blind Sucker River #1
	275	Luce	Lake Superior	2	Blind Sucker River #2
	276	Luce	Lake Superior	3	Crisp Point Lighthouse
	277	Luce	Lake Superior	4	Lake Superior Campground Beach
	278	Luce	Lake Superior	5	Mouth of the Two Hearted River
	279	Luce	Lake Superior	6	Public Shoreline Beach-Blind Sucker
	280	Luce	Lake Superior	7	Public Shoreline Beach-Coast Guard Line
	281	Luce	Lake Superior	8	Public Shoreline Beach-County Road 407
	282	Luce	Lake Superior	9	Public Shoreline Beach-County Road 412 and Crisp Point
	283	Luce	Lake Superior	10	Public Shoreline Beach-Little Sucker/Two Hearted River
	284	Luce	Lake Superior	11	Public Shoreline Beach-Three Mile Creek
	285	Luce	Lake Superior	12	Public Shoreline Beach-West County Border
	286	Luce	Lake Superior	13	Unnamed Road End #1
	287	Luce	Lake Superior	14	Unnamed Road End #2
	288	Luce	Lake Superior	15	Unnamed Road End #3

		County	Water Body		Location
23	289	**Mackinac**	Lake Huron	1	American Legion Memorial Park
	290	Mackinac	Lake Huron	2	Antoine Road End
	291	Mackinac	Lake Huron	3	Boot Island
	292	Mackinac	Lake Huron	4	Coast Guard Pier Boat Launch and City
	293	Mackinac	Lake Huron	5	Foley Creek Campground
	294	Mackinac	Lake Huron	6	Government Island-Hiawatha National
	295	Mackinac	Lake Huron	7	Harbour Light
	296	Mackinac	Lake Huron	8	Hazelton Road End
	297	Mackinac	Lake Huron	9	Hiawatha National Forest- Carp River
	298	Mackinac	Lake Huron	10	Horseshoe Bay Wilderness-North
	299	Mackinac	Lake Huron	11	Horseshoe Bay Wilderness-South
	300	Mackinac	Lake Michigan	12	Big Knob State Forest Campground
	301	Mackinac	Lake Michigan	13	Black River State Forest Campground
	302	Mackinac	Lake Michigan	14	Epoufette Bay Campground
	303	Mackinac	Lake Michigan	15	Hog Island Campground
	304	Mackinac	Lake Michigan	16	Lake Michigan US-2 Campground Beach
	305	Mackinac	Lake Michigan	17	MDOT Overlook
	306	Mackinac	Lake Michigan	18	MDOT Roadside Park on US-2
	307	Mackinac	Lake Michigan	19	Mouth of Cut River Roadside Beach
	308	Mackinac	Lake Michigan	20	Naubinway Bay Access
	309	Mackinac	Lake Michigan	21	Public Shoreline Beach #2-Little Hog Island
	310	Mackinac	Lake Michigan	22	Public Shoreline Beach #2-Manitou Paymen Highbanks
	311	Mackinac	Lake Michigan	23	Public Shoreline Beach #3-Little Hog Island
	312	Mackinac	Lake Michigan	24	Public Shoreline Beach #4-Little Hog Island
	313	Mackinac	Lake Michigan	25	Public Shoreline Beach #5-Little Hog Island
	314	Mackinac	Lake Michigan	26	Public Shoreline Beach-Epoufette Bay
	315	Mackinac	Lake Michigan	27	Public Shoreline Beach-Fox Point Area
	316	Mackinac	Lake Michigan	28	Public Shoreline Beach-Little Hog Island
	317	Mackinac	Lake Michigan	29	Public Shoreline Beach-Manitou Paymen Highbanks
	318	Mackinac	Lake Michigan	30	Public Shoreline Beach-MDNR Matrix Point
	319	Mackinac	Lake Michigan	31	Public Shoreline Beach-Morean Township, Section 25
	320	Mackinac	Lake Michigan	32	Public Shoreline Beach-Naubinway Area
	321	Mackinac	Lake Michigan	33	Public Shoreline Beach-Pointe Aux Chenes
	322	Mackinac	Lake Michigan	34	Public Shoreline Beach-Seiners Point
	323	Mackinac	Lake Michigan	35	Public Shoreline Beach-South of Brevort
	324	Mackinac	Lake Michigan	36	Public Shoreline Beach-State Forest Matrix
	325	Mackinac	Lake Michigan	37	Sand Point
	326	Mackinac	Lake Michigan	38	State Roadside Park Beach
	327	Mackinac	Lake Huron	39	Straits State Park
24	328	**Manistee**	Lake Michigan	1	Portage Park
25	329	**Marquette**	Lake Superior	1	Public Shoreline Beach-Big Huron River
	330	Marquette	Lake Superior	2	Public Shoreline Beach-Little Presque Isle

		County	Water Body		Location
26	331	**Mason**	Lake Michigan	1	Ludington State Park Public Shoreline
	332	Mason	Lake Michigan	2	Ludington State Park Public Shoreline
	333	Mason	Lake Michigan	3	Manistee National Forest Campground
	334	Mason	Lake Michigan	4	Manistee National Forest-Public Shoreline Beach North
	335	Mason	Lake Michigan	5	Manistee National Forest-Public Shoreline Beach South
	336	Mason	Lake Michigan	6	Pere Marquette Harbor
27	337	**Menominee**	Lake Michigan	1	Airport Park
	338	Menominee	Lake Michigan	2	Fox Park
	339	Menominee	Lake Michigan	3	Klienke Park
	340	Menominee	Lake Michigan	4	Public Shoreline Beach-Cedar River
	341	Menominee	Lake Michigan	5	Public Shoreline Beach-Fox village
	342	Menominee	Lake Michigan	6	Wells State Park
28	343	**Oceana**	Lake Michigan	1	Cedar Point County Park
	344	Oceana	Lake Michigan	2	Silver Lake State Park
	345	Oceana	Silver Lake-Lake Michigan	3	Silver Creek Channel
29	346	**Ontonagon**	Lake Superior	1	Green Park
	347	Ontonagon	Lake Superior	2	Gull Point Beach
	348	Ontonagon	Lake Superior	3	Mouth of the Big Iron River Beach
	349	Ontonagon	Lake Superior	4	Porcupine Mountain State Park
	350	Ontonagon	Lake Superior	5	Porcupine Mountains Wilderness State Park-
	351	Ontonagon	Lake Superior	6	Public Shoreline Beach-Misery Bay
	352	Ontonagon	Lake Superior	7	Public Shoreline Beach-Sleeping Bay
	353	Ontonagon	Lake Superior	8	Public Shoreline Beach-Wolf Point
	354	Ontonagon	Lake Superior	9	Union Bay Beach
30	355	**Ottawa**	Lake Michigan	1	Kouw Park
	356	Ottawa	Lake Michigan	2	Mountain Beach
	357	Ottawa	Lake Michigan	3	P.J. Hoffmaster State Park- Shoreline
	358	Ottawa	Lake Michigan	4	Kirk Park
	359	Ottawa	Lake Michigan	5	North Beach Park
	360	Ottawa	Lake Michigan	6	Rosy Mound Recreation Area
31	361	**Presque Isle**	Lake Huron	1	40 Mile Point Park
	362	Presque Isle	Lake Huron	2	Ball Diamond Park
	363	Presque Isle	Lake Huron	3	Bell Bay
	364	Presque Isle	Lake Huron	4	Evergreen Beach
	365	Presque Isle	Lake Huron	5	Golden Beach
	366	Presque Isle	Lake Huron	6	Grace Access Site
	367	Presque Isle	Lake Huron	7	Hammond Bay Access Site
	368	Presque Isle	Lake Huron	8	Hammond Bay Harbor
	369	Presque Isle	Lake Huron	9	Hoeft State Park-North
	370	Presque Isle	Lake Huron	10	Hoeft State Park-South

		County	Water Body		Location
	371	Presque Isle	Lake Huron	11	Lakeside Park in Rogers City
	372	Presque Isle	Lake Huron	12	Lakeview Park Beach
	373	Presque Isle	Lake Huron	13	Manitou Beach
	374	Presque Isle	Lake Huron	14	New Lighthouse Park
	375	Presque Isle	Lake Huron	15	Presque Isle Harbor
	376	Presque Isle	Lake Huron	16	Presque Isle Harbor Beach
	377	Presque Isle	Lake Huron	17	Public Shoreline Beach-False Presque Isle
	378	Presque Isle	Lake Huron	18	Seagull Point Park
	379	Presque Isle	Lake Huron	19	Thompson's Harbor State Park
	380	Presque Isle	Lake Huron	20	US-23 Hammond Bay
	381	Presque Isle	Lake Huron	21	US-23 Roger City
	382	Presque Isle	Lake Huron	22	Lakeside Park Beach
32	383	**Sanilac**	Lake Huron	1	Birch Beach
	384	Sanilac	Lake Huron	2	Birch Beach Middle #2
	385	Sanilac	Lake Huron	3	Birch Beach North #3
	386	Sanilac	Lake Huron	4	Delaware Park
	387	Sanilac	Lake Huron	5	Great Lakes Beach
	388	Sanilac	Lake Huron	6	Great Lakes Beach #1
	389	Sanilac	Lake Huron	7	Sanilac County Park #4
	390	Sanilac	Lake Huron	8	Sanilac County Roadside Park #1
	391	Sanilac	Lake Huron	9	Blue Water Beach
33	392	**Schoolcraft**	Lake Michigan	1	Doyle Township Access
	393	Schoolcraft	Lake Michigan	2	Goudreau's Harbor Seul Choix Point-Boat
	394	Schoolcraft	Lake Michigan	3	Lakeview Park
	395	Schoolcraft	Lake Michigan	4	Manistique Township Park
	396	Schoolcraft	Lake Michigan	5	Public Shoreline Beach-South of McDonald
	397	Schoolcraft	Lake Michigan	6	Public Shoreline Beach-Thompson Village
	398	Schoolcraft	Lake Michigan	7	Roadside Park Beach
34	399	**St. Clair**	Lake Huron	1	Burthville Township Park
	400	St. Clair	Lake Huron	2	Jeddo Road Beach
	401	St. Clair	Lake Huron	3	Krafft Road Beach
	402	St. Clair	Lake Huron	4	Lakeport State Park
	403	St. Clair	Lake Huron	5	Metcalf Road Beach
	404	St. Clair	Lake Huron	6	Washington Street Park
	405	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	**Antrim**	1	Thurston Park	8/17/16	1046.2
	2	Antrim	2	Richardi Park	8/17/16	579.4
2	3	**Barry**	1	Charlton Park	8/22/16	394.0795
	4	Barry	2	Charlton Park	8/29/16	355.8368
3	5	**Bay**		Vet's Park North Bay City- Saginaw River	8/17/16	410.602
4	6	**Benzie**	1	Beulah Beach	8/17/16	457
5	7	**Clare**	1	Wilson State Park	7/7/16	1143.639
6	8	**Chipppewa**	1	Kinross Lake	8/17/16	1633.768
7	9	**Emmet**	1	Camp Petosega	7/26/16	2419.6
8	10	**Isabella**	1	Herrick County Park	8/24/16	1644.262
	11	**Isabella**	2	Deerfield County Park	8/16/16	590.4156
9	12	**Kalamazoo**	1	Sunset Lake Park	6/29/16	2265.569
	13	Kalamazoo	2	Sunset Lake Park	6/6/16	668.3849
	14	Kalamazoo	3	Sunset Lake Park	6/20/16	600.3207
	15	Kalamazoo	4	Sunset Lake Park	6/27/16	579.3166
	16	Kalamazoo	5	Sunset Lake Park	6/7/16	512.9062
	17	Kalamazoo	6	Sunset Lake Park	6/22/16	461.279
	18	Kalamazoo	7	Sunset Lake Park	6/8/16	454.0618
10	19	**Leelanau**	1	Good Harbor Creek Outlet	8/16/16	1327
	20	Leelanau	2	Good Harbor Creek Outlet	6/29/16	1146
11	21	**Macomb**	1	Stony Creek Metropark-Baypoint Beach	8/31/16	410.53
	22	Macomb	2	Stony Creek Metropark-Baypoint Beach	8/24/16	320.09
12	23	**Oakland**	1	Dodge Park #4	8/10/16	656
	24	Oakland	2	Dodge Park #4	8/3/16	590
	25	Oakland	3	Log Cabin Sub.	6/7/16	526
	26	Oakland	4	Christ the King Church Camp	7/25/16	320
	27	Oakland	5	Davisburg Village Beach (Hart Community Center)	7/13/16	1684
	28	Oakland	6	Davisburg Village Beach (Hart Community Center)	7/14/16	347
	29	Oakland	7	Pontiac Recreation Area	8/2/16	359
	30	Oakland	8	Scotch Lake Residents	7/6/16	461

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

		County		Location	Sampling Date	*E. coli* Test Results
	31	Oakland	9	Scotch Lake Residents	6/7/16	373
	32	Oakland	10	Teeple Lake Recreation Area - Highland State Park	8/1/16	332
	33	Oakland	11	Woodhull Lake Civic Association	6/8/16	338
	34	Oakland	12	Fox Bay Civic Association	6/6/16	325
	35	Oakland	13	Fox Bay Civic Association	6/20/16	338
	36	Oakland	14	Fox Bay Civic Association	6/21/16	467
	37	Oakland	15	Fox Bay Civic Association	6/23/16	321
	38	Oakland	16	Fox Bay Civic Association	7/5/16	373
	39	Oakland	17	Fox Bay Civic Association	7/6/16	347
	40	Oakland	18	Fox Bay Civic Association	7/11/16	359
	41	Oakland	19	Fox Bay Civic Association	7/13/16	488
	42	Oakland	20	Fox Bay Civic Association	7/14/16	625
	43	Oakland	21	Fox Bay Civic Association	7/25/16	558
	44	Oakland	23	Seven Craven Association	8/9/16	358
	45	Oakland	24	Seven Craven Association	8/10/16	398
	46	Oakland	25	Eagle Lake Road	7/13/16	351
	47	Oakland	26	Lakeland Estates	8/3/16	903
	48	Oakland	27	Lakeland Estates	8/4/16	323
	49	Oakland	28	Lakeland Estates	8/10/16	1513
	50	Oakland	29	Lakeland Estates	8/11/16	868
	51	Oakland	30	Lakeland Estates	8/16/16	1331
	52	Oakland	31	Lakeland Estates	8/29/16	307
	53	Oakland	32	Lakeland Estates	8/30/16	749
	54	Oakland	33	Lakeland Estates	9/6/16	360
	55	Oakland	34	Lakeland Estates	9/8/16	626
13	56	**Osceala**	1	Crawford Park	6/16/16	526.8588
	57	Osceala	2	Beaverton City Park	8/2/16	591.1946
	58	Osceala	3	Beaverton City Park	8/4/16	501.4695
14	59	**Otsego**	1	Otsego State Park	7/13/16	435.2
15	60	**Roscommon**	1	Houghton Lake Heights	7/28/16	2419.6
	61	Roscommon	2	Richfield Township Public Fishing Site	7/7/16	344.8059
16	62	**Schoolcraft**	1	Indian Lake State Park	5/31/16	515.9639
	63	Schoolcraft	2	Indian Lake State Park	6/7/16	365.8998
	64	Schoolcraft	3	Indian Lake State Park	7/6/16	552.151
17	65	**Washtenaw**	1	Pinckney Recreation Area	6/10/16	873.0706
18	66	**Wayne**	1	Van Buren Township Park	7/25/16	389.0586
	67	Wayne	2	Newburgh and Sumac Pointes - Hines Park	7/11/16	729.1505

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

		County		Location	Sampling Date	*E. coli* Test Results
	68	Wayne	3	Newburgh and Sumac Pointes - Hines Park		
	69	Wayne	4	Newburgh and Sumac Pointes - Hines Park	6/6/16	387.8135
	70	Wayne	5	Blue Heron Condominiums Pond	9/1/16	521
19	71	**Wexford**	1	Manton Park	8/23/16	478
	72	Wexford	2	Manton Park	6/17/16	336.2
	73	Wexford	3	Manton Park	6/16/16	320.5
	74	Wexford	4	Manton Park	6/14/16	313.1

Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS 2016.

		County		Location	Water Body	Sampling Date	*E. coli* Test Results
1	1	**Allegan**	1	Oval Beach	Lake Michigan	7/25/16	488.4
	2	Allegan	2	West Side County Park Beach	Lake Michigan	7/25/16	344.8
2	3	**Arenac**	1	Singing Bridge Beach	Saginaw Bay-Lake Huron	6/20/16	526.8193
	4	Arenac	2	Singing Bridge Beach	Saginaw Bay-Lake Huron	8/31/16	477.63
	5	Arenac	3	Singing Bridge Beach	Saginaw Bay-Lake Huron	8/1/16	345.3372
	6	Arenac	4	Singing Bridge Beach	Saginaw Bay-Lake Huron	8/17/16	338.4763
3	7	**Bay**	1	Brissette Beach Township Park	Saginaw Bay-Lake Huron	7/28/16	2419.6
	8	Bay	2	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	7/28/16	2419.6
	9	Bay	3	Bay City State Recreation Area	Saginaw Bay-Lake Huron	7/28/16	1986.3
	10	Bay	4	Bay City State Recreation Area	Saginaw Bay-Lake Huron	7/28/16	1553.1
	11	Bay	5	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	6/23/16	1413.6
	12	Bay	6	Wenona Beach	Saginaw Bay-Lake Huron	7/28/16	1203.3
	13	Bay	7	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	6/16/16	727
	14	Bay	8	Wenona Beach	Saginaw Bay-Lake Huron	7/26/16	547.5
	15	Bay	9	Bay City State Recreation Area	Saginaw Bay-Lake Huron	6/16/16	387.3
	16	Bay	10	Wenona Beach	Saginaw Bay-Lake Huron	8/10/16	360.9
	17	Bay	11	Bay City State Recreation Area	Saginaw Bay-Lake Huron	6/16/16	344.8
	18	Bay	12	Brissette Beach Township Park	Saginaw Bay-Lake Huron	6/16/16	325.5
4	19	**Berrien**	1	Warren Dunes Beach	Lake Michigan	7/18/16	1344.226
	20	Berrien	2	Warren Dunes Beach	Lake Michigan	6/20/16	664.9737
	21	Berrien	3	Warren Dunes Beach	Lake Michigan	6/27/16	558.4933
	22	Berrien	4	New Buffalo City	Lake Michigan	8/8/16	452.2998
	23	Berrien	5	Union Pier - Townline Road	Lake Michigan	7/25/16	360
	24	Berrien	6	New Buffalo City	Lake Michigan	6/13/16	350
	25	Berrien	7	Union Pier - Townline Road	Lake Michigan	8/8/16	350
	26	Berrien	8	Weko Beach	Lake Michigan	7/25/16	340
	27	Berrien	9	New Buffalo City	Lake Michigan	7/25/16	338.686
5	28	**Chippewa**	1	Sherman Park	Lake Superior	8/31/16	1732.9
	29	Chippewa	2	Sherman Park	Lake Superior	8/31/16	1553.1
	30	Chippewa	3	Brimley State Park	Lake Superior	8/30/16	1413.6

Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS 2016.

		County		Location	Water Body	Sampling Date	*E. coli* Test Results
	31	Chippewa	4	Sherman Park	Lake Superior	8/31/16	1046.2
	32	Chippewa	5	Brimley State Park	Lake Superior	8/25/16	920.8
	33	Chippewa	6	Brimley State Park	Lake Superior	8/30/16	547.5
	34	Chippewa	7	Brimley State Park	Lake Superior	8/25/16	344.1
	35	Chippewa	8	Brimley State Park	Lake Superior	8/25/16	325.5
	36	Chippewa	9	Four Mile Beach	St. Mary's River	8/2/16	1732.9
	37	Chippewa	10	Four Mile Beach	St. Mary's River	8/30/16	1299.7
	38	Chippewa	11	Four Mile Beach	St. Mary's River	8/30/16	980.4
	39	Chippewa	12	Four Mile Beach	St. Mary's River	8/30/16	770.1
	40	Chippewa	13	Four Mile Beach	St. Mary's River	8/2/16	547.5
	41	Chippewa	14	Four Mile Beach	St. Mary's River	8/2/16	488.4
6	42	**Delta**	1	Gladstone Bathing Beach/Van Cleve Park	Lake Michigan	7/12/16	497.5244
7	43	**Emmet**	1	Mackinaw City Beach #2	Lake Michigan	8/24/16	410.6
	44	Emmet	2	Mackinaw City Beach #2	Lake Michigan	7/12/16	387.3
8	45	**Grand Traverse**	1	Bayside Acme Township Park	Grand Traverse Bay-East	7/27/16	328
9	46	**Huron**	1	Caseville County Park	Lake Huron	8/18/16	2419.6
	47	Huron	2	Bird Creek County Park	Lake Huron	6/20/16	1553.1
	48	Huron	3	Caseville County Park	Lake Huron	8/17/16	1299.7
	49	Huron	4	Port Crescent State Park - Camping Area	Lake Huron	8/17/16	613.1
	50	Huron	5	Bird Creek County Park	Lake Huron	6/21/16	461.1
	51	Huron	6	Bird Creek County Park	Lake Huron	8/22/16	461.1
	52	Huron	7	Bird Creek County Park	Lake Huron	8/29/16	396.8
	53	Huron	8	Caseville County Park	Lake Huron	8/23/16	365.4
10	54	**Iosco**	1	Veterans Park	Lake Huron	6/20/16	816.4
	55	Iosco	2	Tawas Point State Park-Day Use area	Lake Huron	7/12/16	689.3
	56	Iosco	3	Gateway Park Beach	Lake Huron (Tawas Bay)	7/12/16	526.1932
	57	Iosco	4	Gateway Park Beach	Lake Huron (Tawas Bay)	8/16/16	332.8684

Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS 2016.

		County		Location	Water Body	Sampling Date	*E. coli* Test Results
11	58	**Leelanau**	1	Suttons Bay - South Shore Park	Grand Traverse Bay (West Bay)	8/31/16	575
	59	Leelanau	2	Suttons Bay - South Shore Park	Grand Traverse Bay (West Bay)	7/6/16	344
	60	Leelanau	3	Elmwood/Greilikville Park & Beach	Grand Traverse Bay-West	8/31/16	914
	61	Leelanau	4	Northport Bay Marina	Grand Traverse Bay-West	8/24/16	602
	62	Leelanau	5	Omena Beach & Park	Grand Traverse Bay-West	7/27/16	317.7399
	63	Leelanau	6	Elmwood/Greilikville Park & Beach	Grand Traverse Bay-West	8/17/16	313
12	64	**Mackinac**	1	Kiwanis Beach	Lake Huron	8/2/16	2419.6
	65	Mackinac	2	Kiwanis Beach	Lake Huron	8/16/16	2419.6
	66	Mackinac	3	Kiwanis Beach	Lake Huron	7/12/16	1046.2
	67	Mackinac	4	Kiwanis Beach	Lake Huron	8/2/16	770.1
	68	Mackinac	5	Kiwanis Beach	Lake Huron	7/12/16	582.746
	69	Mackinac	6	Kiwanis Beach	Lake Huron	7/12/16	488.4
	70	Mackinac	7	Kiwanis Beach	Lake Huron	7/12/16	387.3
	71	Mackinac	8	Kiwanis Beach	Lake Huron	7/19/16	343.6
	72	Mackinac	9	Kiwanis Beach	Lake Huron	7/19/16	316.9
	73	Mackinac	10	Kiwanis Beach	Lake Huron	8/3/16	307.6
	74	Mackinac	11	US 2 Sand Dunes Beach (East of Brevort)	Lake Michigan	6/2/16	344.8
13	75	**Macomb**	1	St. Clair Shores Memorial Park Beach	Lake St. Clair	8/17/16	1790.46
	76	Macomb	2	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	8/24/16	1093.88
	77	Macomb	3	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	8/17/16	897.23
	78	Macomb	4	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	7/6/16	866.4
	79	Macomb	5	St. Clair Shores Memorial Park Beach	Lake St. Clair	8/24/16	819.14
	80	Macomb	6	St. Clair Shores Memorial Park Beach	Lake St. Clair	8/31/16	675.93
	81	Macomb	7	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	7/6/16	566.49
	82	Macomb	8	St. Clair Shores Memorial Park Beach	Lake St. Clair	7/6/16	459.24
	83	Macomb	9	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	8/10/16	421.45
	84	Macomb	10	St. Clair Shores Memorial Park Beach	Lake St. Clair	7/20/16	392.83
	85	Macomb	11	St. Clair Shores Memorial Park Beach	Lake St. Clair	7/13/16	361.42
	86	Macomb	12	St. Clair Shores Memorial Park Beach	Lake St. Clair	8/15/16	320.66
	87	Macomb	13	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	8/30/16	307.74
	88	Macomb	14	St. Clair Shores Memorial Park Beach	Lake St. Clair	9/28/16	560.58

Appendix F.2. Daily Water Samples from Great Lakes Beaches that Exceeded Michigan's WQS 2016.

		County		Location	Water Body	Sampling Date	*E. coli* Test Results
14	89	**Monroe**	1	Luna Pier City Beach	Lake Erie	6/21/16	2420
	90	Monroe	2	Sterling State Park	Lake Erie	6/21/16	2420
	91	Monroe	3	Luna Pier City Beach	Lake Erie	6/14/16	1937.035
	92	Monroe	4	Luna Pier City Beach	Lake Erie	6/23/16	885.3144
	93	Monroe	5	Luna Pier City Beach	Lake Erie	7/19/16	747.4523
	94	Monroe	6	Sterling State Park	Lake Erie	8/29/16	590.8891
15	95	**Muskegon**	1	P.J. Hoffmaster State Park - Public Beach Area	Lake Michigan	8/9/16	649
16	96	**Ottawa**		Grand Haven State Park	Lake Michigan	6/1/16	320.4
	97	Ottawa		Grand Haven State Park	Lake Michigan	7/27/16	852.8
	98	Ottawa		Holland State Park	Lake Michigan	8/3/16	1132.2
17	99	**Sanilac**	1	Forester County Park	Lake Huron	8/16/16	1967.243
	100	Sanilac	2	Port Sanilac Park	Lake Huron	8/16/16	1647.81
	101	Sanilac	3	Forestville Beach	Lake Huron	8/16/16	1529.313
	102	Sanilac	4	Forester County Park	Lake Huron	8/17/16	872.598
	103	Sanilac	5	Port Sanilac Park	Lake Huron	6/28/16	402.3926
	104	Sanilac	6	Forester County Park	Lake Huron	8/18/16	319.1773
18	105	**Schoolcarft**	1	Rogers Park-MDOT	Lake Michigan	7/12/16	1137.939
	106	Schoolcarft	2	Public Shoreline Beach-Thompson	Lake Michigan	7/12/16	693.0588
19	107	**St. Clair**	1	Chrysler Park Beach	St. Clair River	8/16/16	2419.6
	108	St. Clair	2	Chrysler Park Beach	St. Clair River	8/17/16	1119.9
	109	St. Clair	3	Chrysler Park Beach	St. Clair River	6/28/16	517.2
	110	St. Clair	4	Chrysler Park Beach	St. Clair River	7/27/16	387.3
	111	St. Clair	5	Chrysler Park Beach	St. Clair River	8/3/16	307.6
	112	St. Clair	6	Holland Road Beach	Lake Huron	8/31/16	2419.6
	113	St. Clair	7	Keewadhin Road Beach	Lake Huron	6/21/16	410.6
	114	St. Clair	8	Keewadhin Road Beach	Lake Huron	7/19/16	307.6