

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER RESOURCES DIVISION  
JUNE 2013

STAFF REPORT

MICHIGAN BEACH MONITORING  
YEAR 2012 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, the location of the test results.

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.

The availability of grant funds has increased the number of counties where beaches are monitored. Less than 50 beaches were monitored with local funding in 25 counties in 2000. With consistent grant funding, over 400 beaches have been monitored in at least 50 counties for the past 6 years as shown in Table 1.

Table 1. The number of counties where at least one beach was monitored and the total number of beaches that were monitored each year.

Year	2007	2008	2009	2010	2011	2012
Number of Counties that Monitored	57	57	57	59	55	56
Number of Beaches Monitored	474	467	414	430	415	423

### Funding for Beach Monitoring

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

#### *CMI-CWF Grants*

The MDEQ currently distributes 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 only due to the availability of BEACH Act funding for Great Lakes beaches.

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

The CMI-CWF offers reliable funding for the monitoring of surface water over a period of approximately 15 years. Since 2000, the MDEQ has awarded \$1,312,205 including 12 awards totaling \$189,938 (Appendix A) for monitoring beaches in 2011 and 2012.

#### *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 (2002) has published performance criteria that must be met by grant recipients. Since the BEACH Act was initiated in 2003, the MDEQ has allocated \$2,518,261 including 24 awards totaling \$180,377 (Appendix B) for monitoring beaches in 2012.

## GLRI Grants

The MDEQ received \$3.2 million in grant funding from the GLRI in 2010 and distributed those funds to local health departments, nonprofit entities, and Michigan State University (MSU) for 29 projects to monitor and investigate 224 Great Lakes beaches during 2011 and 2012. One of the projects was a partnership with The Watershed Center Grand Traverse Bay to remediate a storm drain at Bryant Park beach in Traverse City. This project was completed in October 2012. Three of the projects were in partnership with MSU to use molecular source tracking tools to identify sources of contamination at 14 beaches, train beach managers to use rapid tools for monitoring beaches, improve communication, and educate the public regarding water quality issues. The remaining 25 projects were in partnership with local health departments and nonprofit entities to increase monitoring at beaches, conduct monitoring during targeted rain events to track and identify sources of pollution, and conduct routine and annual sanitary surveys. In addition, three local health departments developed predictive modeling tools for five beaches to forecast water quality conditions.

### 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.eagle.state.mi.us/beach/>). The Web site includes information about individual beaches (by county or lake name), frequency of testing, monitoring history, beach closures, and monitoring efforts. The Web site also provides search tools, options for data export, information for beach monitoring procedures and methods, additional links to beach monitoring resources, and 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 2002) 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 GLRI, local health departments conducted 3,804 routine sanitary surveys at 238 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. Local health departments and local units of government that operate and maintain

public beaches on the Great Lakes are using the information from the routine sanitary surveys to submit proposals for future GLRI funds to remediate Great Lakes beaches. In addition, local health departments conducted 254 routine sanitary surveys at 21 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.

### Annual Sanitary Surveys

Local health departments are also preparing annual sanitary surveys for Great Lakes beaches and access points as part of the GLRI. In comparison to the routine sanitary survey, the annual sanitary survey provides a wider scope of the geographic and hydrologic information for a Great Lakes beach. The annual sanitary survey also summarizes all data from the routine sanitary surveys. Data for annual sanitary surveys are not available electronically. However, plans are being made to add these data to 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 (SSOs) are discharges of raw or inadequately treated sewage 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 Data

Beach notification data are the actions taken at a beach to warn the public of unsafe water conditions. A beach advisory or closure (collectively referred to as an action) may be issued 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 other 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://watersgeo.epa.gov/beacon2/>.

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 571 identified public beaches on inland lakes and rivers and 612 identified public beaches on the Great Lakes.

## Synopsis of Data

Monitoring and notification data reported for beaches included results of *E. coli* tests and the number of advisories or closures (actions) that were posted and the number of days for each posting. In 2012, monitoring was conducted at 423 (163 inland and 260 Great Lakes) public beaches in 56 Michigan counties. Local beach managers collected 5,801 daily water samples and 224 (3.9 percent) exceeded Michigan's WQS (Appendices F.1 and F.2).

Exceedances were reported at 114 (27 percent) monitored beaches. Of the monitored beaches, 112 (26 percent) posted an advisory(ies) or closure(s). There were a total of 166 postings for advisories or closures, which lasted a total of 755 days. 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. The number and percent of samples exceeding WQS in 2012 are similar to the previous years (Table 2).

Table 2. Number and percent of public beaches in Michigan with exceedances and number and percent of samples exceeding WQS.

Year	2007	2008	2009	2010	2011	2012
Number of Beaches with Exceedances	77	75	83	108	124	114
Percent of Beaches with Exceedances	16.2	15.8	20	25	30	27
Number of Samples Exceeding WQS	145	154	212	209	266	224
Percent of Samples Exceeding WQS	2.6	2.8	3.6	4.0	4.3	3.9

Notification data in 2012 were similar to the previous year for the number and percentage of beaches with an action and number of actions (Figure 1 and Table 3, respectively). The total number of days with actions decreased (Table 3). Collectively, these data show that exceedances and actions for Great Lakes (Table 4) and inland lakes (Table 7) beaches were of a short duration, usually one or two days.

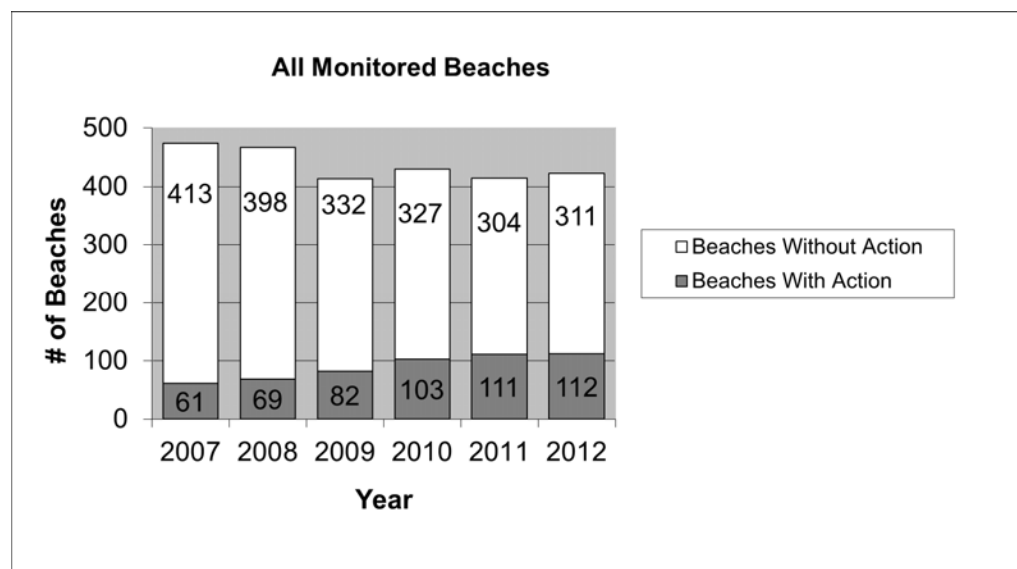


Figure 1. Each bar represents the total number of monitored beaches with divisions designating beaches with and without an action.

Table 3. Total number of actions at public beaches in Michigan, percent of monitored beaches with an action, and total number of days with an action.

Year	2007	2008	2009	2010	2011	2012
Total Actions For All Beaches	89	108	125	152	165	166
Total of Monitored Beaches with an Action	61	69	82	103	111	112
Percent of Monitored Beaches with an Action	12.9	14.8	19.8	24.3	27	26
Total Days with an Action	1,568	697	1,596	1,003	913	755

### Synopsis of Data from Great Lakes Beaches

In 2012, monitoring was conducted at 260 Great Lakes public beaches in 38 counties in Michigan. Out of 4,295 daily samples collected, 169 (3.9 percent) exceeded Michigan's WQS (Appendix F.2). The exceedances were reported from 88 beaches (34 percent of monitored Great Lakes beaches), 89 (33 percent) of which reported actions (133 incidents lasting a total of 345 days). However, 13 contamination advisories were posted for 13 beaches lasting 21 days due to potential chemical or oil contamination resulting from an overturned tug boat and sinking barge.

Sources of *E. coli* contamination were identified and remediation efforts were initiated for Great Lakes beaches participating with the GLRI projects.

A summary of the exceedances of the *E. coli* WQS for Great Lakes beaches is provided in Table 4. Figure 2 shows that the number of monitored Great Lakes beaches has stayed about the same, along with the number of beaches with an action.

A summary of the 2012 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 4. Number of exceedances and actions for Great Lakes beaches monitored in 2012.

a. Number of Exceedances Reported per Beach	b. Number of Beaches with Exceedence(s)	Total Number of Exceedances (a x b)	c. Number of Closures or Advisories per Beach	d. Number of Beaches with Closures or Advisories	Total Number of Closures or Advisories (c x d)
1	52	52	1	64	64
2	13	26	2	13	26
3	13	39	3	8	24
4	6	24	4	3	12
5	3	12	7	1	7
13	1	13			
<b>TOTAL</b>	<b>88</b>	<b>169</b>		89	133

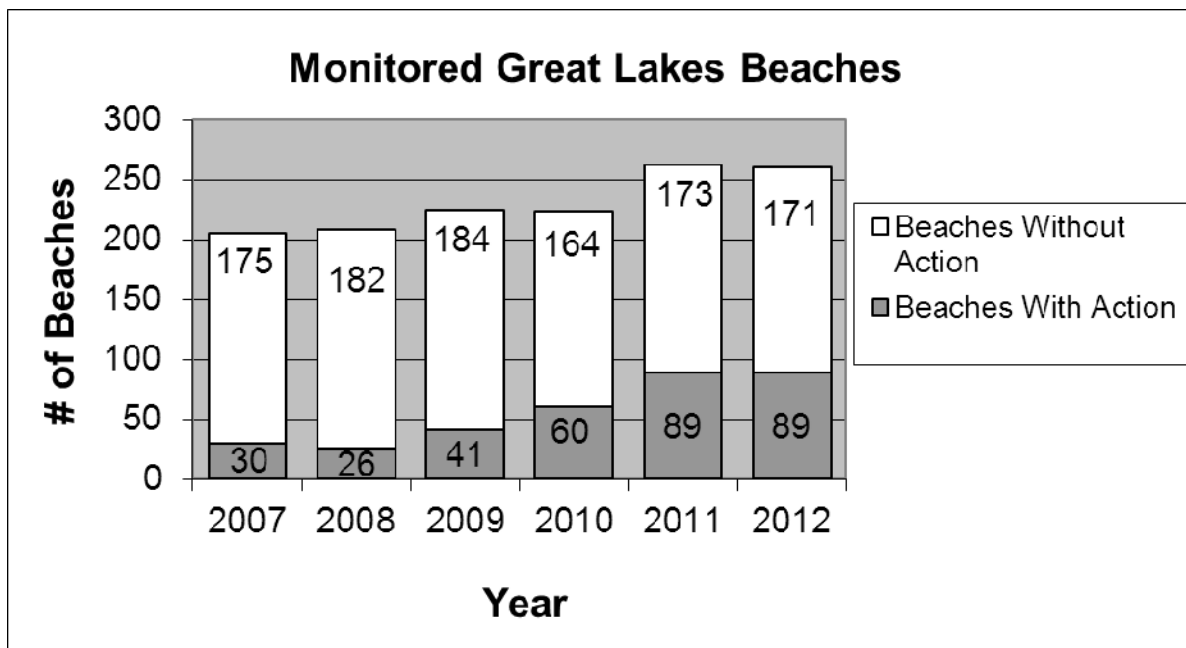


Figure 2. Each bar represents the total number of monitored Great Lakes beaches with divisions designating beaches with and without an action. The number of beaches with an action includes 13 beaches that reported 13 advisories for a total of 21 days due to chemical or oil contamination.

Table 5. Number of public beaches and actions for the Great Lakes, Lake St. Clair, and connecting channels.

Water Body	Number of Public Beaches	Number of Beaches that were Monitored	Number of Beaches with an Action	Number of Beach Actions	Total Number of Days with Actions
Lake Erie	4	4	0	0	0
Lake Huron	168	86	43	57	147
Lake Michigan	302	133	26	36	104
Lake Superior	120	25	10	23	53
Lake St. Clair	4	4	4	8	20
Great Lakes Connecting Channels	14	8	6	9	21
<b>TOTAL</b>	<b>612</b>	<b>260</b>	<b>89</b>	<b>133</b>	<b>345</b>



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

Contamination Source	Number of Actions with Reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Chemical or Oil	13	21	13
Wildlife	2	6	2
Storm Water	13	65	10
Runoff	6	8	6
Other	5	5	5
Unknown	94	240	59
<b>TOTAL</b>	<b>133</b>	<b>345</b>	<b>95*</b>

\*Multiple sources reported for beaches.

#### Synopsis of Data from Inland Beaches

In 2012, monitoring was conducted at 163 inland lake public beaches in 33 counties in Michigan. Out of 1,506 daily samples collected, 55 (3.7 percent) exceeded Michigan's WQS (Appendix F.1). Exceedances and actions were reported from 26 (16 percent) monitored inland beaches. There were a total of 335 incidents that lasted a total of 412 days. Of the 26 beaches that reported actions, 6 contributed to 88 percent of the total days impacted by an action. The remaining 20 beaches issued an action lasting 1 to 7 days and contributed to 12 percent of the total days impacted by an action. Sources of contamination were identified and remediation efforts were initiated at 3 of the beaches.

A summary of exceedances of the *E. coli* WQS for inland beaches is provided in Table 7. Figure 3 shows that the number of monitored inland beaches varies by year and that the number of beaches with an action was lower in 2012 compared to all previous years except 2011. A summary of sources of contamination reported for beach actions for inland lakes is provided in Table 8.

Table 7. Number of exceedances and actions for inland beaches monitored in 2012.

a. Number of Exceedances Reported per Beach	b. Number of Beaches with Exceedance(s)	Total Number of Exceedances (a x b)	c. Number of Actions per Beach	d. Number of Beaches with Actions	Total Number of Actions (c x d)
1	16	16	1	21	21
2	3	6	2	3	6
3	2	6	3	1	3
4	2	8	4	1	4
5	2	10			
9	1	9			
<b>TOTAL</b>	<b>26</b>	<b>55</b>		<b>26*</b>	<b>34</b>

\*Multiple actions per beach reported.

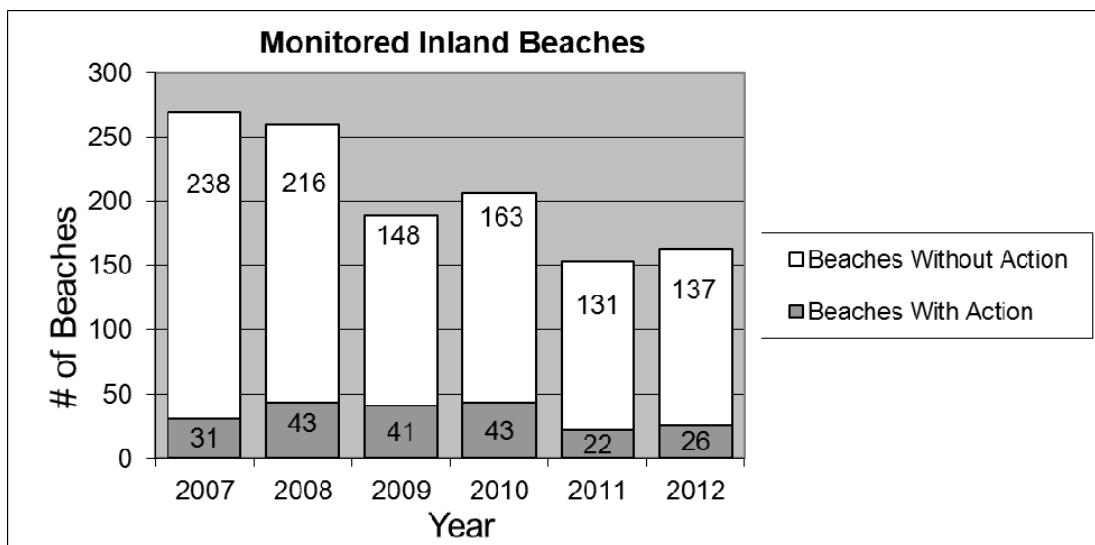


Figure 3. Each bar represents the total number of monitored inland beaches with divisions designating beaches with and without an action.

Table 8. Contamination sources reported for actions, days affected, and the number of beaches reporting the specific cause of an action for inland lakes.

Contamination Source	Number of Actions Reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Wildlife	4	88	4
Storm Water	4	7	4
Leaking sewer	5	75	2
Unknown	21	242	17
<b>TOTAL</b>	<b>34</b>	<b>412</b>	<b>27*</b>

\*Multiple sources reported for 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:

- *E. coli* concentrations exceed the geometric mean WQS of 130 *E. coli* per 100 ml based on weekly samples collected over a minimum of 16 weeks.
- Ten percent of the sample results exceed the daily maximum WQS of 300 *E. coli* per 100 ml based on weekly samples collected over a minimum of 16 weeks.
- Two or more sample results collected at any time during the total body contact recreation season of May 1 to October 31 exceed the partial body WQS of 1,000 *E. coli* per 100 ml.

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

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Appendix A. CMI-CWF Grants for Inland Lake Beaches 2011-2012.

<b>2011-2012 CMI-CWF Grantees</b>	<b>Requested Budget Amount</b>	<b>Granted Amount</b>	<b>Total Monitored Beaches</b>
Barry-Eaton District Health Department	\$8,546.49	\$8,546.49	4
Central Michigan District Health Department	\$30,306.00	\$23,000.00	14
Chippewa County Health Department	\$16,997.96	\$7,700.00	3
District Health Department #2	\$51,732.84	\$24,900.00	20
District Health Department #4	\$10,524.86	\$7,700.00	3
Macomb County Health Department	\$21,716.56	\$6,800.00	2
Oakland County Health Department	\$40,378.74	\$40,378.74	44
Ottawa County Health Department	\$28,570.81	\$22,697.56	8
Washtenaw County Health Department	\$15,101.91	\$9,269.77	5
Wayne County Health Department	\$26,073.00	\$19,000.00	8
Western UP District Health Department	\$9,545.00	\$9,545.00	6
Wexford County Drain Commission	\$10,400.00	\$10,400.00	6
Total	\$269,894.17	\$189,937.56	123

Appendix B. 2012 BEACH Act Grants for Great Lakes Beaches.

<b>Local Health Department</b>	<b>Allocated Amount</b>	<b>Total Monitored Beaches</b>
Allegan County Health Department	\$5,000	4
Bay County Health Department	\$5,000	5
Berrien County Health Department	\$10,260	14
Central Michigan District Health Department	\$9,133	11
Chippewa County Health Department	\$7,254	6
Delta-Menominee District Health Department	\$5,000	4
Detroit, City of	\$2,500	1
District Health Department #2	\$8,382	9
District Health Department #4	\$9,509	12
District Health Department #10	\$13,266	22
Huron County Health Department	\$9,884	13
Luce-Mackinac-Alger-Schoolcraft District Health Department	\$5,000	4
Macomb County Health Department	\$5,000	3
Marquette (City of Marquette)	\$5,000	5
Monroe County Health Department	\$5,000	4
Muskegon County Health Department	\$9,509	12
Northwest Michigan Community Health Agency	\$16,647	31
Ottawa County Health Department	\$8,382	9
St. Clair County Health Department	\$10,636	15
Sanilac County Health Department	\$5,000	5
Van Buren/Cass District Health Department	\$5,000	4
Watershed Center (Grand Traverse & Benzie-Leelanau)	\$8,382	9
Wayne County Health Department	\$2,500	1
Western Upper Peninsula District Health Department	\$9,133	11
<b>Total</b>	<b>\$180,377</b>	<b>214</b>

Appendix C. Waterborne Pathogens

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

Source: USEPA, 2001

Appendix D.1. Inland Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b>	<b>Alcona</b>	Alcona Pond	1	Alcona Park East Campground
2	Alcona	Hubbard Lake	2	Caledonia Township Park
3	Alcona	Cedar Lake	3	Greenbush Township beach
4	Alcona	Brownlee Lake	4	Village of Lincoln Park
<b>2</b>	<b>Alpena</b>	Beaver Lake	1	Beaver Lake Park
6	Alpena	Lake Avalon	2	Lake Avalon Public Access
<b>3</b>	<b>Arenac</b>	AuGres River	1	AuGres River - DNR Access at Pier
8	Arenac	Oasis Lake	2	Oasis Lake County Park
9	Arenac	Pine River	3	Pine River - Arenac County
<b>4</b>	<b>Barry</b>	Thornapple Lake	1	Charlton Park
11	Barry	Gun Lake	2	Main Beach - Day Use Area
12	Barry	Gun Lake	3	Yankee Springs Recreation Area Campground Beach
13	Barry	Gun Lake	4	Yankee Springs Recreation Area Day Use Area
<b>5</b>	<b>Bay</b>	Kawkawlin River	1	Boat Launch on Kawkawlin River
15	Bay	Saginaw River	2	Vet's Park North Bay City
16	Bay	Saginaw River	3	Vet's Park South River Road
<b>6</b>	<b>Benzie</b>	Otter Creek	1	Sleeping Bear Dunes-Otter Creek
<b>7</b>	<b>Chippewa</b>	Dukes Lake	1	Dukes Lake
19	Chippewa	Kinross Lake	2	Kinross Lake
20	Chippewa	Monocle Lake	3	Monocle Lake
<b>8</b>	<b>Clare</b>	Crooked Lake	1	Crooked Lake/Camp Neyati Beach
22	Clare	Budd Lake	2	Wilson Lake State Park
<b>9</b>	<b>Eaton</b>	Fox Memorial Park Beach	1	Fox Memorial Park
<b>10</b>	<b>Gladwin</b>	Ross Lake	1	Beaverton City Park
25	Gladwin	Lake Lancer	2	Berkshire Beach
26	Gladwin	Wiggins Lake South	3	Clendening Road
27	Gladwin	Cedar River	4	Gladwin City Park
28	Gladwin	Lake Lancer	5	Islanders Way
29	Gladwin	Lake Lancelot	6	Kingsway Beach
30	Gladwin	Wiggins Lake North	7	Wiggins Lake Road to Boat Launch
<b>11</b>	<b>Gogebic</b>	Lake Gogebic	1	Gogebic County Park
32	Gogebic	Lake Gogebic	2	Lake Gogebic State Park Beach



Appendix D.1. Inland Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
33	Gogebic	Sunday Lake	3	Sunday Lake Beach
<b>12</b>	<b><u>Houghton</u></b>	Lake Roland	1	Twin Lakes State Park
<b>13</b>	<b><u>Ingham</u></b>	Burchfield Pond	1	Burchfield Park
36	Ingham	Hawk Island	2	Hawk Island County Park
37	Ingham	Lake Lansing	3	Lake Lansing Park South
38	Ingham	Valhalla Pond	4	Valhalla Park
<b>14</b>	<b><u>Iosco</u></b>	Long Lake	1	Long Lake Public Access
40	Iosco	Footte Pond	2	Old Orchard Park
41	Iosco	Van Ettan Lake	3	Oscoda Township Park - Van Ettan Lake
<b>15</b>	<b><u>Isabella</u></b>	Coldwater Lake	1	Coldwater Park
43	Isabella	Halls Lake	2	Broomfield Road
44	Isabella	Borrow Pit	3	Herrick County Park
<b>16</b>	<b><u>Kalamazoo</u></b>	Blue Lake	1	Cold Brook County Park
46	Kalamazoo	Eagle Lake	2	Fort Custer Recreation Area Beach
47	Kalamazoo	Swimmers Lake	3	Markin Glen County Park
48	Kalamazoo	Hogsett Lake	4	Prairie View County Park
49	Kalamazoo	Long Lake	5	Ramona Park
50	Kalamazoo	Campbell Lake	6	Robert Morris Park
51	Kalamazoo	Gull Lake	7	Ross Township Park
52	Kalamazoo	Sunset Lake	8	Sunset Lake Park
53	Kalamazoo	Woods Lake	9	Woods Lake Beach
<b>17</b>	<b><u>Leelanau</u></b>	Sleeping Bear Dunes-Little Glen Lake	1	Little Glen Lake
55	Leelanau	Sleeping Bear Dunes-North Bar Lake	2	North Bar Lake
<b>18</b>	<b><u>Livingston</u></b>	Bishop Lake	1	Brighton State Recreation Area
57	Livingston	Bentley Lake	2	Camp Innisfree
58	Livingston	Lake Chemung	3	Camp Talahi
59	Livingston	Haynor Lake	3	Hamburg Fitness Center and Camp
60	Livingston	Thompson Lake	4	Howell City Park
61	Livingston	Pleasant Lake	5	Howell Nature Center
62	Livingston	Spring Mill Pond	6	Island Lake Recreation Area
63	Livingston	Kent Lake	7	Island Lake Recreation Area - Kent Lake
64	Livingston	Lake Chemung	8	Lake Chemung Outdoor Resort
65	Livingston	Winans Lake	9	Lakelands Golf and Country Club
66	Livingston	Cook Lake	10	Taylor's Beach
67	Livingston	Cordley Lake	11	Varsity Day Camp
68	Livingston	Lake Walden	12	Waldenwoods Resort

Appendix D.1. Inland Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
69	Livingston	Sandy Bottom Lake	13	Water's Edge Camp
70	Livingston	Church Lake	14	Wildwood Ranch
<b>19</b> 71	<b><u>Macomb</u></b>	Stony Creek Lake-Impoundment	1	Stony Creek Metropark-Baypoint Beach
72	Macomb	Stony Creek Lake-Impoundment	2	Stony Creek Metropark-Eastwood Beach
<b>20</b> 73	<b><u>Midland</u></b>	Sanford Lake	1	Sanford Lake Park
<b>21</b> 74	<b><u>Montmorency</u></b>	Clear Lake	1	Clear Lake Day Use
<b>22</b> 75	<b><u>Oakland</u></b>	Adams Lake	1	Addison Oaks County Park
76	Oakland	Lower Trout	2	Bald Mountain Recreation Area
77	Oakland	Green Lake	3	Bay Court Park
78	Oakland	Walnut Lake	4	Bloomfield Parks and Recreation/West Hills M.S.
79	Oakland	Tipsico Lake	5	Brown's Landing Mobile Home Park
80	Oakland	Tommys Lake	6	Camp Agawam Boy Scout Camp
81	Oakland	Phillips Lake	7	Camp Dearborn - Lake #1
82	Oakland	Phillips Lake	8	Camp Dearborn - Lake #5
83	Oakland	Phipps Lake	9	Camp Maas - Rodecker
84	Oakland	Phipps Lake	10	Camp Maas- Sobell Beach
85	Oakland	Handsome Lake	11	Camp Oakland - summer
86	Oakland	Fish Lake	12	Camp Ohiyesa - North
87	Oakland	Green Lake	13	Camp Wathana
88	Oakland	Long Lake	14	Christ the King Church Camp
89	Oakland	Green Lake	15	Clear Water Resort
90	Oakland	Orchard lake	16	Country Club (500 W. Shore Dr)
91	Oakland	Mill Pond	17	Davisburg Village Beach (Hart Community Center)
92	Oakland	Cass Lake	18	Dodge Park #4
93	Oakland	Walled Lake	19	E.V. Mercer City Beach
94	Oakland	Sylvan Lake	20	Ferndale
95	Oakland	Sun Lake	21	Finnish Day Camp
96	Oakland	Orion Lake	22	Greens Park Village Beach
97	Oakland	Stewart Lake	23	Groveland Oaks County Park - Paradise Beach
98	Oakland	Haas Lake	24	Haas Lake Park #1
99	Oakland	Big Peat Lake	25	Haas Lake Park #2
100	Oakland	Haas Lake	26	Haas Lake Park #3
101	Oakland	Haas Lake	27	Hass Lake Park #4
102	Oakland	Heron Lake	28	Holly Recreation Area - Heron Beach
103	Oakland	Bush Lake	29	Holly Village Beach
104	Oakland	Crooked Lake	30	Independence Oaks County Park
105	Oakland	Deer Lake	31	Independence Township Village Beach
106	Oakland	Cass Lake	32	Keego Harbor City Beach

Appendix D.1. Inland Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
107	Oakland	Kent Lake	33	Kensington - Martindale Beach
108	Oakland	Walled Lake	34	Lakeshore Park
109	Oakland	Pontiac Lake	35	Pontiac Recreation Area
110	Oakland	Cass Lake	36	Pontiac Yacht Club
111	Oakland	Proud Lake	37	Proud Lake Recreation Area Campground
112	Oakland	Round Lake	38	Scripter Village Park Township Beach
113	Oakland	Big Seven Lake	39	Seven Lakes Park
114	Oakland	Sand Lake	40	Seven Lakes State Park - Campground
115	Oakland	Stony Lake	41	Stony Lake Park
116	Oakland	Teeple Lake	42	Teeple Lake Recreation Area - Highland State Park
117	Oakland	Lake at Park	43	Thelma Spencer Park
118	Oakland	Prince Lake	44	Upland Hills Farm
<b>23</b>	<b><u>Ogemaw</u></b>	Elbow Lake	1	Mills Township Park
120	Ogemaw	Grousehaven Lake	2	Rifle River Recreation Area Campground Beach
121	Ogemaw	Rifle Lake	3	Shady Shores Park Subdivision
122	Ogemaw	Skidway Lake	4	Skidway Lake
<b>24</b>	<b><u>Ontonagon</u></b>	Lake Gogebic	1	Bergland Township Park
124	Ontonagon	Lake Gogebic	2	Ontonagon County Park
<b>25</b>	<b><u>Osceola</u></b>	Muskegon River	1	Crawford Park
<b>26</b>	<b><u>Oscoda</u></b>	Perry Lake	1	Comins Township Park
127	Oscoda	Smith Lake	2	Oscoda County Park
<b>27</b>	<b><u>Ottawa</u></b>	Lake Macatawa	1	Dunton Park
129	Ottawa	Georgetown Lake	2	Georgetown Community Park
130	Ottawa	Crockery Lake	3	Grose Park
131	Ottawa	Lake Macatawa	4	Holland State Park
132	Ottawa	Spring Lake	5	Lakeside Beach
133	Ottawa	Maplewood Lake	6	Maplewood Lake Park
134	Ottawa	Pottawattomie Bayou	7	Pottawattomie Park
<b>28</b>	<b><u>Roscommon</u></b>	Houghton Lake	1	Denton Township Public Beach
136	Roscommon	Higgins Lake	2	Gerrish Township Park
137	Roscommon	Houghton Lake	3	Houghton Lake Heights
138	Roscommon	Higgins Lake	4	Kelly Beach
139	Roscommon	Higgins Lake	5	North Higgins State Park
140	Roscommon	Lake St. Helen	6	Richfield Township Public Fishing Site
141	Roscommon	Higgins Lake	7	South Higgins Lake State Park
<b>29</b>	<b><u>Schoolcraft</u></b>	Quarry Lake	1	Quarry Beach

Appendix D.1. Inland Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>	
<b>30</b>	<b>143</b>	<b><u>St. Clair</u></b>	Emmett K.O.A. Pond	1	Emmett K.O.A.
	144	St. Clair	Fort Trodd Lake	2	Fort Trodd Campground North
	145	St. Clair	Fort Trodd Lake	3	Fort Trodd South
	146	St. Clair	Kimball Pond	4	Kimball Township Pond
	147	St. Clair	Ruby Campground Pond	5	Ruby Campground
<b>31</b>	<b>148</b>	<b><u>Washtenaw</u></b>	Independence Lake	1	Independence Lake County Park
	149	Washtenaw	Silver Lake	2	Pinckney Recreation Area
	150	Washtenaw	Half Moon Lake	3	Pinckney Recreation Area
	151	Washtenaw	Bruin Lake	4	Pinckney Recreation Area
	152	Washtenaw	Sugarloaf Lake	5	Waterloo Recreation Area
<b>32</b>	<b>153</b>	<b><u>Wayne</u></b>	Blue Heron Pond	1	Blue Heron Condominiums Pond
	154	Wayne	Newburg Lake	2	Newburg and Sumac Pointes-Hines Park
	155	Wayne	Sherwood Lake	3	Sherwood Park
	156	Wayne	Silver Spring Lake	4	Silver Spring Lake
	157	Wayne	Belleville Lake	5	Van Buren Township Park
<b>33</b>	<b>158</b>	<b><u>Wexford</u></b>	Lake Cadillac	1	Cadillac City Dock
	159	Wexford	Lake Cadillac	2	City Park
	160	Wexford	Lake Meauwataka	3	Colfax Township Park
	161	Wexford	Lake Cadillac	4	Kenwood Park
	162	Wexford	Billings Lake	5	Manton Park
	163	Wexford	Lake Mitchell	6	Mitchell State Park

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b>	<b>Alcona</b>	Alcona Pond	1	Alcona Pond West Campground
2	Alcona	Hubbard Lake	2	Alcona Township Park
3	Alcona	Brownlee Lake	3	Brownlee Lake - Village of Lincoln Park
<b>2</b>	<b>Allegan</b>	Dumont Lake	1	Dumont Lake County Park Beach
5	Allegan	Ely Lake	2	Ely Lake Campground Beach
6	Allegan	Gun Lake	3	Gun Lake County Park Beach
7	Allegan	Little John Lake	4	Little John Lake County Park Beach
8	Allegan	Swan Creek Pond	5	Pine Point Campground Beach
<b>3</b>	<b>Alpena</b>	Long Lake	1	Long Lake Day Use
10	Alpena	Long Lake	2	Long Lake Park
<b>4</b>	<b>Antrim</b>	Torch Lake	1	Day Park
12	Antrim	Torch Lake	2	Eastport
13	Antrim	Lake Bellaire	3	Richard Park
14	Antrim	Central Lake	4	Thurston Park
15	Antrim	Torch Lake	5	Torch River Bridge
16	Antrim	Torch River	6	Torch River Sand Bar
17	Antrim	Elsworth Lake	7	Wooden Shoe Park
<b>5</b>	<b>Arenac</b>	Man-Made Pond	1	Big Bend Campground
19	Arenac	Flint Park Hunt Club Lake	2	Flint Park Hunt Club
20	Arenac	Man-Made Pond	3	Outdoor Adventures
<b>6</b>	<b>Barry</b>	Gull Lake	1	Prairieville Township Park
<b>7</b>	<b>Benzie</b>	Crystal Lake	1	Bellows
23	Benzie	Crystal Lake	2	South Shore near Beulah
<b>8</b>	<b>Berrien</b>	St. Joseph River	1	Bertrand Park
25	Berrien	St. Joseph River	2	Niles - French Paper
26	Berrien	St. Joseph River	3	Niles - Marmont
27	Berrien	Paw Paw Lake	4	Paw Paw Lake
<b>9</b>	<b>Branch</b>	Messenger Lake	1	Memorial Park
29	Branch	First Lake	2	Quincy Park
<b>10</b>	<b>Calhoun</b>	Duck Lake	1	Springport
31	Calhoun	Goguac Lake	2	Willard Beach in Battle Creek
<b>11</b>	<b>Charlevoix</b>	Huffman Lake	1	Hudson Township Park
33	Charlevoix	Walloon Lake	2	Melrose Township Park
34	Charlevoix	Thumb Lake	3	Thumb Lake Beach
<b>12</b>	<b>Cheboygan</b>	Mullett Lake	1	Aloha State Park

Appendix D.2. Inland Beaches Not Monitored.

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

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
77	Emmet	Larks Lake	5	Pioneer Picnic Park
78	Emmet	Walloon Lake	6	Resort Pike Road Beach
<b>18</b> 79	<b>Genesee</b>	Lake Ponemah	1	At Drain
80	Genesee	Barnum Lake	2	Barnum Lake
81	Genesee	Hasler Lake	3	Beach at Hasler Lake
82	Genesee	Pinewood Lake	4	Beach at Pinewood Lake
83	Genesee	Mott Lake	5	Bluebell Beach
84	Genesee	Mott Lake	6	Bluegill Boat Ramp
85	Genesee	Buell Lake	7	Boat Ramp at Buell Lake
86	Genesee	Holloway Reservoir	8	Buttercup Beach
87	Genesee	Copneconic Lake	9	Camp Copneconic
88	Genesee	Silver Lake	10	City Park Beach
89	Genesee	Byram Lake	11	Clover Beach
90	Genesee	Copneconic Lake	12	Copneconic Day Beach
91	Genesee	Covenant Hill Camp	13	Covenant Hill Camp
92	Genesee	Crane Lake	14	Crane Lake Beach
93	Genesee	Crooked Lake	15	Crooked Lake
94	Genesee	Fenton Lake	16	DNR Boat Dock-Fenton Lake
95	Genesee	Lake Ponemah	17	DNR Boat Launch at Lake Ponemah
96	Genesee	Lobdell Lake	18	DNR Boat Launch at Lobdell Lake
97	Genesee	Dollar lake	19	Dollar Lake
98	Genesee	Fenton Lake	20	Fenton Lake Marina
99	Genesee	Flagstone Point	21	Flagstone Point Beach
100	Genesee	Golden Rod Lake	22	Golden Rod Beach
101	Genesee	Hasler Lake	23	Hasler Lake Campground
102	Genesee	Kearsley Reservoir	24	Kearsley Reservoir Beach
103	Genesee	Kelly Lake	25	Kelly Lake
104	Genesee	Lake Helene	26	Lake Helene Beach
105	Genesee	Lake Linda	27	Lake Linda
106	Genesee	Lake Shinangaug	28	Lake Shinangaug
107	Genesee	Linden Mill Pond	29	Linden Mill Pond Beach
108	Genesee	Loon Lake	30	Loon Lake Beach
109	Genesee	Marl Lake	31	Marl Lake Beach
110	Genesee	McCaslin Lake	32	McCaslin Lake Beach
111	Genesee	McKane Lake	33	McKane Lake Beach
112	Genesee	Mott Lake Stepping Stone	34	Mott Lake Stepping Stone Beach
113	Genesee	Myers Lake	35	Myers Lake
114	Genesee	Pine Lake	36	Pine Lake Beach
115	Genesee	Silver Lake	37	Silver Lake Marina
116	Genesee	Smokerise Lake	38	Smokerise Beach
117	Genesee	Squaw Lake	39	Squaw Lake Beach
118	Genesee	Thread Lake	40	Thread Lake Beach
119	Genesee	Fenton Lake	41	Township Hall
120	Genesee	Holloway Reservoir	42	Walleye Pike Dock
121	Genesee	West Sister Lake	43	West Sister Lake

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>19</b>	<b><u>Gladwin</u></b>	Cedar River	1	Cedar River Campground Beach
122	Gladwin	Tittabawassee River	2	Estey Road Access
123	Gladwin	Tittabawassee River	3	Gilman Springs Canoe Launch
124	Gladwin	Flowing well/pond	4	Gilman Springs Swimming Area
125	Gladwin	Cedar River	5	Gladwin North Park
126	Gladwin	Tittabawassee River	6	Good News Camp
127	Gladwin	Hoister Lake	7	Hoister Lake Beach
128	Gladwin	House Lake	8	House Lake
129	Gladwin	Lake Four	9	Lake Four
130	Gladwin	Lyle Drain/Tobacco River	10	Lost Haven Beach
131	Gladwin	Tittabawassee River	11	Pine Street Public Access
132	Gladwin	Pratt Lake	12	Pratt Lake
133	Gladwin	Secord Lake	13	Secord Lake
134	Gladwin	Secord Lake	14	Secord Lake - East
135	Gladwin	Lake Lancer	15	Sugar Springs/Lake Lancer
136	Gladwin	Trout Lake	16	Trout Lake SFCG
137	Gladwin	Secord Lake	17	West River Drive Boat Launch
138	Gladwin	Wixon Lake	18	Wixon Lake - West
139				
<b>20</b>	<b><u>Grand Traverse</u></b>	Long Lake (AKA: Mickey Lake)	1	Gilbert Beach
140	Grand Traverse	Long Lake (AKA: Mickey Lake)	2	Taylor Park
141				
<b>21</b>	<b><u>Hillsdale</u></b>	Bird lake	1	Bird Lake Beach
142	Hillsdale	Baw Beese Lake	2	Sandy Beach
143				
<b>22</b>	<b><u>Iosco</u></b>	Chain Lake	1	Chain Lake Beach
144	Iosco	Footie Pond	2	Footsite Park
145	Iosco	Loon Lake	3	Loon Lake Park
146	Iosco	Sand Lake	4	Sand Lake - Sand Lake Road Access
147				
<b>23</b>	<b><u>Isabella</u></b>	Chippewa River	1	Deerfield County Park
148	Isabella	Millpond	2	Millpond Park
149				
<b>24</b>	<b><u>Jackson</u></b>	Clark Lake	1	Clark Lake County Park
150	Jackson	Clear Lake	2	Clear Lake County Park
151	Jackson	Gilletts Lake	3	Gilletts Lake County Park
152	Jackson	Grass Lake	4	Grass Lake County Park
153	Jackson	Lime Lake	5	Lime Lake County Park
154	Jackson	Little Wolf Lake	6	Little Wolf Lake County Park
155	Jackson	Pleasant Lake	7	Pleasant Lake County Park & Campground
156	Jackson	Portage Lake	8	Portage Lake County Park
157	Jackson	Round Lake	9	Round Lake County Park
158	Jackson	Swains Lake	10	Swains Lake County Park
159	Jackson	Vandercook Lake	11	Vandercook Lake County Park
160	Jackson	Vineyard Lake	12	Vineyard Lake County Park
161				



Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>	
<b>25</b>	<b>162</b>	<b><u>Kalamazoo</u></b>	Timber Lake	1	Timber Lake Campground
<b>26</b>	<b>163</b>	<b><u>Kent</u></b>	Reeds Lake	1	Collins Park
	164	Kent	Lincoln Lake	2	Lincoln Lake Baptist Camp
	165	Kent	Lincoln Lake	3	Lincoln Pines Resort
	166	Kent	Long Lake	4	Long Lake County Park
	167	Kent	Myers Lake	5	Myers Lake County Park
	168	Kent	Scalley Lake	6	Scalley Lake Park
	169	Kent	Versluis Lake	7	Versluis Park
	170	Kent	Wabasis Lake	8	Wabasis Lake County Park
<b>27</b>	<b>171</b>	<b><u>Leelanau</u></b>	Lake Leelanau	1	Leelanau Township Park Beach
	172	Leelanau	Lake Leelanau	2	Nedow's (Barthalomew) Beach
	173	Leelanau	Lake Leelanau	3	Popp Road End
	174	Leelanau	South Bar Lake	4	South Bar Lake - South End
<b>28</b>	<b>175</b>	<b><u>Livingston</u></b>	Dibrova Lake	1	Green Valley Camp
<b>29</b>	<b>176</b>	<b><u>Marquette</u></b>	Dead River Reservoir	1	Marquette Tourist Park Beach
<b>30</b>	<b>177</b>	<b><u>Menominee</u></b>	Hermansville lake	1	Hermansville Beach
	178	Menominee	Shakey Lakes	2	Shakey Lakes Campground
<b>31</b>	<b>179</b>	<b><u>Monroe</u></b>	Camp Lord Willing Pond	1	Camp Lord Willing
	180	Monroe	Covered Wagon Campground Pond	2	Covered Wagon Campground
	181	Monroe	Heath Beach Pond	3	Heath Beach
	182	Monroe	K.C. Campground Pond	4	K.C. Campground
	183	Monroe	Monroe KOA Campground Pond	5	Monroe K.O.A. Campground
	184	Monroe	Pirollis Campground Pond	6	Pirolli's Campground
	185	Monroe	The Vine Campground Pond	7	The Vine
	186	Monroe	Man-Made Pond	8	Totem Pole Campground Pond
	187	Monroe	Wilderness Retreat Campground Pond	9	Wilderness Retreat Campground
<b>32</b>	<b>188</b>	<b><u>Montmorency</u></b>	Clear Lake	1	Clear Lake State Park
	189	Montmorency	Crooked Lake	2	Crooked Lake Beach
	190	Montmorency	East Twin Lake	3	East Twin Beach/Albert Township Park
	191	Montmorency	Ess Lake	4	Ess Lake State Campground
<b>33</b>	<b>192</b>	<b><u>Muskegon</u></b>	Big Blue Lake	1	Blue Lake County Park Beach
	193	Muskegon	Duck Lake	2	Duck Lake State Park Beach
	194	Muskegon	Fox Lake	3	Fox Lake Park Beach
	195	Muskegon	Muskegon Lake	4	Harbor Towne Beach

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
196	Muskegon	Bear Lake	5	Laketon Township Beach
197	Muskegon	White Lake	6	Maple Park
198	Muskegon	Mona Lake	7	Mona Lake Park Beach
199	Muskegon	Half Moon Lake	8	Moore County Park Beach
200	Muskegon	Muskegon Lake	9	Muskegon State Park - Muskegon Lake Side
201	Muskegon	West Lake	10	Paddley Park
202	Muskegon	Mona Lake	11	Ross Park Beach
203	Muskegon	Wolf Lake	12	Sunset Park
204	Muskegon	Twin Lake	13	Twin Lake County Park Beach
205	Muskegon	Muskegon Lake	14	Water Sports Park
206	Muskegon	Wolf Lake	15	Wolf Lake County Park
<b>34</b> 207	<b>Oakland</b>	Upper Pettibone Lake	1	657 Dunleavy
208	Oakland	Union Lake	2	Alpha Beach
209	Oakland	Long Lake	3	Annex 1
210	Oakland	Avon Lake	4	Avon Lakes Beach #1
211	Oakland	Avon Lake	5	Avon Lakes Beach #2
212	Oakland	Upper Straits Lake	6	Banker's Subdivision
213	Oakland	Upper Straits Lake	7	Bayside Beach Association
214	Oakland	Walled Lake	8	Beachwalk Apartments
215	Oakland	Loon Lake	9	Birch Park
216	Oakland	Oakland Lake	10	Bird Island Subdivision
217	Oakland	Elizabeth Lake	11	Bloomfield
218	Oakland	Bogie Lake	12	Bogie Lake Property Owners - Beryl Drive
219	Oakland	Brendel Lake	13	Brendle Heights - Hillwood
220	Oakland	Huntoon Lake	14	Broadway Civic Association
221	Oakland	Long Lake	15	Bunny Run C.C.
222	Oakland	Union Lake	16	Burley & Barnsbury Streets
223	Oakland	Huntoon Lake	17	Burlingham Lake Park I
224	Oakland	Huntoon Lake	18	Burlingham Lake Park II
225	Oakland	Ekelund Lake	19	Camp Gordanwood
226	Oakland	Narrin Lake	20	Camp Narrin
227	Oakland	Cass Lake	21	Cass Lake Woods
228	Oakland	Elizabeth Lake	22	Cass-Elizabeth Heights
229	Oakland	Cedar Island Lake	23	Cedar Crest Subdivision
230	Oakland	Charnwood Lake	24	Charnwood
231	Oakland	Fox Lake	25	Cloister-on-the-Lakes
232	Oakland	Cranberry Lake	26	Cranberry Lake Village
233	Oakland	Cranberry Lake	27	Cranberry Lake Village
234	Oakland	Crescent Lake	28	Crescent Highlands
235	Oakland	Crescent Lake	29	Crescent Lake Park
236	Oakland	Middle Straits Lake	30	Crystal Echo
237	Oakland	Middle Straits Lake	31	Crystal Echo (the point)
238	Oakland	Sylvan Lake	32	Cunningham Park
239	Oakland	Deer Lake	33	Deer Lake Estates
240	Oakland	Lakeville Lake	34	Doll's Dock (Skip's Landing)

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
241	Oakland	Eagle Lake	35	Eagle Lake Road
242	Oakland	Elizabeth Lake	36	Elizabeth Lake Estates Improvement Assoc.
243	Oakland	Elizabeth Lake	37	Elizabeth Lakeshore
244	Oakland	Elizabeth Lake	38	Elizabeth Shores
245	Oakland	Emerald Lake	39	Emerald Lake
246	Oakland	Sandshores	40	Emerald Lake Homeowners Assoc. - Little Creek Road
247	Oakland	Round Lake	41	Family Park
248	Oakland	Walnut Lake	42	Finnish American Club of Detroit
249	Oakland	Allen Lake	43	Fox Bay Civic Association
250	Oakland	Green Lake	44	Green Acres / Green Valley Park
251	Oakland	Hammond Lake	45	Hammond Estates
252	Oakland	Lotus Lake	46	Harris Park
253	Oakland	Harvey Lake	47	Harvey Lake Estates
254	Oakland	Harvey Lake	48	Harvey Lake Heights
255	Oakland	Watkins Lake	49	Heitch Street
256	Oakland	Wildwood Lake	50	Holly Recreation Area - Wildwood Beach
257	Oakland	Huntoon Lake	51	Huntoon Village
258	Oakland	Bass Lake	52	Idlewild Subdivision
259	Oakland	Indian Lake	53	Indian Lake Improvement Association
260	Oakland	Loon Lake	54	Indianwood
261	Oakland	Rowe Lake	55	Jacksina Subdivision
262	Oakland	Voorheis Lake	56	Keatington Subdivision - Eaton Gate - off Baldwin
263	Oakland	Voorheis Lake	57	Keatington Subdivision - Joslyn Court
264	Oakland	Cass Lake	58	Keego Harbor Trailer Park
265	Oakland	Kent Lake	59	Kensington - Maple Beach
266	Oakland	Morgan Lake	60	Lake Angelus Lakeview Estates
267	Oakland	Oakland Lake	61	Lake Oakland Heights
268	Oakland	Oakland Lake	62	Lake Oakland Shores
269	Oakland	Orion Lake	63	Lake Orion Heights
270	Oakland	Waumegah Lake	64	Lake Waumegah Homeowners Association
271	Oakland	Watkins Lake	65	Lakeland Association #1
272	Oakland	Watkins Lake	66	Lakeland Association #2
273	Oakland	Eagle Lake	67	Lakeland Estates
274	Oakland	Clear Lake	68	Lakeland Improvement Association - Keith Street
275	Oakland	Sylvan Lake	69	Lakeview
276	Oakland	Carpenter Lake	70	Lakeview Recreation
277	Oakland	Geneva Lake	71	Lakewood Farms - Crocus Street
278	Oakland	Geneva Lake	72	Lakewood Farms - Sharon Street
279	Oakland	Brendel Lake	73	Lakewood Village
280	Oakland	Neva Lake	74	Lakewood Village Subdivision
281	Oakland	Watkins Lake	75	Lanarh Street
282	Oakland	Sherwood Lake	76	Ledgewood
283	Oakland	Marion Lake	77	Locklin Pines Association
284	Oakland	Commerce Lake	78	Log Cabin Subdivision

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
285	Oakland	Lotus Lake	79	Lotus Park
286	Oakland	Lower Straits Lake	80	Lower Straits Beach Club
287	Oakland	Lower Straits	81	Maple Point
288	Oakland	Tan Lake	82	Mary K. Subdivision
289	Oakland	Meadow Lake	83	Meadow Lake Association
290	Oakland	Davis Lake	84	Meagher Park/Woodland Manor
291	Oakland	Darb Lake	85	Mission Springs Subdivision
292	Oakland	Lotus Lake	86	Mountain View
293	Oakland	Maceday Lake	87	Moutain View C.C. Subdivision
294	Oakland	Walnut Lake	88	North Cove
295	Oakland	Upper Pettibone Lake	89	Oak Heights Improvement Association
296	Oakland	Sugden Lake	90	Oakridge Subdivision
297	Oakland	Upper Straits Lake	91	Outlet A
298	Oakland	Brendel Lake	92	Pawlaks Campground
299	Oakland	Pine Lake	93	Pine Lake Manor
300	Oakland	Bogie Lake	94	Pinecrest Shores
301	Oakland	Sylvan Lake	95	Pioneer Highlands
302	Oakland	Pleasant Lake	96	Pleasant Lake Highlands
303	Oakland	Pleasant Lake	97	Pleasant Lake Manor
304	Oakland	Pleasant Lake	98	Pleasant Lake Woods
305	Oakland	Square Lake	99	Pleasant View Subdivision
306	Oakland	Square Lake	100	Pleasant View Subdivision - Kempster Street
307	Oakland	Elizabeth Lake	101	Rangate Park
308	Oakland	Sherwood Lake	102	Ravinewood East
309	Oakland	Sherwood Lake	103	Ravinewood West
310	Oakland	Reed Lake	104	Reed Lake Property Owners
311	Oakland	White Lake	105	Rolling Acres
312	Oakland	Mud Lake	106	Rose Hill Center
313	Oakland	Loon Lake	107	Sandy Beach
314	Oakland	Scotch Lake	108	Scotch Lake Residents
315	Oakland	Upper Straits Lake	109	Shady Beach
316	Oakland	Walnut Lake	110	Shenandoah Farms Association
317	Oakland	Sherwood Lake	111	Sherwood Boat Ramp
318	Oakland	Sherwood Lake	112	Sherwood Property Owners
319	Oakland	Lower Straits Lake	113	Shores at Bay Point
320	Oakland	Silver Lake	114	Silver Hill Road
321	Oakland	Carpenter Lake	115	Silver Valley Subdivision
322	Oakland	Orchard Lake	116	St. Mary's Park
323	Oakland	White Lake	117	Stanley Beach
324	Oakland	Middle Straits Lake	118	Stony Beach
325	Oakland	Walters Lake	119	Sunny Beach #1 - Eston Road
326	Oakland	Walters Lake	120	Sunny Beach #2 - Clarkston Road
327	Oakland	Orion Lake	121	Sunset Club
328	Oakland	Cedar Island Lake	122	Sunset Subdivision
329	Oakland	Sylvan Lake	123	Sylvan Shores Improvement Association
330	Oakland	Cass Lake	124	Sylvan-on-the-Lakes

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
331	Oakland	Elizabeth Lake	125	Terrace
332	Oakland	Middle Straits Lake	126	Tripps Subdivision Park
333	Oakland	Middle Straits Lake	127	Twin Beach Park
334	Oakland	Long Lake	128	Twin Shores Subdivision
335	Oakland	Union Lake	129	Union Lake Beach Club
336	Oakland	Union Lake	130	Union Lake Heights Subdivision #2
337	Oakland	Walnut Lake	131	Walnut Lake Hills Corporation
338	Oakland	Walnut Lake	132	Walnut Lake Park
339	Oakland	Elizabeth Lake	133	Walters
340	Oakland	Van Norman Lake	134	Waterford Hill
341	Oakland	Middle Straits Lake	135	West Acres
342	Oakland	Wing Lake	136	Westwood Manor
343	Oakland	Whipple Lake	137	Whipple Shores Subdivision
344	Oakland	Maceday Lake	138	Whitfield-Maceday Association - North
345	Oakland	Maceday Lake	139	Whitfield-Maceday Association - South
346	Oakland	Watkins Lake	140	Whitney Street
347	Oakland	Cass Lake	141	Willow Beach Subdivision
348	Oakland	Wing Lake	142	Wing Lake Farms Association
349	Oakland	Wing Lake	143	Wing Lake Property Owners Association
350	Oakland	Woodhull Lake	144	Woodhull Lake Civic Association
<b>35</b>	<b>Ogemaw</b>	Hardwood Lake	1	Hardwood Lake
352	Ogemaw	Lake George	2	Lake George Campground
353	Ogemaw	Devoe Lake	3	Rifle River Recreation Area
354	Ogemaw	Grousehaven Lake	4	Rifle River Recreation Area Day Use Area
<b>36</b>	<b>Osceola</b>	Center Lake	1	Center Lake Bible Camp
356	Osceola	Center Lake	2	Center Lake Park
357	Osceola	Muskegon River	3	City of Evert Campground
358	Osceola	Big Lake	4	Crittenden Park
359	Osceola	Diamond Lake	5	Diamond Lake
360	Osceola	Diamond Lake	6	DNR Access Diamond Lake
361	Osceola	Hicks Lake	7	DNR Access Hicks Lake
362	Osceola	McCoy Lake	8	DNR Access McCoy Lake
363	Osceola	Todd Lake	9	DNR Access Todd Lake
364	Osceola	Wells Lake	10	DNR Access Wells Lake
365	Osceola	Muskegon River	11	Hersey Road Access
366	Osceola	Center Lake	12	Kettunen Center
367	Osceola	Mio Pond	13	Mio Pond Campground
368	Osceola	Rose Lake	14	Rose Lake County Park
369	Osceola	Rose Lake	15	Rose Lake Youth Camp
370	Oscoda	Sunrise Lake	16	Sunrise Lake Park
<b>37</b>	<b>Otsego</b>	Otsego Lake	1	Arbutus Beach
372	Otsego	Otsego Lake	2	Arbutus Beach
373	Otsego	Bear Lake	3	Bear Lake State Forest Campground

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
374	Otsego	Big lake	4	Big Lake
375	Otsego	Otsego Lake	5	Otsego County Park
376	Otsego	Otsego Lake	6	Otsego Lake State Park North
377	Otsego	Otsego Lake	7	Otsego State Park
378	Otsego	Pickeral Lake	8	Pickeral Lake State Forest Campground
379	Otsego	Otsego Lake	9	WahWahSoo Beach
<b>38</b> 380	<b><u>Ottawa</u></b>	Lake Macatawa	1	Fallen Leaf Park
381	Ottawa	Pottawattomie Bayou	2	Pottawattomie Park
<b>39</b> 382	<b><u>Presque Isle</u></b>	Grand Lake	1	Grand Lake Northwest
383	Presque Isle	Grand Lake	2	Grand Lake Public Access
384	Presque Isle	Lake May	3	Lake May Public Access
385	Presque Isle	Ocquoec River	4	Millersburg Park
386	Presque Isle	Ocquoec River	5	Ocquoec Falls Park
387	Presque Isle	Black Lake	6	Onaway State Park
388	Presque Isle	Shoepac Lake	7	Shoepac Lake Campground
389	Presque Isle	Sunken Lake	8	Sunken Lake County Park
390	Presque Isle	Tomahawk Lake	9	Tomahawk Lake Campground
<b>40</b> 391	<b><u>Roscommon</u></b>	Backus Pond	1	Backus Township Park
392	Roscommon	Bambi Lake/Sinkhole Lake	2	Bambi Lake Camp
393	Roscommon	Higgins Lake	3	Beaver Creek Road End
394	Roscommon	Owens Lake	4	Camp Co-Be-Ac
395	Roscommon	Higgins Lake	5	DNR Public Fishing Site
396	Roscommon	Higgins Lake	6	Higgins Lake Public Fishing Site
397	Roscommon	Houghton Lake	7	Houghton Lake DNR Boat Launch and Park
398	Roscommon	Houghton Lake	8	Houghton Lake Public Fishing Site
399	Roscommon	Houghton Lake	9	Houghton Lake State Forest Campground
400	Roscommon	Houghton Lake	10	Old 27 DNR Access
401	Roscommon	Higgins Lake	11	Phoenix Park
402	Roscommon	Higgins Lake	12	Sam-O-Set Road End
<b>41</b> 403	<b><u>Saginaw</u></b>	Haithco Lake	1	Haithco Recreation Area
404	Saginaw	Lake of Dreams	2	Lake of Dreams Campground
<b>42</b> 405	<b><u>St. Joseph</u></b>	Cade Lake	1	Cade Lake Beach
406	St. Joseph	Sand Lake	2	Nottawa Park
407	St. Joseph	Palmer Lake	3	Palmer Lake Beach
<b>43</b> 408	<b><u>Tuscola</u></b>	Murphy Lake	1	Murphy Lake

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b>	<b>Alcona</b>	Lake Huron	1	Black River Public Access
	Alcona	Lake Huron	2	Greenbush Township
	Alcona	Lake Huron	3	Harrisville State Park
	Alcona	Lake Huron	4	Negwegon State Park
	Alcona	Lake Huron	5	Trask Lake Road Beach
<b>2</b>	<b>Alger</b>	Lake Superior	1	Au Train Beach
	Alger	Lake Superior	2	Bay Furnace Recreation Area Beach
	Alger	Lake Superior	3	Munising Beach
<b>3</b>	<b>Allegan</b>	Lake Michigan	1	Douglas Beach
	Allegan	Lake Michigan	2	Laketown Township Park
	Allegan	Lake Michigan	3	Oval Beach
	Allegan	Lake Michigan	4	Pier Cove Beach
	Allegan	Lake Michigan	5	Saugatuck Dunes State Park Shoreline Beach
	Allegan	Lake Michigan	6	West Side County Park Beach
<b>4</b>	<b>Alpena</b>	Lake Huron	1	Blair Street Park
	Alpena	Lake Huron	2	Michekewis Beach
	Alpena	Lake Huron	3	Ossineke Beach
	Alpena	Lake Huron	4	Starlite Beach
	Alpena	Lake Huron	5	Thompson Park
<b>5</b>	<b>Antrim</b>	Lake Michigan	1	Antrim County Day Park North
	Antrim	Lake Michigan	2	Antrim County Day Park South
	Antrim	Lake Michigan	3	Banks Township Park
	Antrim	Lake Michigan	4	Barnes Park
	Antrim	Lake Michigan	5	Elk Rapids
	Antrim	Lake Michigan	6	Veterans Memorial Park
<b>6</b>	<b>Arenac</b>	Saginaw Bay-Lake Huron	1	16th Street Beach
	Arenac	Saginaw Bay-Lake Huron	2	28th Stree Beach
	Arenac	Saginaw Bay-Lake Huron	3	Arenac County Park
	Arenac	Saginaw Bay-Lake Huron	4	Bessinger Road Beach
	Arenac	Saginaw Bay-Lake Huron	5	Cemetery Beach
	Arenac	Saginaw Bay-Lake Huron	6	Dyer Road Beach
	Arenac	Saginaw Bay-Lake Huron	7	Foster Road Beach
	Arenac	Saginaw Bay-Lake Huron	8	Hammel Beach Road Access
	Arenac	Rifle River-Lake Huron	9	Rifle River Stover Road
	Arenac	Saginaw Bay-Lake Huron	10	Singing Bridge Beach
	Arenac	Saginaw Bay-Lake Huron	11	Twining Road Beach
	Arenac	Saginaw Bay	12	Whites Beach
<b>7</b>	<b>Baraga</b>	Keweenaw Bay-Lake Superior	1	L'Anse Waterfront Park
<b>8</b>	<b>Bay</b>	Saginaw Bay-Lake Huron	1	Bay City State Recreation Area

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
40	Bay	Saginaw Bay-Lake Huron	2	Brissette Beach Township Park
41	Bay	Saginaw Bay-Lake Huron	3	Pinconning Park
42	Bay	Saginaw Bay-Lake Huron	4	South Linwood Beach Township Park
43	Bay	Saginaw Bay-Lake Huron	5	Wenona Beach
<b>9</b> 44	<b><u>Benzie</u></b>	Lake Michigan	1	Frankfort: Anchor Road Beach
45	Benzie	Lake Michigan	2	Sleeping Bear Dunes-Esch Road Beach
46	Benzie	Lake Michigan	3	Sleeping Bear Dunes-Peterson Road Beach
47	Benzie	Lake Michigan	4	Sleeping Bear Dunes-Platte Point Bay
48	Benzie	Platte River	5	Sleeping Bear Dunes-Platte River Outlet
<b>10</b> 49	<b><u>Berrien</u></b>	Lake Michigan	1	Cherry Beach
50	Berrien	Lake Michigan	2	Grand Beach
51	Berrien	Lake Michigan	3	Hagar Township Park
52	Berrien	Lake Michigan	4	Harbert Beach
53	Berrien	Lake Michigan	5	Jean Klock Park
54	Berrien	Lake Michigan	6	Lincoln Township Park
55	Berrien	Lake Michigan	7	Lions Park
56	Berrien	Lake Michigan	8	Michiana Village
57	Berrien	Lake Michigan	9	New Buffalo City
58	Berrien	Lake Michigan	10	Rocky Gap
59	Berrien	Lake Michigan	11	Silver Beach
60	Berrien	Lake Michigan	12	Tiscornia Park
61	Berrien	Lake Michigan	13	Union Peir
62	Berrien	Lake Michigan	14	Warren Dunes Beach
63	Berrien	Lake Michigan	15	Weko Beach
<b>11</b> 64	<b><u>Charlevoix</u></b>	Lake Charlevoix	1	Depot Beach
65	Charlevoix	Lake Charlevoix	2	East Jordan Tourist Park
66	Charlevoix	Lake Charlevoix	3	Elm Point Beach
67	Charlevoix	Lake Charlevoix	4	Ferry Beach
68	Charlevoix	Lake Michigan	5	Fisherman's Island State Park
69	Charlevoix	Lake Charlevoix	6	Glenwood Beach
70	Charlevoix	Lake Charlevoix	7	Hayes Township Park
71	Charlevoix	Lake Michigan	8	Lake Michigan Beach
72	Charlevoix	Lake Michigan	9	Michigan Avenue
73	Charlevoix	Lake Michigan	10	Norwood Township Park
74	Charlevoix	Lake Charlevoix	11	Peninsula Beach
75	Charlevoix	Lake Charlevoix	12	Tannery Park
76	Charlevoix	Lake Charlevoix	13	Washington Street Beach
77	Charlevoix	Lake Charlevoix	14	Whiting Park Beach
78	Charlevoix	Lake Charlevoix	15	Young State Park Beach
<b>12</b> 79	<b><u>Cheboygan</u></b>	Lake Huron	1	Cheboygan City Park
80	Cheboygan	Lake Huron	2	Cheboygan State Park Duncan Bay
81	Cheboygan	Lake Huron	3	Mackinaw City Lighthouse Park



Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
82	Cheboygan	Lake Huron	4	Wawatam City Park
<b>13</b> 83	<b>Chippewa</b>	Lake Superior	1	Bayview Campground
84	Chippewa	Lake Superior	2	Big Pines Day Use Area
85	Chippewa	Lake Superior	3	Black Bay Boat Launch
86	Chippewa	Lake Huron	4	Big Shoal Cove
87	Chippewa	Lake Superior	5	Brimley State Park
88	Chippewa	Lake Huron	6	Detour Albany Beach
89	Chippewa	Lake Huron	7	Drummond Island Township Park
90	Chippewa	St. Marys River	8	Dunbar Park
91	Chippewa	St. Marys River	9	Four Mile Beach
92	Chippewa	Lake Superior	10	Pendills Beach
93	Chippewa	Lake Superior	11	Sherman Park
94	Chippewa	St. Marys River	12	Sugar Island Township Park
<b>14</b> 95	<b>Delta</b>	Lake Michigan	1	Escanaba Bathing Beach
96	Delta	Lake Michigan	2	Gladstone Bathing Beach/Van Cleve Park
<b>15</b> 97	<b>Emmet</b>	Lake Michigan	1	Cross Village Beach
98	Emmet	Lake Michigan	2	Mackinaw City Beach #1
99	Emmet	Lake Michigan	3	Mackinaw City Beach #2
100	Emmet	Lake Michigan	4	Magnus Park
101	Emmet	Lake Michigan	5	Middle Village Park
102	Emmet	Lake Michigan	6	Petoskey State Park
103	Emmet	Lake Michigan	7	Readmond Township Beach
104	Emmet	Lake Michigan	8	Sturgeon Bay Township Beach
105	Emmet	Lake Michigan	9	Wilderness State Park
106	Emmet	Lake Michigan	10	Zoll Street Beach
107	Emmet	Lake Michigan	11	Zorn Park - Harbor Springs
<b>16</b> 108	<b>Grand Traverse</b>	Grand Traverse Bay-East	1	Bayside Acme Township Park
109	Grand Traverse	Grand Traverse Bay-West	2	Bryant Park Beach
110	Grand Traverse	Grand Traverse Bay-West	3	Clinch Park
111	Grand Traverse	Grand Traverse Bay-East	4	East Bay Park (Milliken Park)
112	Grand Traverse	Grand Traverse Bay-East	5	Traverse City State Park
113	Grand Traverse	Grand Traverse Bay-West	6	West End Beach
<b>17</b> 114	<b>Houghton</b>	Lake Superior	1	Agate Beach
115	Houghton	Pike Bay at Portage Cana-Lake Superior	2	Chassell Beach
116	Houghton	Portage Canal-Lake Superior	3	Hancock City Beach
117	Houghton	Portage Canal-Lake Superior	4	Houghton City Beach
118	Houghton	Torch Lake-Portage Canal-Lake Superior	5	Lake Linden Campground Beach
119	Houghton	Lake Superior	6	McLain State Park Beach
120	Houghton	Portage Canal-Lake Superior	7	Sandy Bottom Beach-Dollar Bay

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>18</b>	<b>121</b>	<b>Huron</b>	Lake Huron	1 Bird Creek County Park
	122	Huron	Lake Huron	2 Caseville County Park
	123	Huron	Lake Huron	3 Harbor Beach City Park
	124	Huron	Lake Huron	4 Jenks County Park
	125	Huron	Lake Huron	5 Lighthouse County Park
	126	Huron	Lake Huron	6 McGraw County Park
	127	Huron	Lake Huron	7 Oak Beach County Park
	128	Huron	Lake Huron	8 Philp County Park
	129	Huron	Lake Huron	9 Port Crescent State Park - Camping Area
	130	Huron	Lake Huron	10 Port Crescent State Park - Day Use
	131	Huron	Lake Huron	11 Sleeper State Park
	132	Huron	Lake Huron	12 Thompson Park
	133	Huron	Lake Huron	13 Veterans Park
<b>19</b>	<b>134</b>	<b>Iosco</b>	Lake Huron	1 Alabaster Township-Alabaster Road
	135	Iosco	Lake Huron	2 Alabaster Township-Douglas Drive
	136	Iosco	Lake Huron	3 Au Sable Township Park
	137	Iosco	Lake Huron (Tawas Bay)	4 County Road End off Tawas Beach Road
	138	Iosco	Tawas Bay	5 East Tawas City Park
	139	Iosco	Lake Huron (Tawas Bay)	6 Gateway Park Beach
	140	Iosco	Lake Huron	7 Interlake Road
	141	Iosco	Lake Huron	8 Lake To Lake Road
	142	Iosco	Lake Huron	9 MDOT Roadside Park - Three Mile Park
	143	Iosco	Lake Huron	10 Oscoda Township Beach
	144	Iosco	Tawas Bay	11 Tawas City Park
	145	Iosco	Lake Huron	12 Tawas Point State Park Campground
	146	Iosco	Lake Huron	13 Tawas Point State Park-Day Use area
<b>20</b>	<b>147</b>	<b>Keweenaw</b>	Lake Superior	1 Eagle Harbor Beach
<b>21</b>	<b>148</b>	<b>Leelanau</b>	Grand Traverse Bay-West	1 Elmwood/Greilikville Park and Beach
	149	Leelanau	Lake Michigan	2 Empire Municipal Beach
	150	Leelanau	Grand Traverse Bay-West	3 Northport Bay Marina
	151	Leelanau	Lake Michigan	4 Sleeping Bear Dunes- CR 669 Good Harbor Bay
	152	Leelanau	Lake Michigan	5 Sleeping Bear Dunes-CR 651 Good Harbor Bay
	153	Leelanau	Lake Michigan	6 Sleeping Bear Dunes-DH Day Campground
	154	Leelanau	Lake Michigan	7 Sleeping Bear Dunes-Glen Haven Beach
	155	Leelanau	Lake Michigan	8 Sleeping Bear Dunes-North Bar Lake MI Beach
	156	Leelanau	Lake Michigan	9 Sleeping Bear Dunes-Shalda Creek
	157	Leelanau	Grand Traverse Bay-West	10 Suttons Bay Marina Park and Beach South
	158	Leelanau	Grand Traverse Bay-West	11 Suttons Bay Park
<b>22</b>	<b>159</b>	<b>Mackinac</b>	Lake Huron	1 American Legion Memorial Park
	160	Mackinac	Lake Huron	2 Kiwanis Beach
	161	Mackinac	Lake Michigan	3 Lake Michigan US-2 Campground Beach

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
162	Mackinac	Lake Michigan	4	Sand Point
163	Mackinac	Lake Huron	5	Straits State Park
164	Mackinac	Lake Michigan	6	US-2 Sand Dunes Beach (East of Brevort)
<b>23</b>	<b><u>Macomb</u></b>	Lake St. Clair	1	H.C.M.A. - Lake St. Clair Metropark Beach
166	Macomb	Lake St. Clair	2	New Baltimore Park Beach
167	Macomb	Lake St. Clair	3	St. Clair Shores Memorial Park Beach
<b>24</b>	<b><u>Manistee</u></b>	Lake Michigan	1	Arcadia Park
169	Manistee	Lake Michigan	2	Bar Lake Outlet
170	Manistee	Lake Michigan	3	Fifth Avenue Beach
171	Manistee	Lake Michigan	4	First Street Beach
172	Manistee	Lake Michigan	5	Magoon Creek
173	Manistee	Lake Michigan	6	Onekama Township Beach
174	Manistee	Lake Michigan	7	Orchard Beach State Park
175	Manistee	Lake Michigan	8	Pierport Township Beach
176	Manistee	Lake Michigan	9	Sundling Park
<b>25</b>	<b><u>Marquette</u></b>	Lake Superior	1	Marquette South Beach
178	Marquette	Lake Superior	2	McCarty's Cove
179	Marquette	Lake Superior	3	North Beach
180	Marquette	Lake Superior	4	North of Picnic Rocks
181	Marquette	Lake Superior	5	Shiras Park Beach
<b>26</b>	<b><u>Mason</u></b>	Lake Michigan	1	Bass Lake Outlet Beach
183	Mason	Lake Michigan	2	Buttersville Park Beach
184	Mason	Lake Michigan	3	Ludington State Park Campground Beach
185	Mason	Lake Michigan	4	South Pier Beach
186	Mason	Lake Michigan	5	South Summit Beach - Sunset Boulevard Beach
187	Mason	Lake Michigan	6	Stearns Park Beach
188	Mason	Lake Michigan	7	Summit Township Beach
<b>27</b>	<b><u>Menominee</u></b>	Lake Michigan	1	Henes Park
190	Menominee	Lake Michigan	2	Memorial Beach
191	Menominee	Lake Michigan	3	Wells State Park
<b>28</b>	<b><u>Monroe</u></b>	Lake Erie	1	Estral Beach
193	Monroe	Lake Erie	2	Luna Pier City Beach
194	Monroe	Lake Erie	3	Sterling State Park
195	Monroe	Lake Erie	4	Woodland Beach
<b>29</b>	<b><u>Muskegon</u></b>	Lake Michigan	1	Bronson/Kruse Park
197	Muskegon	Lake Michigan	2	Duck Lake Channel Beach
198	Muskegon	Lake Michigan	3	Lake Harbor Park
199	Muskegon	Lake Michigan	4	Lighthouse/Sylvan Beach

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
200	Muskegon	Lake Michigan	5	Medbury Park Beach
201	Muskegon	Lake Michigan	6	Meinert County Park
202	Muskegon	Lake Michigan	7	Muskegon State Park
203	Muskegon	Lake Michigan	8	Muskegon State Park-North Campground Beach
204	Muskegon	Lake Michigan	9	Old Channel Beach
205	Muskegon	Lake Michigan	10	P.J. Hoffmaster State Park - Campground
206	Muskegon	Lake Michigan	11	P.J. Hoffmaster State Park - Public Beach Area
207	Muskegon	Lake Michigan	12	Pere Marquette Park
208	Muskegon	Lake Michigan	13	Pioneer County Park
<b>30</b>	<b><u>Oceana</u></b>	Lake Michigan	1	Claybanks Township Park
210	Oceana	Lake Michigan	2	Lighthouse Beach at Silver Lake State Park
211	Oceana	Lake Michigan	3	Mears State Park
212	Oceana	Stony Lake and Lake Michigan	4	Stony Lake Channel
213	Oceana	Lake Michigan	5	Whiskey Creek
<b>31</b>	<b><u>Ontonagon</u></b>	Lake Superior	1	Ontonagon Township Park and Campground
215	Ontonagon	Lake Superior	2	Porcupine Mountains State Park- Union Bay
<b>32</b>	<b><u>Ottawa</u></b>	Lake Michigan	1	Grand Haven City Beach
217	Ottawa	Lake Michigan	2	Grand Haven State Park
218	Ottawa	Lake Michigan	3	Holland State Park
219	Ottawa	Lake Michigan	4	Kirk Park
220	Ottawa	Lake Michigan	5	Kouw Park
221	Ottawa	Lake Michigan	6	North Beach Park
222	Ottawa	Lake Michigan	7	Rosy Mound Recreation Area
223	Ottawa	Lake Michigan	8	Tunnel Park
224	Ottawa	Lake Michigan	9	Windsnest Park
<b>33</b>	<b><u>Presque Isle</u></b>	Lake Huron	1	Hoelt State Park-North
226	Presque Isle	Lake Huron	2	Lakeside Park in Rogers City
227	Presque Isle	Lake Huron	3	Presque Isle Harbor Beach
<b>34</b>	<b><u>Sanilac</u></b>	Lake Huron	1	Blue Water Beach
229	Sanilac	Lake Huron	2	Forester County Park
230	Sanilac	Lake Huron	3	Forester Creek
231	Sanilac	Lake Huron	4	Forestville Beach
232	Sanilac	Lake Huron	5	Great Lakes Beach #1
233	Sanilac	Lake Huron	6	Lexington Beach
234	Sanilac	Lake Huron	7	Lexington County Park
235	Sanilac	Lake Huron	8	Port Sanilac Park
<b>35</b>	<b><u>Schoolcraft</u></b>	Lake Michigan	1	Manistique Township Park
237	Schoolcraft	Lake Michigan	2	Public Shoreline Beach-Thompson

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
238	Schoolcraft	Lake Michigan	3	Roadside Park Beach
239	Schoolcraft	Lake Michigan	4	Rogers Park-MDOT
<b>36</b> 240	<b><u>St. Clair</u></b>	Lake Huron	1	Burtchville Township Park
241	St. Clair	St. Clair River	2	Chrysler Park Beach
242	St. Clair	Lake Huron	3	Conger-Lighthouse Beach
243	St. Clair	Lake Huron	4	Fort Gratiot County Park
244	St. Clair	Lake Huron	5	Holland Road Beach
245	St. Clair	Lake Huron	6	Jeddo Road Beach
246	St. Clair	Lake Huron	7	Keewadhin Road Beach
247	St. Clair	Lake Huron	8	Krafft Road Beach
248	St. Clair	Lake Huron	9	Lakeport State Campground
249	St. Clair	Lake Huron	10	Lakeport State Park
250	St. Clair	Lake Huron	11	Lakeside Beach
251	St. Clair	St. Clair River	12	Marine City Beach
252	St. Clair	St. Clair River	13	Marine City Diving Area
253	St. Clair	Lake Huron	14	Metcalf Road Beach
254	St. Clair	Lake Huron	15	Washington Street Park
<b>37</b> 255	<b><u>Van Buren</u></b>	Lake Michigan	1	Covert Township Park Beach
256	Van Buren	Lake Michigan	2	South Haven North Beach
257	Van Buren	Lake Michigan	3	South Haven South Beach
258	Van Buren	Lake Michigan	4	Van Buren State Park Beach
<b>38</b> 259	<b><u>Wayne</u></b>	Detroit River	1	Belle Isle Beach
260	Wayne	Lake St. Clair	2	Pier Park

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b>	<b>Alcona</b>	Lake Huron	1	Harrisville Public Access
	Alcona	Lake Huron	2	Point Road Beach
	Alcona	Lake Huron	3	Public Shoreline Beach-Huron National Forest North
	Alcona	Lake Huron	4	Public Shoreline Beach-Huron National Forest South
<b>2</b>	<b>Alger</b>	Lake Superior	1	Christmas Beach
	Alger	Lake Superior	2	Grand Marais Harbor Beach
	Alger	Lake Superior	3	Grand Marais Township Beach
	Alger	Lake Superior	4	Hurricane Campground Beach
	Alger	Lake Superior	5	Miners Beach
	Alger	Lake Superior	6	Public Shoreline Beach-Au Train Bay
	Alger	Lake Superior	7	Public Shoreline Beach-Au Train to Five Mile Pts
	Alger	Lake Superior	8	Public Shoreline Beach-East County Border area
	Alger	Lake Superior	9	Public Shoreline Beach-Grand Sable Dunes
	Alger	Lake Superior	10	Public Shoreline-Grand Portal Point
	Alger	Lake Superior	11	Public Shoreline-Sand Point to Miners Castle Point
	Alger	Lake Superior	12	Rathfoot Park Beach
	Alger	Lake Superior	13	Roadside Park
	Alger	Lake Superior	14	Sand Point
	Alger	Lake Superior	15	Twelve-Mile Beach
<b>3</b>	<b>Alpena</b>	Lake Huron	1	Bay View Park
	Alpena	Lake Huron	2	Elcajon Bay
	Alpena	Lake Huron	3	Issineke Hardwood Point
	Alpena	Lake Huron	4	Negwegon State Park-Ossineke South Point
	Alpena	Lake Huron	5	Ossineke Campground
	Alpena	Lake Huron	6	Ossineke State Park
	Alpena	Lake Huron	7	Partridge Point
	Alpena	Lake Huron	8	Rock Port Beach
	Alpena	Lake Huron	9	Whitefish Bay
<b>4</b>	<b>Antrim</b>	Lake Michigan	1	Antrim County Day Park North
	Antrim	Lake Michigan	2	Antrim Creek Natural Area
	Antrim	Lake Michigan	3	Elk Rapids Park
	Antrim	Lake Michigan	4	Erickson Road
	Antrim	Lake Michigan	5	Lore Road End Beach
	Antrim	Lake Michigan	6	Michigan Trail
	Antrim	Lake Michigan	7	Nature Preserve
	Antrim	Lake Michigan	8	North Bay Shore (Conservancy)
	Antrim	Lake Michigan	9	O'Dell Road
	Antrim	Grand Traverse Bay-East	10	Petobego Pond Area
	Antrim	Lake Michigan	11	Road Crossing near Winters Road

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>5</b>	<b>40</b>	<b><u>Arenac</u></b>	Saginaw Bay Inner-Lake Huron	1 Au Sable State Forest- Greens Point
	41	Arenac	Inner Saginaw Bay	2 Augres Township Park Beach
	42	Arenac	Inner Saginaw Bay	3 Booth Road Beach
	43	Arenac	Inner Saginaw Bay	4 City of Au Gres Public Access
	44	Arenac	Inner Saginaw Bay	5 Gordon Road Beach
	45	Arenac	Saginaw Bay-Lake Huron	6 Private Shoreline Beach-North of Singing Bridge Beach
	46	Arenac	Saginaw Bay-Lake Huron	7 Pump Station
	47	Arenac	Inner Saginaw Bay	8 Terrace Road
<b>6</b>	<b>48</b>	<b><u>Baraga</u></b>	Huron Bay-Lake Superior	1 Arvon Township Park
	49	Baraga	Keweenaw Bay-Lake Superior	2 Baraga State Park
	50	Baraga	Keweenaw Bay-Lake Superior	3 First Sand Beach
	51	Baraga	Lake Superior	4 Keweenaw Bay Village Public Roadside Park
	52	Baraga	Keweenaw Bay-Lake Superior	5 L'Anse Township Park
	53	Baraga	Lake Superior	6 Mouth of the Huron River
	54	Baraga	Lake Superior	7 Public Shoreline Beach-Cooper Country Huron Bay
	55	Baraga	Lake Superior	8 Public Shoreline Beach-Northwest Abbaye Peninsula
	56	Baraga	Lake Superior	9 Public Shoreline Beach-Point Abbaye
	57	Baraga	Lake Superior	10 Public Shoreline Beach-Sand Point
	58	Baraga	Keweenaw Bay-Lake Superior	11 Second Sands Beach
<b>7</b>	<b>59</b>	<b><u>Bay</u></b>	Saginaw Bay	1 Nayanquing Point Wildlife Area
<b>8</b>	<b>60</b>	<b><u>Benzie</u></b>	Lake Michigan	1 Alberta Village Beach & Bluffs
	61	Benzie	Lake Michigan	2 County Road # 669
	62	Benzie	Lake Michigan	3 Esch Road/Otter Creek
	63	Benzie	Lake Michigan	4 Platte River Point
	64	Benzie	Lake Michigan	5 Point Betsie Lighthouse Beach
	65	Benzie	Lake Michigan	6 Zettenberg Preserve
<b>9</b>	<b>66</b>	<b><u>Berrien</u></b>	Lake Michigan	1 Galien River Park
	67	Berrien	Lake Michigan	2 Gordon Beach
	68	Berrien	Lake Michigan	3 Grand Mere State Park- Rosemary Beach
	69	Berrien	Lake Michigan	4 Grand Mere State Park- Shoreline Beach
	70	Berrien	Lake Michigan	5 Grand Mere State Park- Waverland Beach
	71	Berrien	Lake Michigan	6 Mizpah Park
	72	Berrien	Lake Michigan	7 Warren Dunes State Park North
<b>10</b>	<b>73</b>	<b><u>Charlevoix</u></b>	Lake Michigan	1 Bill Wagner Memorial Campground Beach
	74	Charlevoix	Lake Michigan	2 Cables Bay Beach
	75	Charlevoix	Lake Michigan	3 Donegal Bay
	76	Charlevoix	Lake Michigan	4 Harbor Beach
	77	Charlevoix	Lake Michigan	5 Iron Ore Bay Beach

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
78	Charlevoix	Lake Michigan	6	Mt. McSauba Beach
<b>11</b> 79	<b><u>Cheboygan</u></b>	Lake Huron	1	Alexander Henry Park
80	Cheboygan	Lake Huron	2	Cheboygen State Park- Lighthouse Point
81	Cheboygan	Lake Huron	3	Ditta Park
82	Cheboygan	Lake Huron	4	Huron Street Beach
83	Cheboygan	Lake Huron	5	Mackinaw City Beach
84	Cheboygan	Lake Huron	6	Mill Creek Public Access
85	Cheboygan	Lake Huron	7	Pinewood Circle Road End Beach
86	Cheboygan	Lake Huron	8	Roadside Park MDOT, US-23
87	Cheboygan	Lake Huron	9	Stoney Point Road End Beach
<b>12</b> 88	<b><u>Chippewa</u></b>	Lake Huron	1	Bass Cove Beach-Drummond Island
89	Chippewa	Lake Huron	2	Betsey Seaman Memorial Park-Drummond Island
90	Chippewa	Lake Huron	3	De Tour State Park Shoreline Beach
91	Chippewa	Lake Superior	4	Hiawatha National Forest- Nodoway Point Area
92	Chippewa	Lake Superior	5	Hiawatha National Forest- North of Big Pine Picnic
93	Chippewa	St. Marys River	6	Hiawatha National Forest- North Pond
94	Chippewa	Lake Superior	7	Hiawatha National Forest- Pendills Bay
95	Chippewa	Lake Superior	8	Hiawatha National Forest- Pendills Lake
96	Chippewa	Lake Superior	9	Hiawatha National Forest- Point Iroquois Light
97	Chippewa	Lake Superior	10	Hiawatha National Forest- Tahquamenon Bay
98	Chippewa	St. Marys River	11	Hiawatha National Forest- Waiska Bay
99	Chippewa	Lake Superior	12	Hiawatha National Forest- West of Salt Point
100	Chippewa	St. Marys River	13	Lake Superior State Forest- Munuscong Lake
101	Chippewa	Lake Superior	14	Public Shoreline Beach-Browns Creek Area
102	Chippewa	St. Marys River	15	Public Shoreline Beach-Brush Point
103	Chippewa	Lake Superior	16	Public Shoreline Beach-Marsh Lake Area
104	Chippewa	Lake Superior	17	Public Shoreline Beach-Northwest of Two Mile Lake
105	Chippewa	St. Marys River	18	Public Shoreline Beach-Point Aux Frenes
106	Chippewa	St. Marys River	19	Public Shoreline Beach-Raber Bay stretch
107	Chippewa	Lake Superior	20	Public Shoreline Beach-Weatherhog Lake East Area
108	Chippewa	Lake Superior	21	Public Shoreline Beach-Weatherhog Lake West
109	Chippewa	Lake Superior	22	Public Shoreline Beach-West of Whitefish Point
110	Chippewa	Lake Huron	23	Sand Bay Beach-Drummond Island
111	Chippewa	Lake Superior	24	Tahquamenon Falls State Park-River Mouth Unit
112	Chippewa	St. Marys River	25	Wilderness Beach
<b>13</b> 113	<b><u>Delta</u></b>	Fishdam River	1	Big Bay De Noc/Fishdam River Public Access
114	Delta	Lake Michigan	2	Fayette State Park
115	Delta	Lake Michigan	3	Fuller Park
116	Delta	Lake Michigan	4	Little Bay De Noc Public Beach Access
117	Delta	Lake Michigan	5	Portage Bay Forest Campground



Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
118	Delta	Lake Michigan	6	Public Shoreline Beach-Charboneau Point
119	Delta	Lake Michigan	7	Public Shoreline Beach-County Road 481
120	Delta	Lake Michigan	8	Public Shoreline Beach-East Wilsey Bay
121	Delta	Lake Michigan	9	Public Shoreline Beach-Fishdam River
122	Delta	Lake Michigan	10	Public Shoreline Beach-Gilnet Haven
123	Delta	Lake Michigan	11	Public Shoreline Beach-Indian Point
124	Delta	Lake Michigan	12	Public Shoreline Beach-Indian Town Lake USFS
125	Delta	Lake Michigan	13	Public Shoreline Beach-Jacks Bluff
126	Delta	Lake Michigan	14	Public Shoreline Beach-Martin Bay
127	Delta	Lake Michigan	15	Public Shoreline Beach-Nahma
128	Delta	Lake Michigan	16	Public Shoreline Beach-North End of Kregg Bay
129	Delta	Lake Michigan	17	Public Shoreline Beach-North of Stonington
130	Delta	Lake Michigan	18	Public Shoreline Beach-Ogontz Bay
131	Delta	Lake Michigan	19	Public Shoreline Beach-Peninsula Point
132	Delta	Lake Michigan	20	Public Shoreline Beach-Point Detour
133	Delta	Lake Michigan	21	Public Shoreline Beach-Portage Bay
134	Delta	Lake Michigan	22	Public Shoreline Beach-Portage Peninsula
135	Delta	Lake Michigan	23	Public Shoreline Beach-St. Vital's Island
136	Delta	Lake Michigan	24	Public Shoreline Beach-USFS West Wilsey Bay
137	Delta	Lake Michigan	25	Public Shoreline Beach-West Side of Kregg Bay
138	Delta	Lake Michigan	26	Sac Bay County Park
139	Delta	Lake Michigan	27	Sac Bay County Park
140	Delta	Lake Michigan	28	Twin Springs Campground and Bathing Beach
<b>14</b>	<b>Emmet</b>	Lake Michigan	1	Bliss Township Beach
142	Emmet	Lake Michigan	2	Church Beach
143	Emmet	Lake Michigan	3	Colonial Michilimackinac State Park
144	Emmet	Lake Michigan	4	Forest Beach
145	Emmet	Lake Michigan	5	Petoskey Harbor
146	Emmet	Lake Michigan	6	The Headlands County Park
147	Emmet	Lake Michigan	7	Thorne Swift Preserve
148	Emmet	Lake Michigan	8	Wilderness State Park-East of the Beach
149	Emmet	Lake Michigan	9	Wilderness State Park-Sturgeon Bay
150	Emmet	Lake Michigan	10	Wilderness State Park-West of Beach
<b>15</b>	<b>Gogebic</b>	Lake Superior	1	Black River Harbor Beach
152	Gogebic	Lake Superior	2	Little Girls Point Park
153	Gogebic	Lake Superior	3	Mouth of the Montreal River
154	Gogebic	Lake Superior	4	Porcupine Mountain State Park-North
155	Gogebic	Lake Superior	5	Presque Isle Beach
156	Gogebic	Lake Superior	6	Presque Isle State Campground
157	Gogebic	Lake Superior	7	Public Shoreline Beach-West of Black River
<b>16</b>	<b>Grand Traverse</b>	Grand Traverse Bay-East	1	Acme Roadside Park and Beach MDOT
159	Grand Traverse	Grand Traverse Bay-East	2	Acme Roadside Park (DNR)
160	Grand Traverse	Grand Traverse Bay	3	Archie Park

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
161	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	4	Bowers Harbor Public Access
162	Grand Traverse	Grand Traverse Bay-East	5	Deep Water Point
163	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	6	DNR Launch/Beach Center Road
164	Grand Traverse	Grand Traverse Bay-East	7	East Bay Township Four Mile Road
165	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	8	Haserot Beach
166	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	9	Kroupa Road Access M-22 South of Crain Hill Road
167	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	10	Leffingwell Point Beach
168	Grand Traverse	Grand Traverse Bay-West	11	Mouth of Boardman
169	Grand Traverse	Grand Traverse Bay	12	Old Mission - Center Road Natural Area
170	Grand Traverse	Grand Traverse Bay	13	Old Mission - MDOT Right of Way-South of M-37
171	Grand Traverse	Grand Traverse Bay	14	Old Mission - Old Mission Point State Park
172	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	15	Old Mission Lighthouse
173	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	16	Old Mission Peninsula Twp Park-East of Light House
174	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	17	Old Mission Peninsula Twp Park-West of Light House
175	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	18	Old Mission Road
176	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	19	Peninsula Volunteer Fire Station Point #2
177	Grand Traverse	Grand Traverse Bay-West	20	Power Island Bay Park
178	Grand Traverse	Grand Traverse Bay-West	21	Rose Street Access at Peninsula Drive
179	Grand Traverse	Grand Traverse Bay-East	22	Sayler Park
180	Grand Traverse	Grand Traverse Bay-West	23	Senior Center
181	Grand Traverse	Grand Traverse Bay-West	24	Sunset Park
182	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	25	Swaney Road
183	Grand Traverse	Grand Traverse Bay-East	26	Yuba Beach
<b>17</b>	<b>Houghton</b>	Lake Superior	1	Calument Waterworks Beach
185	Houghton	Torch Lake / Portage Canal / Lake Superior	2	Hubbell Park
186	Houghton	Lake Superior	3	Mink Farm
187	Houghton	Lake Superior	4	Public Shoreline Beach-Le Chance Creek
188	Houghton	Lake Superior	5	Public Shoreline Beach-Mc Lain State Park
189	Houghton	Lake Superior	6	Public Shoreline Beach-S. of Portage Entry
190	Houghton	Lake Superior	7	Public Shoreline Beach-Southwest County Border
191	Houghton	Lake Superior	8	White City
<b>18</b>	<b>Huron</b>	Lake Huron	1	County Road End

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
193	Huron	Lake Huron	2	Geiger Road Public Access
194	Huron	Lake Huron	3	Grindstone Public Access
195	Huron	Lake Huron	4	Harbor Beach Marina
196	Huron	Lake Huron	5	Helena Road End
197	Huron	Lake Huron	6	Kinch Road End
198	Huron	Lake Huron	7	Larned Road End
199	Huron	Lake Huron	8	Lighthouse County Park-South
200	Huron	Lake Huron	9	Mud Creek Public Access
201	Huron	Lake Huron	10	Stafford County Park
202	Huron	Lake Huron	11	Wagener County Park
<b>19</b>	<b><u>Iosco</u></b>	Lake Huron	1	Au Sable Point Beach
204	Iosco	Lake Huron	2	Tawas Point State Park-Central
<b>20</b>	<b><u>Keweenaw</u></b>	Lake Superior at Bete de Gris Bay	1	Bete de Gris Beach
206	Keweenaw	Lake Superior	2	Brunette Park
207	Keweenaw	Lake Superior	3	Cat Harbor Beach
208	Keweenaw	Lake Superior	4	Cooper Harbor Lighthouse Complex
209	Keweenaw	Lake Superior	5	Eagle River Beach
210	Keweenaw	Lake Superior	6	Fort Wilkins State Park
211	Keweenaw	Lake Superior	7	Fort Wilkins State Park-East
212	Keweenaw	Lake Superior	8	Fort Wilkins State Park-West
213	Keweenaw	Lake Superior	9	Great Sands Bay Beach
214	Keweenaw	Lake Superior	10	Mouth of the Gratiot River Beach
215	Keweenaw	Lake Superior	11	Point Isabelle Beach
216	Keweenaw	Lake Superior	12	Public Shoreline Beach-Big Traverse Bay
217	Keweenaw	Lake Superior	13	Public Shoreline Beach-Gay Park
<b>21</b>	<b><u>Leelanau</u></b>	Lake Michigan	1	Bay Front Park
219	Leelanau	Grand Traverse Bay	2	Boughy Park and Beach
220	Leelanau	Grand Traverse Bay-West	3	Cathead Bay, Leelanau State Park
221	Leelanau	Lake Michigan	4	Cedar Street Beach
222	Leelanau	Grand Traverse Bay-West	5	Christmas Cove
223	Leelanau	Lake Michigan	6	G. Marsten Dame Marina
224	Leelanau	Lake Michigan	7	Gils Pier
225	Leelanau	Lake Michigan	8	Glen Arbor/Manitou Boulevard Beach
226	Leelanau	Grand Traverse Bay-West	9	Graham Green Park
227	Leelanau	Grand Traverse Bay-West	10	Hendryx County Roadside Park
228	Leelanau	Lake Michigan	11	Lake Street Beach, Glen Arbor
229	Leelanau	Lake Michigan	12	Leelanau State Park, Lighthouse
230	Leelanau	Lake Michigan	13	Leland Harbor
231	Leelanau	Grand Traverse Bay-West	14	M-22 at M-72 Public Access
232	Leelanau	Grand Traverse Bay-West	15	MDOT Roadside Park and Beach
233	Leelanau	Grand Traverse Bay-West	16	MDOT Roadside Park and Beach M-22 North of Cherry Bend Drive

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
234	Leelanau	Lake Michigan	17	North Bar
235	Leelanau	Lake Michigan	18	North Street Beach
236	Leelanau	Grand Traverse Bay-West	19	Northport 4th Street Beach
237	Leelanau	Grand Traverse Bay-West	20	Northport 5th Street Beach
238	Leelanau	Grand Traverse Bay-West	21	Northport 7th Street Beach
239	Leelanau	Grand Traverse Bay-West	22	Northport Haserot Beach, Rose Street
240	Leelanau	Grand Traverse Bay-West	23	Omena Beach and Park
241	Leelanau	Lake Michigan	24	Peterson Park
242	Leelanau	Lake Michigan	25	Reynolds Street Beach
243	Leelanau	Lake Michigan	26	Smith Street Beach Northport
244	Leelanau	Grand Traverse Bay-West	27	Stoney Point County Roadside Park
245	Leelanau	Grand Traverse Bay-West	28	Suttons Bay Public Launch and Beach
246	Leelanau	Grand Traverse Bay-West	29	Suttons Bay South Shore Park
247	Leelanau	Lake Michigan	30	Thompson Stree Beach
<b>22</b>	<b>Luce</b>	Lake Superior	1	Blind Sucker River #1
249	Luce	Lake Superior	2	Blind Sucker River #2
250	Luce	Lake Superior	3	Crisp Point Lighthouse
251	Luce	Lake Superior	4	Lake Superior Campground Beach
252	Luce	Lake Superior	5	Mouth of the Two Hearted River Campground
253	Luce	Lake Superior	6	Muskallonge Lake State Park
254	Luce	Lake Superior	7	Public Shoreline Beach-Blind Sucker Flooding Area
255	Luce	Lake Superior	8	Public Shoreline Beach-Coast Guard Line Road
256	Luce	Lake Superior	9	Public Shoreline Beach-County Road 407
257	Luce	Lake Superior	10	Public Shoreline Beach-County Road 412 and Crisp Point
258	Luce	Lake Superior	11	Public Shoreline Beach-Little Sucker/Two Hearted River
259	Luce	Lake Superior	12	Public Shoreline Beach-Three Mile Creek Area
260	Luce	Lake Superior	13	Public Shoreline Beach-West County Border Beach
261	Luce	Lake Superior	14	Unnamed Road End #1
262	Luce	Lake Superior	15	Unnamed Road End #2
263	Luce	Lake Superior	16	Unnamed Road End #3
<b>23</b>	<b>Mackinac</b>	Lake Huron	1	Antoine Road End
265	Mackinac	Lake Michigan	2	Big Knob State Forest Campground
266	Mackinac	Lake Michigan	3	Black River State Forest Campground
267	Mackinac	Lake Huron	4	Boot Island
268	Mackinac	Lake Huron	5	Coast Guard Pier Boat Launch and City Park
269	Mackinac	Lake Michigan	6	Epoufette Bay Campground
270	Mackinac	Lake Huron	7	Foley Creek Campground
271	Mackinac	Lake Huron	8	Government Island-Hiawatha National Forest
272	Mackinac	Lake Huron	9	Harbour Light
273	Mackinac	Lake Huron	10	Hazelton Road End

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
274	Mackinac	Lake Huron	11	Hiawatha National Forest- Carp River Access
275	Mackinac	Lake Michigan	12	Hog Island Campground
276	Mackinac	Lake Huron	13	Horseshoe Bay Wilderness-North
277	Mackinac	Lake Huron	14	Horseshoe Bay Wilderness-South
278	Mackinac	Lake Michigan	15	MDOT Overlook
279	Mackinac	Lake Michigan	16	MDOT Roadside Park on US-2
280	Mackinac	Lake Michigan	17	Mouth of Cut River Roadside Beach
281	Mackinac	Lake Michigan	18	Naubinway Bay Access
282	Mackinac	Lake Michigan	19	Public Shoreline Beach-Epoufette Bay
283	Mackinac	Lake Michigan	20	Public Shoreline Beach-Fox Point Area
284	Mackinac	Lake Michigan	21	Public Shoreline Beach-Little Hog Island area
285	Mackinac	Lake Michigan	22	Public Shoreline Beach-Manitou Paymen Highbanks
286	Mackinac	Lake Michigan	23	Public Shoreline Beach-MDNR Matrix Point Area
287	Mackinac	Lake Michigan	24	Public Shoreline Beach-Morean Township
288	Mackinac	Lake Michigan	25	Public Shoreline Beach-Naubinway Area
289	Mackinac	Lake Michigan	26	Public Shoreline Beach-Pointe Aux Chenes Bay
290	Mackinac	Lake Michigan	27	Public Shoreline Beach-Seiners Point
291	Mackinac	Lake Michigan	28	Public Shoreline Beach-South of Brevort River
292	Mackinac	Lake Michigan	29	Public Shoreline Beach-State Forest Matrix Point
293	Mackinac	Lake Michigan	30	State Roadside Park Beach
<b>24</b>	<b><u>Manistee</u></b>	Lake Michigan	1	Portage Park
<b>25</b>	<b><u>Marquette</u></b>	Lake Superior	1	Public Shoreline Beach-Big Huron River
296	Marquette	Lake Superior	2	Public Shoreline Beach-Little Presque Isle
<b>26</b>	<b><u>Mason</u></b>	Lake Michigan	1	Ludington State Park Public Shoreline Beach North
298	Mason	Lake Michigan	2	Ludington State Park Public Shoreline Beach South
299	Mason	Lake Michigan	3	Manistee National Forest Campground Beach
300	Mason	Lake Michigan	4	Manistee National Forest-Public Shoreline Beach North
301	Mason	Lake Michigan	5	Manistee National Forest-Public Shoreline Beach South
302	Mason	Lake Michigan	6	Pere Marquette Harbor
<b>27</b>	<b><u>Menominee</u></b>	Lake Michigan	1	Airport Park
304	Menominee	Lake Michigan	2	Fox Park
305	Menominee	Lake Michigan	3	Klienke Park
306	Menominee	Lake Michigan	4	Public Shoreline Beach-Cedar River
307	Menominee	Lake Michigan	5	Public Shoreline Beach-Fox village
<b>28</b>	<b><u>Oceana</u></b>	Lake Michigan	1	Cedar Point County Park
309	Oceana	Silver Lake-Lake Michigan	2	Silver Creek Channel

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
310	Oceana	Lake Michigan	3	Silver Lake State Park
<b>29</b>	<b><u>Ontonagon</u></b>	Lake Superior	1	Green Park
312	Ontonagon	Lake Superior	2	Gull Point Beach
313	Ontonagon	Lake Superior	3	Mouth of the Big Iron River Beach
314	Ontonagon	Lake Superior	4	Porcupine Mountain State Park
315	Ontonagon	Lake Superior	5	Porcupine Mountains Wilderness State Park-West
316	Ontonagon	Lake Superior	6	Public Shoreline Beach-Misery Bay
317	Ontonagon	Lake Superior	7	Public Shoreline Beach-Sleeping Bay
318	Ontonagon	Lake Superior	8	Public Shoreline Beach-Wolf Point
319	Ontonagon	Lake Superior	9	Union Bay Beach
<b>30</b>	<b><u>Ottawa</u></b>	Lake Michigan	1	Mountain Beach
321	Ottawa	Lake Michigan	2	P.J. Hoffmaster State Park- Shoreline Beach
<b>31</b>	<b><u>Presque Isle</u></b>	Lake Huron	1	40 Mile Point Park
323	Presque Isle	Lake Huron	2	Ball Diamond Park
324	Presque Isle	Lake Huron	3	Bell Bay
325	Presque Isle	Lake Huron	4	Evergreen Beach
326	Presque Isle	Lake Huron	5	Golden Beach
327	Presque Isle	Lake Huron	6	Grace Access Site
328	Presque Isle	Lake Huron	7	Hammond Bay Access Site
329	Presque Isle	Lake Huron	8	Hammond Bay Harbor
330	Presque Isle	Lake Huron	9	Hoeft State Park-South
331	Presque Isle	Lake Huron	10	Lakeside Park Beach
332	Presque Isle	Lake Huron	11	Lakeview Park Beach
333	Presque Isle	Lake Huron	12	Manitou Beach
334	Presque Isle	Lake Huron	13	New Lighthouse Park
335	Presque Isle	Lake Huron	14	Presque Isle Harbor
336	Presque Isle	Lake Huron	15	Public Shoreline Beach-False Presque Isle Harbor
337	Presque Isle	Lake Huron	16	Seagull Point Park
338	Presque Isle	Lake Huron	17	Thompson's Harbor State Park
339	Presque Isle	Lake Huron	18	US-23 Hammond Bay
340	Presque Isle	Lake Huron	19	US-23 Roger City
<b>32</b>	<b><u>Sanilac</u></b>	Lake Huron	1	Birch Beach
342	Sanilac	Lake Huron	2	Birch Beach Middle #2
343	Sanilac	Lake Huron	3	Birch Beach North #3
344	Sanilac	Lake Huron	4	Delaware Park
345	Sanilac	Lake Huron	5	Great Lakes Beach
346	Sanilac	Lake Huron	6	Sanilac County Park #4
347	Sanilac	Lake Huron	7	Sanilac County Roadside Park #1
<b>33</b>	<b><u>Schoolcraft</u></b>	Lake Michigan	1	Doyle Township Access
349	Schoolcraft	Lake Michigan	2	Goudreau's Harbor Seul Choix Point-Boat Landing

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
350	Schoolcraft	Lake Michigan	3	Lakeview Park
351	Schoolcraft	Lake Michigan	4	Public Shoreline Beach-South of McDonald Lake
352	Schoolcraft	Lake Michigan	5	Public Shoreline Beach-Thompson Village

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

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b>E. coli Test Results</b>
<b>1</b>	<b>1</b>	<b>Arenac</b>	1 AuGres River - DNR Access at Pier	AuGres River	3/13/12	806
<b>2</b>	<b>2</b>	<b>Barry</b>	1 Charlton Park	Thornapple Lake	7/2/12	359
	<b>3</b>	Barry	2 Yankee Springs Recreation Area Campground Beach	Gun Lake	7/9/12	527
	<b>4</b>	Barry	3 Yankee Springs Recreation Area Campground Beach	Gun Lake	8/13/12	316
	<b>5</b>	Barry	4 Main Beach - Day Use Area	Gun Lake	6/26/12	690
	<b>6</b>	Barry	5 Main Beach - Day Use Area	Gun Lake	7/2/12	316
	<b>7</b>	Barry	6 Main Beach - Day Use Area	Gun Lake	7/5/12	317
	<b>8</b>	Barry	7 Main Beach - Day Use Area	Gun Lake	7/9/12	2166
	<b>9</b>	Barry	8 Main Beach - Day Use Area	Gun Lake	7/12/12	2420
	<b>10</b>	Barry	9 Main Beach - Day Use Area	Gun Lake	7/16/12	1498
	<b>11</b>	Barry	10 Main Beach - Day Use Area	Gun Lake	7/25/12	774
	<b>12</b>	Barry	11 Main Beach - Day Use Area	Gun Lake	8/1/12	465
	<b>13</b>	Barry	12 Main Beach - Day Use Area	Gun Lake	8/10/12	325
<b>3</b>	<b>14</b>	<b>Bay</b>	1 Vet's Park South River Road	Saginaw River	6/4/12	418
	<b>15</b>	Bay	2 Boat Launch on Kawkawlin River	Kawkawlin River	7/31/12	2265
	<b>16</b>	Bay	3 Boat Launch on Kawkawlin River	Kawkawlin River	8/14/12	516
	<b>17</b>	Bay	4 Boat Launch on Kawkawlin River	Kawkawlin River	8/21/12	470
<b>4</b>	<b>18</b>	<b>Chippewa</b>	1 Kinross Lake	Kinross Lake	6/20/12	403
	<b>19</b>	Chippewa	2 Kinross Lake	Kinross Lake	7/2/12	357
	<b>20</b>	Chippewa	3 Kinross Lake	Kinross Lake	8/1/12	325
	<b>21</b>	Chippewa	4 Kinross Lake	Kinross Lake	8/16/12	483
<b>5</b>	<b>22</b>	<b>Gogebic</b>	1 Lake Gogebic State Park Beach	Lake Gogebic	6/28/12	915
<b>6</b>	<b>23</b>	<b>Kalamazoo</b>	1 Ramona Park	Long Lake	5/22/12	1652
	<b>24</b>	Kalamazoo	2 Robert Morris Park	Campbell Lake	7/23/12	384
<b>7</b>	<b>25</b>	<b>Livingston</b>	1 Brighton State Recreation Area	Bishop Lake	8/8/12	319
	<b>26</b>	Livingston	2 Howell City Park	Thompson Lake	8/7/12	626
	<b>27</b>	Livingston	3 Howell City Park	Thompson Lake	8/15/12	2419
	<b>28</b>	Livingston	4 Howell City Park	Thompson Lake	8/20/12	1895
	<b>29</b>	Livingston	5 Howell City Park	Thompson Lake	8/24/12	474
<b>8</b>	<b>30</b>	<b>Oakland</b>	1 E.V. Mercer City Beach	Walled Lake	6/11/12	547
	<b>31</b>	Oakland	2 Groveland Oaks County Park - Paradise Beach	Stewart Lake	7/17/12	485
	<b>32</b>	Oakland	3 Haas Lake Park #1	Lake One	7/23/12	328
	<b>33</b>	Oakland	4 Kensington - Martindale Beach	Kent Lake	7/23/12	507
	<b>34</b>	Oakland	5 Kensington - Martindale Beach	Kent Lake	7/24/12	1176



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

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b>E. coli Test Results</b>
35	Oakland	6	Seven Lakes Park	Big Seven Lake	7/17/12	531
36	Oakland	7	Thelma Spencer Park	Carter Lake	6/12/12	762
37	Oakland	8	Thelma Spencer Park	Carter Lake	7/5/12	308
<b>9</b>	<b>Ottawa</b>	1	Lakeside Beach	Spring Lake	8/20/12	326
39	Ottawa	2	Maplewood Lake Park	Maplewood Lake	5/30/12	312
40	Ottawa	3	Maplewood Lake Park	Maplewood Lake	6/11/12	382
41	Ottawa	4	Maplewood Lake Park	Maplewood Lake	7/30/12	654
42	Ottawa	5	Dunton Park	Lake Macatawa	5/21/12	716
43	Ottawa	6	Dunton Park	Lake Macatawa	5/30/12	351
44	Ottawa	7	Dunton Park	Lake Macatawa	6/11/12	317
45	Ottawa	8	Dunton Park	Lake Macatawa	7/23/12	497
46	Ottawa	9	Dunton Park	Lake Macatawa	8/6/12	502
<b>10</b>	<b>Roscommon</b>	1	Denton Township Public Beach	Houghton Lake	6/19/12	507
48	Roscommon	2	Houghton Lake Heights	Houghton Lake	5/30/12	351
49	Roscommon	3	North Higgins State Park	Higgins Lake	6/19/12	759
50	Roscommon	4	Richfield Township Public Fishing Site	Lake St. Helen	6/5/12	946
<b>11</b>	<b>Wayne</b>	1	Newburgh and Sumac Pointes-Hines Park	Newburgh Lake	6/18/12	353
52	Wayne	2	Newburgh and Sumac Pointes-Hines Park	Newburgh Lake	6/19/12	352
53	Wayne	3	Newburgh and Sumac Pointes-Hines Park	Newburgh Lake	7/5/12	608
54	Wayne	4	Newburgh and Sumac Pointes-Hines Park	Newburgh Lake	8/10/12	556
55	Wayne	5	Newburgh and Sumac Pointes-Hines Park	Newburgh Lake	8/14/12	659

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

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b>E. coli Test Results</b>
<b>1</b>	<b>Alcona</b>	1	Trask Lake Road Beach	Lake Huron	7/3/12	691
<b>2</b>	<b>Allegan</b>	1	Oval Beach	Lake Michigan	7/23/12	351
	Allegan	2	Saugatuck Dunes State Park Shoreline Beach	Lake Michigan	6/25/12	640
<b>3</b>	<b>Alpena</b>	1	Blair Street Park	Lake Huron	9/6/12	877
<b>4</b>	<b>Antrim</b>	1	Barnes Park	Lake Michigan	7/30/12	380
<b>5</b>	<b>Arenac</b>	1	16th Street Beach	Saginaw Bay	7/24/12	415
	Arenac	2	28th Street Beach	Saginaw Bay	7/24/12	568
	Arenac	3	Arenac County Park	Saginaw Bay	7/24/12	380
	Arenac	4	Arenac County Park	Saginaw Bay	7/26/12	1069
	Arenac	5	Cemetery Beach	Saginaw Bay	7/24/12	1718
	Arenac	6	Foster Road Beach	Saginaw Bay	7/24/12	366
	Arenac	7	Singing Bridge Beach	Saginaw Bay	7/24/12	590
	Arenac	8	Singing Bridge Beach	Saginaw Bay	7/26/12	783
	Arenac	9	Singing Bridge Beach	Saginaw Bay	10/15/12	776
	Arenac	10	Whites Beach	Saginaw Bay	9/12/12	2420
	Arenac	11	Whites Beach	Saginaw Bay	11/28/12	516
<b>6</b>	<b>Bay</b>	1	Brissette Beach Twp. Park	Saginaw Bay	6/5/12	567
	Bay	2	Brissette Beach Twp. Park	Saginaw Bay	6/25/12	1676
	Bay	3	Brissette Beach Twp. Park	Saginaw Bay	7/18/12	568
	Bay	4	Brissette Beach Twp. Park	Saginaw Bay	7/24/12	925
	Bay	5	Pinconning Park	Saginaw Bay	7/17/12	314
	Bay	6	Pinconning Park	Saginaw Bay	7/18/12	2419
	Bay	7	Pinconning Park	Saginaw Bay	7/26/12	504
	Bay	8	South Linwood Beach Twp. Park	Saginaw Bay	6/25/12	528
	Bay	9	South Linwood Beach Twp. Park	Saginaw Bay	7/18/12	1249
	Bay	10	South Linwood Beach Twp. Park	Saginaw Bay	7/24/12	1354
	Bay	11	Wenona Beach	Saginaw Bay	5/29/12	339
	Bay	12	Wenona Beach	Saginaw Bay	6/4/12	308
<b>7</b>	<b>Berrien</b>	1	Cherry Beach	Lake Michigan	7/23/12	487
	Berrien	2	Grand Beach	Lake Michigan	8/27/12	378
	Berrien	3	Grand Beach	Lake Michigan	9/4/12	1796
	Berrien	4	Harbert Beach	Lake Michigan	9/10/12	366
	Berrien	5	Jean Klock Park	Lake Michigan	7/16/12	5043
	Berrien	6	New Buffalo City	Lake Michigan	8/27/12	466
	Berrien	7	New Buffalo City	Lake Michigan	9/17/12	377
	Berrien	8	Union Pier Townline Road	Lake Michigan	7/23/12	1302
	Berrien	9	Warren Dunes Beach	Lake Michigan	9/17/12	339

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

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b>E. coli Test Results</b>
<b>8</b>						
38	<b><u>Charlevoix</u></b>	1	East Jordan Tourist Park	Lake Charlevoix	8/7/12	516
39	Charlevoix	2	East Jordan Tourist Park	Lake Charlevoix	8/27/12	753
40	Charlevoix	3	Peninsula Beach	Lake Charlevoix	6/12/12	464
<b>9</b>						
41	<b><u>Chippewa</u></b>	1	Big Pines Day Use Area	Lake Superior	6/25/12	479
42	Chippewa	2	Brimley State Park	Lake Superior	6/19/12	1253
43	Chippewa	3	Brimley State Park	Lake Superior	6/21/12	1328
44	Chippewa	4	Brimley State Park	Lake Superior	6/22/12	824
45	Chippewa	5	Brimley State Park	Lake Superior	6/25/12	437
46	Chippewa	6	Brimley State Park	Lake Superior	6/28/12	360
47	Chippewa	7	Brimley State Park	Lake Superior	7/17/12	373
48	Chippewa	8	Brimley State Park	Lake Superior	7/23/12	1603
49	Chippewa	9	Brimley State Park	Lake Superior	7/30/12	524
50	Chippewa	10	Brimley State Park	Lake Superior	7/31/12	2165
51	Chippewa	11	Brimley State Park	Lake Superior	8/2/12	934
52	Chippewa	12	Brimley State Park	Lake Superior	8/15/12	2420
53	Chippewa	13	Brimley State Park	Lake Superior	8/16/12	846
54	Chippewa	14	Brimley State Park	Lake Superior	10/26/12	342
55	Chippewa	15	Dunbar Park	St. Marys River	6/20/12	1183
56	Chippewa	16	Four Mile Beach	St. Marys River	6/19/12	507
57	Chippewa	17	Four Mile Beach	St. Marys River	10/24/12	512
58	Chippewa	18	Pendills Beach	Lake Superior	7/31/12	452
59	Chippewa	19	Pendills Beach	Lake Superior	8/2/12	987
60	Chippewa	20	Pendills Beach	Lake Superior	8/31/12	351
61	Chippewa	21	Sherman Park	Lake Superior	6/19/12	832
62	Chippewa	22	Sherman Park	Lake Superior	7/17/12	640
63	Chippewa	23	Sherman Park	Lake Superior	9/4/12	843
64	Chippewa	24	Sherman Park	Lake Superior	10/26/12	835
65	Chippewa	25	Sugar Island Township Park	St. Marys River	6/19/12	1011
66	Chippewa	26	Sugar Island Township Park	St. Marys River	6/20/12	314
<b>10</b>						
67	<b><u>Emmet</u></b>	1	Mackinaw City Beach #1	Lake Michigan	6/19/12	639
68	Emmet	2	Magnus Park	Lake Michigan	7/17/12	706
69	Emmet	3	Zorn Park - Harbor Springs	Lake Michigan	6/19/12	387
<b>11</b>						
70	<b><u>Grand Traverse</u></b>	1	Bayside Acme Township Park	Grand Traverse Bay-East	7/18/12	579
71	Grand Traverse	2	Bayside Acme Township Park	Grand Traverse Bay-East	7/23/12	448
72	Grand Traverse	3	Bayside Acme Township Park	Grand Traverse Bay-East	7/30/12	330
73	Grand Traverse	4	Bayside Acme Township Park	Grand Traverse Bay-East	7/31/12	308
74	Grand Traverse	5	Bryant Park Beach	Grand Traverse Bay-West	7/18/12	694
75	Grand Traverse	6	East Bay Park (Milliken Park)	Grand Traverse Bay-East	7/11/12	495
76	Grand Traverse	7	Traverse City State Park	Grand Traverse Bay-East	7/18/12	716

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

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b>E. coli Test Results</b>
<b>12</b> 77	<b>Houghton</b>	1	Agate Beach	Lake Superior	7/3/12	419
<b>13</b> 78	<b>Huron</b>	1	Lighthouse County Park	Lake Huron	7/24/12	897
79	Huron	2	McGraw County Park	Lake Huron	8/27/12	428
80	Huron	3	Port Crescent State Park-Day Use	Lake Huron	6/4/12	340
81	Huron	4	Veterans Park	Lake Huron	9/5/12	399
<b>14</b> 82	<b>Iosco</b>	1	Alabaster Township-Alabaster Road End	Lake Huron	6/19/12	1165
83	Iosco	2	East Tawas City Park	Tawas Bay	6/19/12	851
84	Iosco	3	Gateway Park Beach	Tawas Bay	6/19/12	1753
85	Iosco	4	Tawas City Park	Tawas Bay	6/19/12	731
86	Iosco	5	Tawas City Park	Tawas Bay	6/20/12	340
87	Iosco	6	Tawas City Park	Tawas Bay	6/21/12	483
88	Iosco	7	Tawas City Park	Tawas Bay	7/3/12	674
89	Iosco	8	Tawas Point State Park Campground	Lake Huron	6/19/12	2420
90	Iosco	9	Tawas Point State Park Campground	Lake Huron	7/24/12	457
91	Iosco	10	Tawas Point State Park-Day Use Area	Lake Huron	7/31/12	330
<b>15</b> 92	<b>Leelanau</b>	1	Elmwood/Greilikville Park & Beach	Grand Traverse Bay-West	7/11/12	361
<b>16</b> 93	<b>Mackinac</b>	1	Kiwanis Beach	Lake Huron	7/24/12	2420
94	Mackinac	2	Kiwanis Beach	Lake Huron	7/25/12	2420
95	Mackinac	3	Kiwanis Beach	Lake Huron	7/30/12	1814
96	Mackinac	4	Lake Michigan US-2 Campground Beach	Lake Michigan	7/17/12	637
97	Mackinac	5	Sand Point	Lake Michigan	6/19/12	713
98	Mackinac	6	Sand Point	Lake Michigan	7/17/12	1212
99	Mackinac	7	Sand Point	Lake Michigan	7/31/12	741
<b>17</b> 100	<b>Macomb</b>	1	H.C.M.A. - Lake St. Clair Metropark Beach	Lake St. Clair	8/6/12	371
101	Macomb	2	New Baltimore Park Beach	Lake St. Clair	6/5/12	584
102	Macomb	3	New Baltimore Park Beach	Lake St. Clair	7/19/12	2266
103	Macomb	4	New Baltimore Park Beach	Lake St. Clair	9/5/12	371
104	Macomb	5	St. Clair Shores Memorial Park Beach	Lake St. Clair	6/11/12	625
105	Macomb	6	St. Clair Shores Memorial Park Beach	Lake St. Clair	6/19/12	1389

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

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b>E. coli Test Results</b>
106	Macomb	7	St. Clair Shores Memorial Park Beach	Lake St. Clair	7/19/12	1503
<b>18</b>	<b><u>Manistee</u></b>	1	Fifth Avenue Beach	Lake Michigan	7/3/12	1872
<b>19</b>	<b><u>Marquette</u></b>	1	Marquette South Beach	Lake Superior	7/19/12	553
109	Marquette	2	Marquette South Beach	Lake Superior	8/8/12	338
110	Marquette	3	Marquette South Beach	Lake Superior	8/22/12	324
111	Marquette	4	Marquette South Beach	Lake Superior	8/23/12	804
112	Marquette	5	Marquette South Beach	Lake Superior	8/28/12	314
113	Marquette	6	North Beach	Lake Superior	7/26/12	484
114	Marquette	7	Shiras Park Beach	Lake Superior	7/17/12	409
115	Marquette	8	Shiras Park Beach	Lake Superior	7/19/12	313
<b>20</b>	<b><u>Menominee</u></b>	1	Henes Park	Lake Michigan	7/18/12	305
117	Menominee	2	Henes Park	Lake Michigan	7/19/12	1867
118	Menominee	3	Henes Park	Lake Michigan	7/31/12	349
119	Menominee	4	Memorial Beach	Lake Michigan	6/19/12	2420
120	Menominee	5	Memorial Beach	Lake Michigan	7/19/12	1328
121	Menominee	6	Memorial Beach	Lake Michigan	9/7/12	1224
<b>21</b>	<b><u>Ontonagon</u></b>	1	Ontonagon Township Park and Campground	Lake Superior	7/3/12	488
123	Ontonagon	2	Porcupine Mountains State Park-Union Bay	Lake Superior	7/3/12	507
<b>22</b>	<b><u>Ottawa</u></b>	1	Grand Haven City Beach	Lake Michigan	7/9/12	370
125	Ottawa	2	Grand Haven State Park	Lake Michigan	7/9/12	2420
126	Ottawa	3	Grand Haven State Park	Lake Michigan	7/23/12	354
127	Ottawa	4	Grand Haven State Park	Lake Michigan	8/20/12	429
128	Ottawa	5	Holland State Park	Lake Michigan	8/21/12	517
129	Ottawa	6	Kirk Park	Lake Michigan	7/3/12	668
130	Ottawa	7	Kouw Park	Lake Michigan	7/3/12	347
131	Ottawa	8	North Beach Park	Lake Michigan	7/9/12	1638
132	Ottawa	9	Rosy Mound Recreation Area	Lake Michigan	7/24/12	305
133	Ottawa	10	Tunnel Park	Lake Michigan	8/21/12	360
134	Ottawa	11	Windsnest Park	Lake Michigan	7/3/12	2266
<b>23</b>	<b><u>Sanilac</u></b>	1	Lexington Beach	Lake Huron	6/12/12	324
<b>24</b>	<b><u>Schoolcraft</u></b>	1	Manistique Township Park	Lake Michigan	7/3/12	975
137	Schoolcraft	2	Manistique Township Park	Lake Michigan	7/5/12	431
138	Schoolcraft	3	Public Shoreline Beach-Thompson	Lake Michigan	7/3/12	1967

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

	<b>County</b>		<b>Location</b>	<b>Water Body</b>	<b>Sampling Date</b>	<b><i>E. coli</i> Test Results</b>
139	Schoolcraft	4	Public Shoreline Beach-Thompson	Lake Michigan	7/5/12	1558
140	Schoolcraft	5	Roadside Park Beach	Lake Michigan	7/3/12	2266
141	Schoolcraft	6	Rogers Park-MDOT	Lake Michigan	6/19/12	591
142	Schoolcraft	7	Rogers Park-MDOT	Lake Michigan	7/3/12	2420
143	Schoolcraft	8	Rogers Park-MDOT	Lake Michigan	7/5/12	702
144	Schoolcraft	9	Rogers Park-MDOT	Lake Michigan	7/25/12	587
145	Schoolcraft	10	Rogers Park-MDOT	Lake Michigan	7/31/12	620
<b>25</b> 146	<b><u>St. Clair</u></b>	1	Chrysler Park Beach	St. Clair River	7/17/12	360
147	St. Clair	2	Chrysler Park Beach	St. Clair River	7/24/12	655
148	St. Clair	3	Chrysler Park Beach	St. Clair River	8/14/12	1434
149	St. Clair	4	Conger-Lighthouse Beach	Lake Huron	7/16/12	355
150	St. Clair	5	Conger-Lighthouse Beach	Lake Huron	8/1/12	1264
151	St. Clair	6	Conger-Lighthouse Beach	Lake Huron	8/8/12	653
152	St. Clair	7	Holland Road Beach	Lake Huron	7/16/12	333
153	St. Clair	8	Holland Road Beach	Lake Huron	8/8/12	1614
154	St. Clair	9	Holland Road Beach	Lake Huron	8/9/12	435
155	St. Clair	10	Holland Road Beach	Lake Huron	8/14/12	643
156	St. Clair	11	Holland Road Beach	Lake Huron	8/21/12	309
157	St. Clair	12	Jeddo Road Beach	Lake Huron	8/8/12	348
158	St. Clair	13	Keewadhin Road Beach	Lake Huron	7/16/12	2419
159	St. Clair	14	Krafft Road Beach	Lake Huron	7/16/12	547
160	St. Clair	15	Krafft Road Beach	Lake Huron	8/1/12	1307
161	St. Clair	16	Lakeport State Campground	Lake Huron	7/16/12	413
162	St. Clair	17	Lakeside Beach	Lake Huron	7/16/12	419
163	St. Clair	18	Lakeside Beach	Lake Huron	8/8/12	731
164	St. Clair	19	Lakeside Beach	Lake Huron	8/9/12	687
165	St. Clair	20	Lakeside Beach	Lake Huron	8/14/12	541
<b>26</b> 166	<b><u>Wayne</u></b>	1	Pier Park	Lake St. Clair	6/19/12	316
167	Wayne	2	Pier Park	Lake St. Clair	8/28/12	308
168	Wayne	3	Pier Park	Lake St. Clair	8/28/12	387
169	Wayne	4	Pier Park	Lake St. Clair	8/29/12	335