

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER RESOURCES DIVISION  
SEPTEMBER 2013

STAFF REPORT

MICHIGAN BEACH MONITORING  
YEAR 2013 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 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	2008	2009	2010	2011	2012	2013
Number of Counties that Monitored	57	57	59	55	56	51
Number of Beaches Monitored	467	414	430	415	423	413

### 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 \$1,512,205 including 15 awards totaling \$200,000 (Appendix A) for monitoring beaches in 2013 and 2014.

#### *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 \$2,922,386 including 23 awards totaling \$404,125 (Appendix B) for monitoring beaches in 2013.

## 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, 2012, and 2013. 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. The following 3 projects were in partnership with MSU:

1. Molecular source tracking tools were used to identify sources of contamination at 14 beaches (Final Report at <http://www.cws.msu.edu/GLRI.htm>)
2. Training materials were developed for beach managers to use rapid tools for monitoring beaches (<http://www.cws.msu.edu/qPCR.htm>)
3. Improved communication and education of water quality issues (<http://greatlakesecho.org/special-reports/>).

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. These efforts resulted in the development of more beach remediation projects that were supported with local funds and additional GLRI grants.

## 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 provides the following information about individual beaches:

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

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

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

### Pathogens

Pathogens are microorganisms (bacteria, protozoans, or viruses) that cause disease. Most waterborne pathogens are readily found in the feces of humans and other warm-blooded animals. Gastroenteritis is the most common illness associated with swimming in contaminated water although other illnesses can occur. The severity of the disease or illness depends on the amount of exposure and the type of pathogen (Appendix C) (USEPA, 2001). The USEPA (1986 and 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 2,304 routine sanitary surveys at 176 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 682 routine sanitary surveys at 64 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 this data to BeachGuard.

### Sources of Bacterial Contamination

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

Sanitary Sewer Overflows are discharges of raw or inadequately treated sewage 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, Combined Sewer Overflows, and areas influenced by certain agricultural practices is contrary to prudent public health and safety practices, even though WQS may be met.

### Beach Notification

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

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

### Reporting Beach Monitoring and Notification Data

According to R 333.12541(2), all local health departments are required to report their beach monitoring test results to the MDEQ within 36 hours of conducting the test or evaluation. Health

departments receiving beach monitoring grants are required to enter their data on the MDEQ's Web site, while non-grant receiving health departments are encouraged to report their data on the Web site.

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

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

#### List of Beaches

Michigan beaches identified by local health departments and the MDEQ are listed in Appendices D.1 (Inland lakes-monitored), D.2 (Inland lakes-not monitored), E.1 (Great Lakes-monitored), and E.2 (Great Lakes-not monitored). They are also listed on the MDEQ's beach Web site. The beaches are arranged alphabetically by county, then water body, then location (site name). There are 582 identified public beaches on inland lakes and rivers and 611 identified public beaches on the Great Lakes.

#### Synopsis of Data

Monitoring and notification data reported for beaches included results of *E. coli* tests, number of advisories or closures (actions) posted, and the number of days for each posting. In 2013, monitoring was conducted at 413 public beaches, and local beach managers collected 4,958 daily water samples and 162 (3.3 percent) exceeded Michigan's WQS (Appendices F.1 and F.2). A numerical summary of all monitored public beaches and samples exceeding WQS is found below in Table 2. The number and percent of samples exceeding WQS in 2013 are similar to the previous years.

Table 2. Number and percent of monitored public beaches and water samples in Michigan exceeding the daily geometric mean of 300 *E. coli* per 100 ml.

Year	2008	2009	2010	2011	2012	2013
Number of Beaches with Exceedances	75	83	108	124	114	98
Percent of Beaches with Exceedances	15.8	20	25	30	27	23.7
Number of Samples Exceeding WQS	154	212	209	266	224	162
Percent of Samples Exceeding WQS	2.8	3.6	4.0	4.3	3.9	3.3

Notification data in 2013 for beach actions are shown in Table 3. A total of 329 of the 413 public beaches (80 percent) that were monitored were open during the entire swimming season. This is an improvement compared to the previous year. In 2013, the number and percentages of beaches with an action and number of actions decreased. The number of beaches with exceedances differed from the number of beaches with actions due to any of the following reasons: (1) water samples were tested before or after the swimming season; (2) delays in receiving test results; (3) a second test (follow-up sample) was used to confirm an exceedance; (4) preemptive closures or advisories were issued; or (5) contamination advisories were issued for potential chemical or oil discharge.

Table 3. Summary of monitored beaches with and without actions.

Year	2008	2009	2010	2011	2012	2013
Total Actions For All Beaches	108	125	152	165	166	112
Total of Monitored Beaches with an Action	69	82	103	111	112	84
Percent of Monitored Beaches with an Action	14.8	19.8	24.3	27	26	20
Total of Monitored Beaches with no Action	398	332	327	304	311	329
Percent of Monitored Beaches with no Action	85.2	80.2	75.7	73	74	80

Synopsis of Data from Great Lakes Beaches

In 2013, 3,216 daily samples were collected at 239 Great Lakes public beaches in 37 counties in Michigan. A summary of WQS exceedances and closures/advisories for Great Lakes beaches is provided in Table 4. Exceedances and actions for Great Lakes beaches were of short duration. The number of monitored Great Lakes beaches has stayed about the same, along with the number of beaches with an action (Table 5).

Table 4. Number of exceedances and actions for Great Lakes beaches monitored in 2013.

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	44	44	1	40	40
2	7	14	2	12	24
3	8	24	3	2	6
4	2	8	4	2	8
5	1	5			
6	2	12			
<b>TOTAL</b>	<b>64</b>	<b>107</b>		<b>56</b>	<b>78</b>

Table 5. Number of monitored Great Lakes beaches with and without an action.

Year	2008	2009	2010	2011	2012	2013
GL Monitored Beaches with an Action	26	41	60	89	89	54
GL Monitored Beaches with no Action	182	184	164	173	171	185
Total GL Monitored Beaches	208	225	224	262	260	239

A summary of the 2013 beach action data for each of the Great Lakes, Lake St. Clair, and connecting channels is provided in Table 6. A summary of sources of contamination reported for actions in the Great Lakes, Lake St. Clair, and connecting channels is provided in Table 7.

Table 6. Data summary for the Great Lakes, Lake St. Clair, and connecting channels.

Summary	Lake Erie	Lake Huron	Lake Michigan	Lake Superior	Lake St. Clair	Great Lakes Connecting Channels	Total
Number of Public Beaches	2	168	304	119	4	14	611
Number of Monitored Beaches	2	79	129	20	4	5	239
Number of Beaches with Exceedance	1	24	32	4	3	0	64
Number of Exceedances	3	39	44	11	10	0	107
Number of Beaches with an Action	2	24	25	2	3	0	56
Number of Actions	5	33	30	4	6	0	78
Total Number of Days with Actions	13	221	54	4	17	0	309

Table 7. Contamination sources reported for advisories and closures, days affected, and the number of beaches for the Great Lakes, Lake St. Clair, and connecting channels for the specific cause of the beach action.

Contamination Source	Number of Actions with Reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Storm Water	23	29	23
Runoff	2	4	2
Other	2	2	2
Unknown	51	274	33
<b>TOTAL</b>	<b>78</b>	<b>309</b>	<b>60*</b>

\*Multiple sources reported for beaches.

#### Synopsis of Data from Inland Beaches

In 2013, 1,742 daily samples were collected at 174 inland lake public beaches in 35 counties in Michigan. Of the 28 beaches that reported actions, 3 beaches contributed 37.7 percent of the total days impacted by an action. The remaining 25 beaches issued an action lasting 1 to 10 days and contributed 62.3 percent of the total days impacted by an action.

A summary of WQS exceedances and closures/advisories for inland beaches is provided in Table 8. As seen with Great Lakes Beaches, exceedances and actions for inland beaches were of short duration. The number of monitored inland beaches varies by year and Table 9 shows the number of beaches with an action was lower in 2013 compared to all previous years except 2011 and 2012. A summary of sources of contamination reported for beach actions for inland lakes is provided in Table 10.



Table 8. Number of exceedances and actions for inland beaches monitored in 2013.

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	22	22	1	23	23
2	7	14	2	4	8
3	3	9	3	1	3
4	1	4			
6	1	6			
<b>TOTAL</b>	<b>34</b>	<b>55</b>		<b>28</b>	<b>34</b>

Table 9. Number of monitored inland lake beaches with and without an action.

Year	2008	2009	2010	2011	2012	2013
Inland Lake Monitored Beaches with an Action	43	41	43	22	26	28
Inland Lake Monitored Beaches with no Action	216	148	163	131	137	146
Total Inland Lake Monitored Beaches	259	189	206	153	163	174

Table 10. Contamination sources reported for actions, days affected, and the number of beaches reporting the specific cause of an action for inland lakes.

Contamination Source	Number of Actions Reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Storm Water	16	28	15
Runoff	1	6	1
Unknown	17	72	14
<b>TOTAL</b>	<b>34</b>	<b>106</b>	<b>30*</b>

\*Multiple sources reported for beaches.

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

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

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

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

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

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

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

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## REFERENCES

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- USEPA. 1986. Ambient Water Quality Criteria for Bacteria-1986. EPA 440/5-84/002.
- USEPA. 2001. Protocol for Developing Pathogen TMDLs. January 2001. EPA 84/R-00-002.
- USEPA. 2002. National Beach Guidance and Required Performance Criteria for Grants. EPA-823-B-02-004.

Appendix A. CMI-CWF Grants for Inland Lake Beaches 2013-2014.

<b>2013-2014 CMI-CWF Grantees</b>	<b>Granted Amount</b>	<b>Total Monitored Beaches</b>
Barry-Eaton District Health Department	\$9,064.32	4
Chippewa County Health Department	\$8,300.00	3
District Health Department #2	\$21,304.00	20
District Health Department #4	\$8,300.00	3
Health Department of Northwest Michigan	\$20,540.00	19
Luce-Mackinac-Alger-Schoolcraft District Health Department	\$8,300	3
Macomb County Health Department	\$7,534.00	2
Oakland County Health Department	\$40,430.00	45
Ottawa County Health Department	\$11,360.00	7
Public Health Muskegon County	\$11,999.68	15
Washtenaw County Health Department	\$7,654.00	5
Watershed Center Grand Traverse Bay	\$13,654.00	5
Wayne County Health Department	\$10,594.00	6
Western UP District Health Department	\$9,778.00	6
Wexford County Drain Commission	\$11,188.00	6
Total	\$200,000.00	149

Appendix B. 2013 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	\$12,608	4
Bay County Health Department	\$11,340	5
Berrien County Health Department	\$22,751	14
Central Michigan District Health Department	\$18,947	11
Chippewa County Health Department	\$12,608	6
Delta-Menominee District Health Department	\$10,072	4
District Health Department #2	\$26,555	9
District Health Department #4	\$20,215	12
District Health Department #10	\$31,626	22
Huron County Health Department	\$21,483	13
Luce-Mackinac-Alger-Schoolcraft District Health Department	\$17,679	4
Macomb County Health Department	\$8,804	3
Marquette (City of Marquette)	\$11,340	5
Monroe County Health Department	\$10,072	4
Muskegon County Health Department	\$21,483	12
Northwest Michigan Community Health Agency	\$44,306	31
Ottawa County Health Department	\$16,411	9
St. Clair County Health Department	\$24,019	15
Sanilac County Health Department	\$11,340	5
Van Buren/Cass District Health Department	\$10,072	4
Watershed Center (Grand Traverse & Benzie-Leelanau)	\$17,679	9
Wayne County Health Department	\$3,768	1
Western Upper Peninsula District Health Department	\$18,947	11
<b>Total</b>	<b>\$404,125</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 Lakes Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>1</b>	<b>Alcona</b>	Alcona Pond	1	Alcona Park East Campground
	Alcona	Cedar Lake	2	Greenbush Township beach
	Alcona	Brownlee Lake	3	Village of Lincoln Park
<b>2</b>	<b>Alpena</b>	Long Lake	1	Long Lake Park
<b>3</b>	<b>Antrim</b>	Ellsworth Lake	1	Wooden Shoe Park
	Antrim	Central Lake	2	Thurston Park
	Antrim	Lake Bellaire	3	Richardi Park
	Antrim	Torch Lake	4	Day Park
	Antrim	Sixmile Lake	5	Echo Township Park
<b>4</b>	<b>Arenac</b>	AuGres River	1	AuGres River - DNR Access at Pier
	Arenac	Pine River	2	Pine River - Arenac County
<b>5</b>	<b>Barry</b>	Thornapple Lake	1	Charlton Park
	Barry	Gun Lake	2	Main Beach - Day Use Area
	Barry	Gun Lake	3	Yankee Springs Recreation Area Campground Beach
<b>6</b>	<b>Bay</b>	Kawkawlin River	1	Boat Launch on Kawkawlin River
	Bay	Saginaw River	2	Vet's Park North Bay City
	Bay	Saginaw River	3	Vet's Park South River Road
<b>7</b>	<b>Benzie</b>	Otter Creek	1	Sleeping Bear Dunes-Otter Creek
	Benzie	Crystal Lake	2	Bellows
	Benzie	Crystal Lake	3	Beulah Beach
	Benzie	Lake Ann	4	Almira Township Park Beach
<b>8</b>	<b>Charlevoix</b>	Thumb Lake	1	Thumb Lake Beach
	Charlevoix	Walloon Lake	2	Melrose Township Park
<b>9</b>	<b>Chippewa</b>	Dukes Lake	1	Dukes Lake
	Chippewa	Kinross Lake	2	Kinross Lake
	Chippewa	Monocle Lake	3	Monocle Lake
<b>10</b>	<b>Clare</b>	Crooked Lake	1	Crooked Lake/Camp Neyati Beach
<b>11</b>	<b>Eaton</b>	Fox Memorial Park Beach	1	Fox Memorial Park
<b>12</b>	<b>Emmet</b>	Crooked Lake	1	Little Traverse Township Beach
	Emmet	Pickerel Lake	2	Camp Petosega
	Emmet	Larks Lake	3	Pioneer Picnic Park

Appendix D.1. Inland Lakes Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
32	Emmet	Pickerel Lake	4	Channel Beach
33	Emmet	Walloon Lake	5	Resort Pike Road Beach
<b>13</b> 34	<b><u>Gladwin</u></b>	Wiggins Lake South	1	Clendening Road
35	Gladwin	Wiggins Lake North	2	Wiggins Lake Road to Boat Launch
<b>14</b> 36	<b><u>Gogebic</u></b>	Lake Gogebic	1	Gogebic County Park
37	Gogebic	Lake Gogebic	2	Lake Gogebic State Park Beach
38	Gogebic	Sunday Lake	3	Sunday Lake Beach
<b>15</b> 39	<b><u>Grand Traverse</u></b>	Long Lake (Aka Mickey Lake)	1	Gilbert Beach
40	Grand Traverse	Long Lake (Aka Mickey Lake)	2	Taylor Park
41	Grand Traverse	North Twin Lake	3	Twin Lakes Camp Beach
42	Grand Traverse	Duck Lake	4	Interlochen State Park Beach
<b>16</b> 43	<b><u>Houghton</u></b>	Lake Roland	1	Twin Lakes State Park
<b>17</b> 44	<b><u>Iosco</u></b>	Long Lake	1	Long Lake Public Access
45	Iosco	Foote Pond	2	Old Orchard Park
46	Iosco	Van Ettan Lake	3	Oscoda Township Park - Van Ettan Lake
<b>18</b> 47	<b><u>Kalamazoo</u></b>	Blue Lake	1	Cold Brook County Park
48	Kalamazoo	Eagle Lake	2	Fort Custer Recreation Area Beach
49	Kalamazoo	Swimmers Lake	3	Markin Glen County Park
50	Kalamazoo	Hogsett Lake	4	Prairie View County Park
51	Kalamazoo	Long Lake	5	Ramona Park
52	Kalamazoo	Campbell Lake	6	Robert Morris Park
53	Kalamazoo	Gull Lake	7	Ross Township Park
54	Kalamazoo	Sunset Lake	8	Sunset Lake Park
55	Kalamazoo	Woods Lake	9	Woods Lake Beach
<b>19</b> 56	<b><u>Leelanau</u></b>	Sleeping Bear Dunes-Little Glen Lake	1	Little Glen Lake
57	Leelanau	Sleeping Bear Dunes-North Bar Lake	2	North Bar Lake
58	Leelanau	South Bar Lake	3	South Bar Lake- South End
59	Leelanau	Lake Leelanau	4	Nedow's (Barthallowmew) Beach
<b>20</b> 60	<b><u>Livingston</u></b>	Bishop Lake	1	Brighton State Recreation Area
61	Livingston	Bentley Lake	2	Camp Innisfree



Appendix D.1. Inland Lakes Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
62	Livingston	Lake Chemung	3	Camp Talahi
63	Livingston	Thompson Lake	4	Howell City Park
64	Livingston	Pleasant Lake	5	Howell Nature Center
65	Livingston	Spring Mill Pond	6	Island Lake Recreation Area
66	Livingston	Kent Lake	7	Island Lake Recreation Area - Kent Lake
67	Livingston	Cook Lake	8	Taylor's Beach
68	Livingston	Lake Walden	9	Waldenwoods Resort
<b>21</b>	<b>Macomb</b>	Stony Creek Lake-Impoundment	1	Stony Creek Metropark-Baypoint Beach
70	Macomb	Stony Creek Lake-Impoundment	2	Stony Creek Metropark-Eastwood Beach
<b>22</b>	<b>Marquette</b>	Dead River Reservoir	1	Marquette Tourist Park Beach
<b>23</b>	<b>Muskegon</b>	Big Blue Lake	1	Blue Lake County Park Beach
73	Muskegon	Fox Lake	2	Fox Lake Park Beach
74	Muskegon	Twin Lake	3	Twin Lake County Park Beach
75	Muskegon	Muskegon Lake	4	Muskegon State Park- Muskegon Lake Side
76	Muskegon	Duck Lake	5	Duck Lake State Park Beach
77	Muskegon	Mona Lake	6	Mona Lake Park Beach
78	Muskegon	Mona Lake	7	Ross Park Beach
79	Muskegon	Wolf Lake	8	Wolf Lake County Park
80	Muskegon	Half Moon Lake	9	Moore County Park Beach
81	Muskegon	White Lake	10	Maple Park
82	Muskegon	Muskegon Lake	11	Harbor Towne Beach
83	Muskegon	Wolf Lake	12	Sunset Park
84	Muskegon	Bear Lake	13	Laketon Township Beach
85	Muskegon	West Lake	14	Paddley Park
86	Muskegon	Muskegon Lake	15	Water Sports Park
<b>24</b>	<b>Oakland</b>	Adams Lake	1	Addison Oaks County Park
88	Oakland	Lower Trout	2	Bald Mountain Recreation Area
89	Oakland	Green Lake	3	Bay Court Park
90	Oakland	Walnut Lake	4	Bloomfield Parks and Recreation/West Hills M.S.
91	Oakland	Tipsico Lake	5	Brown's Landing Mobile Home Park
92	Oakland	Phillips Lake	6	Camp Dearborn - Lake #1
93	Oakland	Phillips Lake	7	Camp Dearborn - Lake #5
94	Oakland	Phipps Lake	8	Camp Maas - Rodecker
95	Oakland	Phipps Lake	9	Camp Maas- Sobell Beach
96	Oakland	Handsome Lake	10	Crossroads For Youth
97	Oakland	Fish Lake	11	Camp Ohiyesa - North
98	Oakland	Green Lake	12	Camp Wathana
99	Oakland	Long Lake	13	Christ the King Church Camp
100	Oakland	Green Lake	14	Clear Water Resort

Appendix D.1. Inland Lakes Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
101	Oakland	Orchard lake	15	Country Club (500 W. Shore Dr)
102	Oakland	Mill Pond	16	Davisburg Village Beach (Hart Community Center)
103	Oakland	Cass Lake	17	Dodge Park #4
104	Oakland	Emerald Lake	18	Emerald Lake Homeowners Assoc. - Lyster Road
105	Oakland	Walled Lake	19	E.V. Mercer City Beach
106	Oakland	Sylvan Lake	20	Ferndale
107	Oakland	Sun Lake	21	Finnish Day Camp
108	Oakland	Orion Lake	22	Greens Park Village Beach
109	Oakland	Stewart Lake	23	Groveland Oaks County Park - Paradise Beach
110	Oakland	Haas Lake	24	Haas Lake Park #1
111	Oakland	Big Peat Lake	25	Haas Lake Park #2
112	Oakland	Haas Lake	26	Haas Lake Park #3
113	Oakland	Haas Lake	27	Hass Lake Park #4
114	Oakland	Heron Lake	28	Holly Recreation Area - Heron Beach
115	Oakland	Bush Lake	29	Holly Village Beach
116	Oakland	Crooked Lake	30	Independence Oaks County Park
117	Oakland	Deer Lake	31	Independence Township Village Beach
118	Oakland	Cass Lake	32	Keego Harbor City Beach
119	Oakland	Kent Lake	33	Kensington- Maple Beach
120	Oakland	Kent Lake	34	Kensington - Martindale Beach
121	Oakland	Walled Lake	35	Lakeshore Park
122	Oakland	Pontiac Lake	36	Pontiac Recreation Area
123	Oakland	Cass Lake	37	Pontiac Yacht Club
124	Oakland	Proud Lake	38	Proud Lake Recreation Area Campground
125	Oakland	Round Lake	39	Scripter Village Park Township Beach
126	Oakland	Big Seven Lake	40	Seven Lakes Park
127	Oakland	Sand Lake	41	Seven Lakes State Park - Campground
128	Oakland	Stony Lake	42	Stony Lake Park
129	Oakland	Teeple Lake	43	Teeple Lake Recreation Area- Highland State Park
130	Oakland	Lake at Park	44	Thelma Spencer Park
131	Oakland	Prince Lake	45	Upland Hills Farm
<b>25</b>	<b>Ogemaw</b>	Elbow Lake	1	Mills Township Park
133	Ogemaw	Grousehaven Lake	2	Rifle River Recreation Area Campground Beach
134	Ogemaw	Rifle Lake	3	Shady Shores Park Subdivision
<b>26</b>	<b>Ontonagon</b>	Lake Gogebic	1	Bergland Township Park
136	Ontonagon	Lake Gogebic	2	Ontonagon County Park
<b>27</b>	<b>Oscoda</b>	Perry Lake	1	Comins Township Park
138	Oscoda	Smith Lake	2	Oscoda County Park

Appendix D.1. Inland Lakes Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>	
<b>28</b>	<b>139</b>	<b><u>Otsego</u></b>	Otsego Lake	1	Otsego State Park
	140	Otsego	Otsego Lake	2	Otsego County Park
	141	Otsego	Otsego Lake	3	Arbutus Beach
	142	Otsego	Bear lake	4	Bear Lake State Forest Campground
	143	Otsego	Otsego Lake	5	WahWahSoo Beach
	144	Otsego	Big Lake	6	Big Lake
	145	Otsego	Dixon Lake	7	Dixon Lake Access
<b>29</b>	<b>146</b>	<b><u>Ottawa</u></b>	Lake Macatawa	1	Dunton Park
	147	Ottawa	Georgetown Lake	2	Georgetown Community Park
	148	Ottawa	Crockery Lake	3	Grose Park
	149	Ottawa	Lake Macatawa	4	Holland State Park
	150	Ottawa	Spring Lake	5	Lakeside Beach
	151	Ottawa	Maplewood Lake	6	Maplewood Lake Park
	152	Ottawa	Pottawattomie Bayou	7	Pottawattomie Park
<b>30</b>	<b>153</b>	<b><u>Presque Isle</u></b>	Black Lake	1	Onaway state Park
	154	Presque Isle	Grand Lake	2	Grand Lake Public Access
<b>31</b>	<b>155</b>	<b><u>Roscommon</u></b>	Houghton Lake	1	Denton Township Public Beach
	156	Roscommon	Houghton Lake	2	Houghton Lake Heights
	157	Roscommon	Houghton Lake	3	Houghton Lake State Forest Campground
	158	Roscommon	Houghton Lake	4	Houghton Lake DNR Boat Launch and Park
<b>32</b>	<b>159</b>	<b><u>Schoolcraft</u></b>	Quarry Lake	1	Quarry Beach
<b>33</b>	<b>160</b>	<b><u>St. Clair</u></b>	Emmett K.O.A. Pond	1	Emmett K.O.A.
	161	St. Clair	Fort Trodd Lake	2	Fort Trodd Campground North
	162	St. Clair	Fort Trodd Lake	3	Fort Trodd South
	163	St. Clair	Kimball Pond	4	Kimball Township Pond
	164	St. Clair	Ruby Campground Pond	5	Ruby Campground
<b>34</b>	<b>165</b>	<b><u>Washtenaw</u></b>	Independence Lake	1	Independence Lake County Park
	166	Washtenaw	Bruin Lake	2	Pinckney Recreation Area
	167	Washtenaw	Half Moon Lake	3	Pinckney Recreation Area
	168	Washtenaw	Silver Lake	4	Pinckney Recreation Area
<b>35</b>	<b>169</b>	<b><u>Wexford</u></b>	Lake Cadillac	1	Cadillac City Dock
	170	Wexford	Lake Cadillac	2	City Park
	171	Wexford	Lake Meauwataka	3	Colfax Township Park
	172	Wexford	Lake Cadillac	4	Kenwood Park
	173	Wexford	Billings Lake	5	Manton Park
	174	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
4	Alcona	Hubbard Lake	4	Caledonia Township Park
<b>2</b>	<b>Allegan</b>	Dumont Lake	1	Dumont Lake County Park Beach
6	Allegan	Ely Lake	2	Ely Lake Campground Beach
7	Allegan	Gun Lake	3	Gun Lake County Park Beach
8	Allegan	Little John Lake	4	Little John Lake County Park Beach
9	Allegan	Swan Creek Pond	5	Pine Point Campground Beach
<b>3</b>	<b>Alpena</b>	Long Lake	1	Long Lake Day Use
11	Alpena	Beaver Lake	2	Beaver Lake Park
12	Alpena	Lake Avalon	3	Lake Avalon Public Access
<b>4</b>	<b>Antrim</b>	Torch Lake	1	Eastport
14	Antrim	Torch Lake	2	Torch River Bridge
15	Antrim	Torch River	3	Torch River Sand Bar
<b>5</b>	<b>Arenac</b>	Man-Made Pond	1	Oasis Lake County Park
17	Arenac	Flint Park Hunt Club Lake	2	Flint Park Hunt Club
18	Arenac	Man-Made Pond	3	Outdoor Adventures
<b>6</b>	<b>Barry</b>	Gull Lake	1	Prairieville Township Park
20	Barry	Gun Lake	2	Old Beach- Day Use Area
<b>7</b>	<b>Benzie</b>	Crystal Lake	1	South Shore near Beulah
<b>8</b>	<b>Berrien</b>	St. Joseph River	1	Bertrand Park
23	Berrien	St. Joseph River	2	Niles - French Paper
24	Berrien	St. Joseph River	3	Niles - Marmont
25	Berrien	Paw Paw Lake	4	Paw Paw Lake
<b>9</b>	<b>Branch</b>	Messenger Lake	1	Memorial Park
27	Branch	First Lake	2	Quincy Park
<b>10</b>	<b>Calhoun</b>	Duck Lake	1	Springport
29	Calhoun	Goguac Lake	2	Willard Beach in Battle Creek
<b>11</b>	<b>Charlevoix</b>	Huffman Lake	1	Hudson Township Park
<b>12</b>	<b>Cheboygan</b>	Mullett Lake	1	Aloha State Park
32	Cheboygan	Black Lake	2	Black Lake S.F.C.G.
33	Cheboygan	Black Lake	3	Bluffs Beach
34	Cheboygan	Mullett Lake	4	Boy Scout Launch
35	Cheboygan	Burt Lake	5	Burt Lake State Park

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
36	Cheboygan	Burt Lake	6	Devoe Beach
37	Cheboygan	Mullett Lake	7	Foot Road Park
38	Cheboygan	Mullett Lake	8	Grand View Beach
39	Cheboygan	Mullett Lake	9	Hobert's Launch
40	Cheboygan	Burt Lake	10	Hoppie's Launch
41	Cheboygan	Burt Lake	11	Maple Bay Park
42	Cheboygan	Mullett Lake	12	Orchard Beach
43	Cheboygan	Mullett Lake	13	Polish Line Beach
44	Cheboygan	Douglass Lake	14	Ryder's Landing
45	Cheboygan	Mullett Lake	15	Topinabee Park
46	Cheboygan	Webber Lake	16	Webber Lake State Park
<b>13</b> 47	<b><u>Chippewa</u></b>	Caribou Lake	1	Caribou Lake
48	Chippewa	Soldiers Lake	2	Soldiers Lake
49	Chippewa	Carp Lake	3	Trout Lake
<b>14</b> 50	<b><u>Clare</u></b>	Arnold Lake	1	Arnold Lake Beach
51	Clare	Bertha Lake	2	Bertha Lake Beach
52	Clare	Townline Lake	3	Cedar Shores Beach
53	Clare	Cranberry lake	4	Cranberry Lake South
54	Clare	Dodge Lake	5	Dodge Lake Beach
55	Clare	Crooked Lake	6	Hillcrest Public Landing
56	Clare	George Lake	7	Lake George Public Landing
57	Clare	Doc and Tom Lake	8	Lake of the Pines
58	Clare	Lilly Lake	9	Lilly Lake Beach
59	Clare	Long Lake	10	Long Lake Beach
60	Clare	Muskegon River	11	Muskegon River Township Park
61	Clare	Hayes Lake (Cranberry Lake)	12	Oak Hills Children's Camp
62	Clare	Sand Lake	13	Sand Lake Beach
63	Clare	Grass Lake	14	Sandy Shores Beach
64	Clare	Shingle Lake	15	Shingle Lake Park
65	Clare	Silver Lake	16	Silver Lake Park
66	Clare	Budd Lake	17	Wilson State Park
<b>15</b> 67	<b><u>Clinton</u></b>	Lake Ovid	1	Sleepy Hollow State Park Beach
<b>16</b> 68	<b><u>Eaton</u></b>	Grand River	1	Lincoln Brick Park
<b>17</b> 69	<b><u>Emmet</u></b>	Crooked Lake	1	Oden Beach
<b>18</b> 70	<b><u>Genesee</u></b>	Lake Ponemah	1	At Drain
71	Genesee	Barnum Lake	2	Barnum Lake
72	Genesee	Hasler Lake	3	Beach at Hasler Lake
73	Genesee	Pinewood Lake	4	Beach at Pinewood Lake
74	Genesee	Mott Lake	5	Bluebell Beach
75	Genesee	Mott Lake	6	Bluegill Boat Ramp

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
76	Genesee	Buell Lake	7	Boat Ramp at Buell Lake
77	Genesee	Holloway Reservoir	8	Buttercup Beach
78	Genesee	Copneconic Lake	9	Camp Copneconic
79	Genesee	Silver Lake	10	City Park Beach
80	Genesee	Byram Lake	11	Clover Beach
81	Genesee	Copneconic Lake	12	Copneconic Day Beach
82	Genesee	Covenant Hill Camp	13	Covenant Hill Camp
83	Genesee	Crane Lake	14	Crane Lake Beach
84	Genesee	Crooked Lake	15	Crooked Lake
85	Genesee	Fenton Lake	16	DNR Boat Dock-Fenton Lake
86	Genesee	Lake Ponemah	17	DNR Boat Launch at Lake Ponemah
87	Genesee	Lobdell Lake	18	DNR Boat Launch at Lobdell Lake
88	Genesee	Dollar lake	19	Dollar Lake
89	Genesee	Fenton Lake	20	Fenton Lake Marina
90	Genesee	Flagstone Point	21	Flagstone Point Beach
91	Genesee	Golden Rod Lake	22	Golden Rod Beach
92	Genesee	Otter Lake	23	Griswold Park
93	Genesee	Hasler Lake	24	Hasler Lake Campground
94	Genesee	Kearsley Reservoir	25	Kearsley Reservoir Beach
95	Genesee	Kelly Lake	26	Kelly Lake
96	Genesee	Lake Helene	27	Lake Helene Beach
97	Genesee	Lake Linda	28	Lake Linda
98	Genesee	Lake Shinangaug	29	Lake Shinangaug
99	Genesee	Linden Mill Pond	30	Linden Mill Pond Beach
100	Genesee	Loon Lake	31	Loon Lake Beach
101	Genesee	Marl Lake	32	Marl Lake Beach
102	Genesee	McCaslin Lake	33	McCaslin Lake Beach
103	Genesee	McKane Lake	34	McKane Lake Beach
104	Genesee	Mott Lake	35	Mott Lake Beach
105	Genesee	Mott Lake Stepping Stone	36	Mott Lake Stepping Stone Beach
106	Genesee	Myers Lake	37	Myers Lake
107	Genesee	Pine Lake	38	Pine Lake Beach
108	Genesee	Silver Lake	39	Silver Lake Marina
109	Genesee	Smokerise Lake	40	Smokerise Beach
110	Genesee	Squaw Lake	41	Squaw Lake Beach
111	Genesee	Thread Lake	42	Thread Lake Beach
112	Genesee	Fenton Lake	43	Township Hall
113	Genesee	Holloway Reservoir	44	Walleye Pike Dock
114	Genesee	West Sister Lake	45	West Sister Lake
<b>19</b>	<b>Gladwin</b>	Ross Lake	1	Beaverton City Park
116	Gladwin	Cedar River	2	Cedar River Campground Beach
117	Gladwin	Tittabawassee River	3	Estey Road Access
118	Gladwin	Tittabawassee River	4	Gilman Springs Canoe Launch
119	Gladwin	Flowing well/pond	5	Gilman Springs Swimming Area
120	Gladwin	Cedar River	6	Gladwin City Park

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
121	Gladwin	Cedar River	7	Gladwin North Park
122	Gladwin	Tittabawassee River	8	Good News Camp
123	Gladwin	Hoister Lake	9	Hoister Lake Beach
124	Gladwin	House Lake	10	House Lake
125	Gladwin	Lake Four	11	Lake Four
126	Gladwin	Lyle Drain/Tobacco River	12	Lost Haven Beach
127	Gladwin	Tittabawassee River	13	Pine Street Public Access
128	Gladwin	Pratt Lake	14	Pratt Lake
129	Gladwin	Secord Lake	15	Secord Lake
130	Gladwin	Secord Lake	16	Secord Lake - East
131	Gladwin	Lake Lancer	17	Sugar Springs/Lake Lancer
132	Gladwin	Trout Lake	18	Trout Lake SFCG
133	Gladwin	Secord Lake	19	West River Drive Boat Launch
134	Gladwin	Wixon Lake	20	Wixon Lake - West
<b>20</b>	<b>Hillsdale</b>	Bird lake	1	Bird Lake Beach
136	Hillsdale	Baw Beese Lake	2	Sandy Beach
<b>21</b>	<b>Ingham</b>	Burchfield Pond	1	Burchfield Park
138	Ingham	Hawk Island	2	Hawk Island County Park
139	Ingham	Lake Lansing	3	Lake Lansing Park South
140	Ingham	Valhalla Pond	4	Valhalla Park Williamston Road
<b>22</b>	<b>Iosco</b>	Chain Lake	1	Chain Lake Beach
142	Iosco	Foote Pond	2	Footsite Park
143	Iosco	Loon Lake	3	Loon Lake Park
144	Iosco	Sand Lake	4	Sand Lake - Sand Lake Road Access
<b>23</b>	<b>Isabella</b>	Coldwater Lake	1	Coldwater Park
146	Isabella	Chippewa River	2	Deerfield County Park
147	Isabella	Halls Lake	3	Halls Lake
148	Isabella	Borrow Pit	4	Herrick County Park
149	Isabella	Millpond	5	Millpond Park
<b>24</b>	<b>Jackson</b>	Clark Lake	1	Clark Lake County Park
151	Jackson	Clear Lake	2	Clear Lake County Park
152	Jackson	Gilletts Lake	3	Gilletts Lake County Park
153	Jackson	Grass Lake	4	Grass Lake County Park
154	Jackson	Lime Lake	5	Lime Lake County Park
155	Jackson	Little Wolf Lake	6	Little Wolf Lake County Park
156	Jackson	Pleasant Lake	7	Pleasant Lake County Park & Campground
157	Jackson	Portage Lake	8	Portage Lake County Park
158	Jackson	Round Lake	9	Round Lake County Park
159	Jackson	Swains Lake	10	Swains Lake County Park
160	Jackson	Vandercook Lake	11	Vandercook Lake County Park
161	Jackson	Vineyard Lake	15	Vineyard Lake County Park

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	Popp Road End
	173	Leelanau	Inland Lake	3	Sleeping Bear Dunes- North Bar Lake
<b>28</b>	<b>174</b>	<b><u>Livingston</u></b>	Dibrova Lake	1	Green Valley Camp
	175	Livingston	Haynor Lake	2	Hamburg Fitness Center & Camp
	176	Livingston	Lake Chemung	3	Lake Chemung Outdoor Resort
	177	Livingston	Winans Lake	4	Lakelands Golf & Country Club
	178	Livingston	Pickerel Lake	5	Providence Medical Center
	179	Livingston	Cordley Lake	6	Varsity Day Camp
	180	Livingston	Church Lake	7	Wildwood Ranch
<b>29</b>	<b>181</b>	<b><u>Mackinac</u></b>	Brevort Lake	1	Brevort Lake Campground Beach
<b>30</b>	<b>182</b>	<b><u>Menominee</u></b>	Hermansville lake	1	Hermansville Beach
	183	Menominee	Shakey Lakes	2	Shakey Lakes Campground
<b>31</b>	<b>184</b>	<b><u>Midland</u></b>	Sanford Lake	1	Sanford Lake Park
<b>32</b>	<b>185</b>	<b><u>Monroe</u></b>	Camp Lord Willing Pond	1	Camp Lord Willing
	186	Monroe	Covered Wagon Campground Pond	2	Covered Wagon Campground
	187	Monroe	Heath Beach Pond	3	Heath Beach
	188	Monroe	K.C. Campground Pond	4	K.C. Campground
	189	Monroe	Monroe KOA Campground Pond	5	Monroe K.O.A. Campground
	190	Monroe	Pirollis Campground Pond	6	Pirolli's Campground
	191	Monroe	The Vine Campground Pond	7	The Vine
	192	Monroe	Man-Made Pond	8	Totem Pole Campground Pond
	193	Monroe	Wilderness Retreat Campground Pond	9	Wilderness Retreat Campground
<b>33</b>	<b>194</b>	<b><u>Montmorency</u></b>	Clear Lake	1	Clear Lake State Park
	195	Montmorency	Clear Lake	2	Clear Lake Day Use
	196	Montmorency	Crooked Lake	3	Crooked Lake Beach



Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
197	Montmorency	East Twin Lake	4	East Twin Beach/Albert Township Park
198	Montmorency	Ess Lake	5	Ess Lake State Campground
<b>34</b> 199	<b>Oakland</b>	Upper Pettibone Lake	1	657 Dunleavy
200	Oakland	Union Lake	2	Alpha Beach
201	Oakland	Long Lake	3	Annex 1
202	Oakland	Avon Lake	4	Avon Lakes Beach #1
203	Oakland	Avon Lake	5	Avon Lakes Beach #2
204	Oakland	Upper Straits Lake	6	Banker's Subdivision
205	Oakland	Upper Straits Lake	7	Bayside Beach Association
206	Oakland	Walled Lake	8	Beachwalk Apartments
207	Oakland	Loon Lake	9	Birch Park
208	Oakland	Oakland Lake	10	Bird Island Subdivision
209	Oakland	Walnut Lake	11	Bloomfield Square Beach Association
210	Oakland	Elizabeth Lake	12	Bloomfield
211	Oakland	Bogie Lake	13	Bogie Lake Property Owners - Beryl Drive
212	Oakland	Brendel Lake	14	Brendle Heights - Hillwood
213	Oakland	Huntoon Lake	15	Broadway Civic Association
214	Oakland	Long Lake	16	Bunny Run C.C.
215	Oakland	Union Lake	17	Burley & Barnsbury Streets
216	Oakland	Huntoon Lake	18	Burlingham Lake Park I
217	Oakland	Huntoon Lake	19	Burlingham Lake Park II
218	Oakland	Tommys Lake	20	Camp Agawam Boy Scout Camp
219	Oakland	Ekelund Lake	21	Camp Gordanwood
220	Oakland	Narrin Lake	22	Camp Narrin
221	Oakland	Cass Lake	23	Cass Lake Woods
222	Oakland	Elizabeth Lake	24	Cass-Elizabeth Heights
223	Oakland	Cedar Island Lake	25	Cedar Crest Subdivision
224	Oakland	Charnwood Lake	26	Charnwood
225	Oakland	Fox Lake	27	Cloister-on-the-Lakes
226	Oakland	Cranberry Lake	28	Cranberry Lake Village
227	Oakland	Cranberry Lake	29	Cranberry Lake Village
228	Oakland	Crescent Lake	30	Crescent Highlands
229	Oakland	Crescent Lake	31	Crescent Lake Park
230	Oakland	Middle Straits Lake	32	Crystal Echo
231	Oakland	Middle Straits Lake	33	Crystal Echo (the point)
232	Oakland	Sylvan Lake	34	Cunningham Park
233	Oakland	Deer Lake	35	Deer Lake Estates
234	Oakland	Lakeville Lake	36	Doll's Dock (Skip's Landing)
235	Oakland	Eagle Lake	37	Eagle Lake Road
236	Oakland	Elizabeth Lake	38	ECHPOA
237	Oakland	Elizabeth Lake	39	Elizabeth Lake Estates Improvement Assoc.
238	Oakland	Elizabeth Lake	40	Elizabeth Lakeshore
239	Oakland	Elizabeth Lake	41	Elizabeth Shores
240	Oakland	Emerald Lake	42	Emerald Lake

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
241	Oakland	Sandshores	43	Emerald Lake Homeowners Assoc. - Little Creek Road
242	Oakland	Round Lake	44	Family Park
243	Oakland	Walnut Lake	45	Finnish American Club of Detroit
244	Oakland	Allen Lake	46	Fox Bay Civic Association
245	Oakland	Green Lake	47	Green Acres / Green Valley Park
246	Oakland	Hammond Lake	48	Hammond Estates
247	Oakland	Lotus Lake	49	Harris Park
248	Oakland	Harvey Lake	50	Harvey Lake Estates
249	Oakland	Harvey Lake	51	Harvey Lake Heights
250	Oakland	Heather Lake	52	Heather Lake Estates
251	Oakland	Watkins Lake	53	Heitch Street
252	Oakland	Wildwood Lake	54	Holly Recreation Area - Wildwood Beach
253	Oakland	Huntoon Lake	55	Huntoon Village
254	Oakland	Bass Lake	56	Idlewild Subdivision
255	Oakland	Indian Lake	57	Indian Lake Improvement Association
256	Oakland	Loon Lake	58	Indianwood
257	Oakland	Rowe Lake	59	Jacksina Subdivision
258	Oakland	Voorheis Lake	60	Keatington Subdivision - Eaton Gate - off Baldwin
259	Oakland	Voorheis Lake	61	Keatington Subdivision - Joslyn Court
260	Oakland	Cass Lake	62	Keego Harbor Trailer Park
261	Oakland	Morgan Lake	63	Lake Angelus Lakeview Estates
262	Oakland	Oakland Lake	64	Lake Oakland Heights
263	Oakland	Oakland Lake	65	Lake Oakland Shores
264	Oakland	Orion Lake	66	Lake Orion Heights
265	Oakland	Waumegah Lake	67	Lake Waumegah Homeowners Association
266	Oakland	Watkins Lake	68	Lakeland Association #1
267	Oakland	Watkins Lake	69	Lakeland Association #2
268	Oakland	Eagle Lake	70	Lakeland Estates
269	Oakland	Clear Lake	71	Lakeland Improvement Association -Keith Street
270	Oakland	Sylvan Lake	72	Lakeview
271	Oakland	Carpenter Lake	73	Lakeview Recreation
272	Oakland	Geneva Lake	74	Lakewood Farms - Crocus Street
273	Oakland	Geneva Lake	75	Lakewood Farms - Sharon Street
274	Oakland	Brendel Lake	76	Lakewood Village
275	Oakland	Neva Lake	77	Lakewood Village Subdivision
276	Oakland	Watkins Lake	78	Lanarh Street
277	Oakland	Sherwood Lake	79	Ledgewood
278	Oakland	Marion Lake	80	Locklin Pines Association
279	Oakland	Walnut Lake	81	Lone Pine Associaton
280	Oakland	Commerce Lake	82	Log Cabin Subdivision
281	Oakland	Lotus Lake	83	Lotus Park
282	Oakland	Lower Straits Lake	84	Lower Straits Beach Club
283	Oakland	Lower Straits	85	Maple Point

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
284	Oakland	Tan Lake	86	Mary K. Subdivision
285	Oakland	Meadow Lake	87	Meadow Lake Association
286	Oakland	Davis Lake	88	Meagher Park/Woodland Manor
287	Oakland	Darb Lake	89	Mission Springs Subdivision
288	Oakland	Lotus Lake	90	Mountain View
289	Oakland	Maceday Lake	91	Moutain View C.C. Subdivision
290	Oakland	Walnut Lake	92	North Cove
291	Oakland	Upper Pettibone Lake	93	Oak Heights Improvement Association
292	Oakland	Sugden Lake	94	Oakridge Subdivision
293	Oakland	Upper Straits Lake	95	Outlet A
294	Oakland	Brendel Lake	96	Pawlaks Campground
295	Oakland	Pine Lake	97	Pine Lake Manor
296	Oakland	Bogie Lake	98	Pinecrest Shores
297	Oakland	Sylvan Lake	99	Pioneer Highlands
298	Oakland	Pleasant Lake	100	Pleasant Lake Highlands
299	Oakland	Pleasant Lake	101	Pleasant Lake Manor
300	Oakland	Pleasant Lake	102	Pleasant Lake Woods
301	Oakland	Square Lake	103	Pleasant View Subdivision
302	Oakland	Square Lake	104	Pleasant View Subdivision - Kempster Street
303	Oakland	Elizabeth Lake	105	Rangate Park
304	Oakland	Sherwood Lake	106	Ravinewood East
305	Oakland	Sherwood Lake	107	Ravinewood West
306	Oakland	Reed Lake	108	Reed Lake Property Owners
307	Oakland	White Lake	109	Rolling Acres
308	Oakland	Mud Lake	110	Rose Hill Center
309	Oakland	Loon Lake	111	Sandy Beach
310	Oakland	Scotch Lake	112	Scotch Lake Residents
311	Oakland	Upper Straits Lake	113	Shady Beach
312	Oakland	Walnut Lake	114	Shenandoah Farms Association
313	Oakland	Sherwood Lake	115	Sherwood Boat Ramp
314	Oakland	Sherwood Lake	116	Sherwood Property Owners
315	Oakland	Lower Straits Lake	117	Shores at Bay Point
316	Oakland	Silver Lake	118	Silver Hill Road
317	Oakland	Carpenter Lake	119	Silver Valley Subdivision
318	Oakland	Orchard Lake	120	St. Mary's Park
319	Oakland	White Lake	121	Stanley Beach
320	Oakland	Middle Straits Lake	122	Stony Beach
321	Oakland	Walters Lake	123	Sunny Beach #1 - Eston Road
322	Oakland	Walters Lake	124	Sunny Beach #2 - Clarkston Road
323	Oakland	Orion Lake	125	Sunset Club
324	Oakland	Cedar Island Lake	126	Sunset Subdivision
325	Oakland	Sylvan Lake	127	Sylvan Shores Improvement Association
326	Oakland	Cass Lake	128	Sylvan-on-the-Lakes
327	Oakland	Elizabeth Lake	129	Terrace
328	Oakland	Middle Straits Lake	130	Tripps Subdivision Park
329	Oakland	Middle Straits Lake	131	Twin Beach Park

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
330	Oakland	Long Lake	132	Twin Shores Subdivision
331	Oakland	Union Lake	133	Union Lake Beach Club
332	Oakland	Union Lake	134	Union Lake Heights Subdivision #1
333	Oakland	Walnut Lake	135	Walnut Lake Estates
334	Oakland	Walnut Lake	136	Walnut Lake Hills Corporation
335	Oakland	Walnut Lake	137	Walnut Lake Park
336	Oakland	Elizabeth Lake	138	Walters
337	Oakland	Van Norman Lake	139	Waterford Hill
338	Oakland	Middle Straits Lake	140	West Acres
339	Oakland	Wing Lake	141	Westwood Manor
340	Oakland	Whipple Lake	142	Whipple Shores Subdivision
341	Oakland	Maceday Lake	143	Whitfield-Maceday Association - North
342	Oakland	Maceday Lake	144	Whitfield-Maceday Association - South
343	Oakland	Watkins Lake	145	Whitney Street
344	Oakland	Cass Lake	146	Willow Beach Subdivision
345	Oakland	Wing Lake	147	Wing Lake Farms Association
346	Oakland	Wing Lake	148	Wing Lake Property Owners Association
347	Oakland	Woodhull Lake	149	Woodhull Lake Civic Association
<b>35</b>	<b><u>Ogemaw</u></b>	Hardwood Lake	1	Hardwood Lake
348	Ogemaw	Lake George	2	Lake George Campground
349	Ogemaw	Devoe Lake	3	Rifle River Recreation Area
350	Ogemaw	Grousehaven Lake	4	Rifle River Recreation Area Day Use Area
351	Ogemaw	Skidway Lake	5	Skidway Lake
352	Ogemaw			
<b>36</b>	<b><u>Osceola</u></b>	Center Lake	1	Center Lake Bible Camp
353	Osceola	Center Lake	2	Center Lake Park
354	Osceola	Muskegon River	3	City of Evert Campground
355	Osceola	Muskegon River	4	Crawford Park
356	Osceola	Big Lake	5	Crittenden Park
357	Osceola	Diamond Lake	6	Diamond Lake
358	Osceola	Diamond Lake	7	DNR Access Diamond Lake
359	Osceola	Hicks Lake	8	DNR Access Hicks Lake
360	Osceola	McCoy Lake	9	DNR Access McCoy Lake
361	Osceola	Todd Lake	10	DNR Access Todd Lake
362	Osceola	Wells Lake	11	DNR Access Wells Lake
363	Osceola	Muskegon River	12	Hersey Road Access
364	Osceola	Center Lake	13	Kettunen Center
365	Osceola	Rose Lake	14	Rose Lake County Park
366	Osceola	Rose Lake	15	Rose Lake Youth Camp
367	Osceola	Sunrise Lake	16	Sunrise Lake Park
368	Osceola			
<b>37</b>	<b><u>Oscoda</u></b>	Mio Pond	1	Mio Pond Campground
369	Oscoda			
<b>38</b>	<b><u>Otsego</u></b>	Otsego Lake	1	Arbutus Beach
370	Otsego	Otsego Lake	2	Arbutus Beach
371	Otsego			

Appendix D.2. Inland Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
372	Otsego	Otsego Lake	3	Otsego Lake State Park North
373	Otsego	Pickeral Lake	4	Pickeral Lake State Forest Campground
<b>39</b>	<b><u>Ottawa</u></b>	Lake Macatawa	1	Fallen Leaf Park
<b>40</b>	<b><u>Presque Isle</u></b>	Grand Lake	1	Grand Lake Northwest
376	Presque Isle	Grand Lake	2	Grand Lake Public Access
377	Presque Isle	Lake May	3	Lake May Public Access
378	Presque Isle	Ocquoec River	4	Millersburg Park
379	Presque Isle	Ocquoec River	5	Ocquoec Falls Park
380	Presque Isle	Shoepac Lake	6	Shoepac Lake Campground
381	Presque Isle	Sunken Lake	7	Sunken Lake County Park
382	Presque Isle	Tomahawk Lake	8	Tomahawk Lake Campground
<b>41</b>	<b><u>Roscommon</u></b>	Backus Pond	1	Backus Township Park
384	Roscommon	Bambi Lake/Sinkhole Lake	2	Bambi Lake Camp
385	Roscommon	Higgins Lake	3	Beaver Creek Road End
386	Roscommon	Owens Lake	4	Camp Co-Be-Ac
387	Roscommon	Higgins Lake	5	DNR Public Fishing Site
388	Roscommon	Higgins Lake	6	Gerrish Township Park
389	Roscommon	Higgins Lake	7	Higgins Lake Public Fishing Site
390	Roscommon	Houghton Lake	8	Houghton Lake Public Fishing Site
391	Roscommon	Higgins Lake	9	Kelly Beach
392	Roscommon	Higgins Lake	10	North Higgins State Park
393	Roscommon	Houghton Lake	11	Old 27 DNR Access
394	Roscommon	Higgins Lake	12	Phoenix Park
395	Roscommon	Lake St. Helen	13	Richfield Township Public Fishing Site
396	Roscommon	Higgins Lake	14	Sam-O-Set Road End
397	Roscommon	Higgins Lake	15	South Higgins Lake State Park
<b>42</b>	<b><u>Saginaw</u></b>	Haithco Lake	1	Haithco Recreation Area
399	Saginaw	Lake of Dreams	2	Lake of Dreams Campground
<b>43</b>	<b><u>Schoolcraft</u></b>	Indian Lake	1	Indian Lake State Park
<b>44</b>	<b><u>St. Joseph</u></b>	Cade Lake	1	Cade Lake Beach
402	St. Joseph	Sand Lake	2	Nottawa Park
403	St. Joseph	Palmer Lake	3	Palmer Lake Beach
<b>45</b>	<b><u>Tuscola</u></b>	Murphy Lake	1	Murphy Lake
<b>46</b>	<b><u>Washtenaw</u></b>	Sugarload Lake	1	Waterloo Recreation Area
<b>47</b>	<b><u>Wayne</u></b>	Newburgh Lake	1	Newburgh and Sumac Pointes- Hines Park
407	Wayne	Sherwood Lake	2	Sherwood Park
408	Wayne	Belleville Lake	3	Van Buren Township Park

Appendix E.1. Great Lakes Beaches Monitored.

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

Appendix E.1. Great Lakes Beaches Monitored.

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

Appendix E.1. Great Lakes Beaches Monitored.

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



Appendix E.1. Great Lakes Beaches Monitored.

	County	Water Body		Location
115	Huron	Lake Huron	4	Jenks County Park
116	Huron	Lake Huron	5	Lighthouse County Park
117	Huron	Lake Huron	6	McGraw County Park
118	Huron	Lake Huron	7	Oak Beach County Park
119	Huron	Lake Huron	8	Philp County Park
120	Huron	Lake Huron	9	Port Crescent State Park - Camping Area
121	Huron	Lake Huron	10	Port Crescent State Park - Day Use
122	Huron	Lake Huron	11	Sleeper State Park
123	Huron	Lake Huron	12	Thompson Park
124	Huron	Lake Huron	13	Veterans Park
<b>18</b>	<b><u>Iosco</u></b>	Lake Huron	1	Alabaster Township-Alabaster Road
126	Iosco	Lake Huron	2	Alabaster Township-Douglas Drive
127	Iosco	Lake Huron	3	Au Sable Township Park
128	Iosco	Lake Huron (Tawas Bay)	4	County Road End off Tawas Beach Road
129	Iosco	Tawas Bay	5	East Tawas City Park
130	Iosco	Lake Huron (Tawas Bay)	6	Gateway Park Beach
131	Iosco	Lake Huron	7	Interlake Road
132	Iosco	Lake Huron	8	Lake To Lake Road
133	Iosco	Lake Huron	9	MDOT Roadside Park - Three Mile Park
134	Iosco	Lake Huron	10	Oscoda Township Beach
134	Iosco	Tawas Bay	11	Tawas City Park
135	Iosco	Lake Huron	12	Tawas Point State Park Campground
137	Iosco	Lake Huron	13	Tawas Point State Park-Day Use area
<b>19</b>	<b><u>Keweenaw</u></b>	Lake Superior	1	Eagle Harbor Beach
<b>20</b>	<b><u>Leelanau</u></b>	Grand Traverse Bay-West	1	Elmwood/Greilikville Park and Beach
140	Leelanau	Lake Michigan	2	Empire Municipal Beach
141	Leelanau	Grand Traverse Bay-West	3	Northport Bay Marina
142	Leelanau	Lake Michigan	4	Sleeping Bear Dunes- CR 669 Good Harbor Bay
143	Leelanau	Lake Michigan	5	Sleeping Bear Dunes-CR 651 Good Harbor Bay
144	Leelanau	Lake Michigan	6	Sleeping Bear Dunes-DH Day Campground
145	Leelanau	Lake Michigan	7	Sleeping Bear Dunes-Glen Haven Beach
146	Leelanau	Lake Michigan	8	Sleeping Bear Dunes-North Bar Lake MI Beach
147	Leelanau	Lake Michigan	9	Sleeping Bear Dunes-Shalda Creek
148	Leelanau	Grand Traverse Bay-West	10	Suttons Bay Marina Park and Beach South
149	Leelanau	Grand Traverse Bay-West	11	Suttons Bay Park
<b>21</b>	<b><u>Mackinac</u></b>	Lake Huron	1	Kiwanis Beach
151	Mackinac	Lake Michigan	2	US-2 Sand Dunes Beach (East of Brevort)
<b>22</b>	<b><u>Macomb</u></b>	Lake St. Clair	1	H.C.M.A. - Lake St. Clair Metropark Beach

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
153	Macomb	Lake St. Clair	2	New Baltimore Park Beach
154	Macomb	Lake St. Clair	3	St. Clair Shores Memorial Park Beach
<b>23</b>	<b><u>Manistee</u></b>	Lake Michigan	1	Arcadia Park
156	Manistee	Lake Michigan	2	Bar Lake Outlet
157	Manistee	Lake Michigan	3	Fifth Avenue Beach
158	Manistee	Lake Michigan	4	First Street Beach
159	Manistee	Lake Michigan	5	Magoon Creek
160	Manistee	Lake Michigan	6	Onekama Township Beach
161	Manistee	Lake Michigan	7	Orchard Beach State Park
162	Manistee	Lake Michigan	8	Pierport Township Beach
163	Manistee	Lake Michigan	9	Sundling Park
<b>24</b>	<b><u>Marquette</u></b>	Lake Superior	1	Marquette South Beach
165	Marquette	Lake Superior	2	McCarty's Cove
166	Marquette	Lake Superior	3	North Beach
167	Marquette	Lake Superior	4	North of Picnic Rocks
<b>25</b>	<b><u>Mason</u></b>	Lake Michigan	1	Bass Lake Outlet Beach
169	Mason	Lake Michigan	2	Buttersville Park Beach
170	Mason	Lake Michigan	3	Ludington State Park Campground Beach
171	Mason	Lake Michigan	4	South Pier Beach
172	Mason	Lake Michigan	5	South Summit Beach - Sunset Boulevard Beach
173	Mason	Lake Michigan	6	Stearns Park Beach
174	Mason	Lake Michigan	7	Summit Township Beach
<b>26</b>	<b><u>Menominee</u></b>	Lake Michigan	1	Henes Park
176	Menominee	Lake Michigan	2	Memorial Beach
<b>27</b>	<b><u>Monroe</u></b>	Lake Erie	1	Luna Pier City Beach
178	Monroe	Lake Erie	2	Sterling State Park
<b>28</b>	<b><u>Muskegon</u></b>	Lake Michigan	1	Bronson/Kruse Park
180	Muskegon	Lake Michigan	2	Duck Lake Channel Beach
181	Muskegon	Lake Michigan	3	Lake Harbor Park
182	Muskegon	Lake Michigan	4	Lighthouse/Sylvan Beach
183	Muskegon	Lake Michigan	5	Medbury Park Beach
184	Muskegon	Lake Michigan	6	Meinert County Park
185	Muskegon	Lake Michigan	7	Muskegon State Park
186	Muskegon	Lake Michigan	8	Muskegon State Park-North Campground Beach
187	Muskegon	Lake Michigan	9	Old Channel Beach
188	Muskegon	Lake Michigan	10	P.J. Hoffmaster State Park - Campground
189	Muskegon	Lake Michigan	11	P.J. Hoffmaster State Park - Public Beach Area

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
190	Muskegon	Lake Michigan	12	Pere Marquette Park
191	Muskegon	Lake Michigan	13	Pioneer County Park
<b>29</b>	<b><u>Oceana</u></b>	Lake Michigan	1	Claybanks Township Park
193	Oceana	Lake Michigan	2	Lighthouse Beach at Silver Lake State Park
194	Oceana	Lake Michigan	3	Mears State Park
195	Oceana	Stony Lake and Lake Michigan	4	Stony Lake Channel
196	Oceana	Lake Michigan	5	Whiskey Creek
<b>30</b>	<b><u>Ontonagon</u></b>	Lake Superior	1	Ontonagon Township Park and Campground
198	Ontonagon	Lake Superior	2	Porcupine Mountains State Park- Union Bay
<b>31</b>	<b><u>Ottawa</u></b>	Lake Michigan	1	Grand Haven City Beach
200	Ottawa	Lake Michigan	2	Grand Haven State Park
201	Ottawa	Lake Michigan	3	Holland State Park
202	Ottawa	Lake Michigan	4	Kirk Park
203	Ottawa	Lake Michigan	5	Kouw Park
204	Ottawa	Lake Michigan	6	North Beach Park
205	Ottawa	Lake Michigan	7	Rosy Mound Recreation Area
206	Ottawa	Lake Michigan	8	Tunnel Park
207	Ottawa	Lake Michigan	9	Windsnest Park
<b>32</b>	<b><u>Presque Isle</u></b>	Lake Huron	1	Lakeside Park in Rogers City
209	Presque Isle	Lake Huron	2	Presque Isle Harbor Beach
210	Presque Isle	Lake Huron	3	Hoeft State Park-North
<b>33</b>	<b><u>Sanilac</u></b>	Lake Huron	1	Blue Water Beach
212	Sanilac	Lake Huron	2	Forester County Park
213	Sanilac	Lake Huron	3	Forestville Beach
214	Sanilac	Lake Huron	4	Lexington Beach
215	Sanilac	Lake Huron	5	Lexington County Park
216	Sanilac	Lake Huron	6	Port Sanilac Park
<b>34</b>	<b><u>Schoolcraft</u></b>	Lake Michigan	1	Manistique Township Park
218	Schoolcraft	Lake Michigan	2	Roadside Park Beach
219	Schoolcraft	Lake Michigan	3	Rogers Park-MDOT
<b>35</b>	<b><u>St. Clair</u></b>	Lake Huron	1	Burtchville Township Park
221	St. Clair	St. Clair River	2	Chrysler Park Beach
222	St. Clair	Lake Huron	3	Conger-Lighthouse Beach
223	St. Clair	Lake Huron	4	Fort Gratiot County Park
224	St. Clair	Lake Huron	5	Holland Road Beach
225	St. Clair	Lake Huron	6	Jeddo Road Beach
226	St. Clair	Lake Huron	7	Keewadhin Road Beach
227	St. Clair	Lake Huron	8	Krafft Road Beach
228	St. Clair	Lake Huron	9	Lakeport State Campground

Appendix E.1. Great Lakes Beaches Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
229	St. Clair	Lake Huron	10	Lakeport State Park
230	St. Clair	Lake Huron	11	Lakeside Beach
231	St. Clair	St. Clair River	12	Marine City Beach
232	St. Clair	St. Clair River	13	Marine City Diving Area
233	St. Clair	Lake Huron	14	Metcalfe Road Beach
234	St. Clair	Lake Huron	15	Washington Street Park
<b>36</b> 235	<b><u>Van Buren</u></b>	Lake Michigan	1	Covert Township Park Beach
236	Van Buren	Lake Michigan	2	South Haven North Beach
237	Van Buren	Lake Michigan	3	South Haven South Beach
238	Van Buren	Lake Michigan	4	Van Buren State Park Beach
<b>37</b> 239	<b><u>Wayne</u></b>	Lake St. Clair	1	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	Au Train Beach
	Alger	Lake Superior	2	Bay Furnance Recreation Area Beach
	Alger	Lake Superior	3	Christmas Beach
	Alger	Lake Superior	4	Grand Marais Harbor Beach
	Alger	Lake Superior	5	Grand Marais Township Beach
	Alger	Lake Superior	6	Hurricane Campground Beach
	Alger	Lake Superior	7	Miners Beach
	Alger	Lake Superior	8	Munising Beach
	Alger	Lake Superior	9	Public Shoreline Beach-Au Train Bay
	Alger	Lake Superior	10	Public Shoreline Beach-Au Train to Five Mile Pts
	Alger	Lake Superior	11	Public Shoreline Beach-East County Border area
	Alger	Lake Superior	12	Public Shoreline Beach-Grand Sable Dunes
	Alger	Lake Superior	13	Public Shoreline-Grand Portal Point
	Alger	Lake Superior	14	Public Shoreline-Sand Point to Miners Castle Point
	Alger	Lake Superior	15	Rathfoot Park Beach
	Alger	Lake Superior	16	Roadside Park
	Alger	Lake Superior	17	Sand Point
	Alger	Lake Superior	18	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

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
41	Antrim	Grand Traverse Bay-East	10	Petobego Pond Area
42	Antrim	Lake Michigan	11	Road Crossing near Winters Road
<b>5</b>	<b><u>Arenac</u></b>	Saginaw Bay Inner-Lake Huron	1	Au Sable State Forest- Greens Point
44	Arenac	Inner Saginaw Bay	2	Augres Township Park Beach
45	Arenac	Inner Saginaw Bay	3	Booth Road Beach
46	Arenac	Inner Saginaw Bay	4	City of Au Gres Public Access
47	Arenac	Inner Saginaw Bay	5	Gordon Road Beach
48	Arenac	Saginaw Bay-Lake Huron	6	Pump Station
49	Arenac	Inner Saginaw Bay	7	Terrace Road
50	Arenac	Saginaw Bay	8	Whites Beach - Isle Rd Ramp
51	Arenac	Saginaw Bay	9	Whites Beach - Point Rd - Culvert
52	Arenac	Saginaw Bay	10	Whites Beach - Wenonah Rd - West Ramp
<b>6</b>	<b><u>Baraga</u></b>	Huron Bay-Lake Superior	1	Arvon Township Park
54	Baraga	Keweenaw Bay-Lake Superior	2	Baraga State Park
55	Baraga	Keweenaw Bay-Lake Superior	3	First Sand Beach
56	Baraga	Lake Superior	4	Keweenaw Bay Village Public Roadside Park
57	Baraga	Keweenaw Bay-Lake Superior	5	L'Anse Township Park
58	Baraga	Lake Superior	6	Mouth of the Huron River
59	Baraga	Lake Superior	7	Public Shoreline Beach-Cooper Country Huron Bay
60	Baraga	Lake Superior	8	Public Shoreline Beach-Northwest Abbaye Peninsula
61	Baraga	Lake Superior	9	Public Shoreline Beach-Point Abbaye
62	Baraga	Lake Superior	10	Public Shoreline Beach-Sand Point
63	Baraga	Keweenaw Bay-Lake Superior	11	Second Sands Beach
<b>7</b>	<b><u>Bay</u></b>	Saginaw Bay	1	Nayanquing Point Wildlife Area
<b>8</b>	<b><u>Benzie</u></b>	Lake Michigan	1	Alberta Village Beach & Bluffs
66	Benzie	Lake Michigan	2	County Road # 669
67	Benzie	Lake Michigan	3	Esch Road/Otter Creek
68	Benzie	Lake Michigan	4	Platte River Point
69	Benzie	Lake Michigan	5	Point Betsie Lighthouse Beach
70	Benzie	Lake Michigan	6	Zettenberg Preserve
<b>9</b>	<b><u>Berrien</u></b>	Lake Michigan	1	Galien River Park
72	Berrien	Lake Michigan	2	Gordon Beach
73	Berrien	Lake Michigan	3	Grand Mere State Park- Rosemary Beach
74	Berrien	Lake Michigan	4	Grand Mere State Park- Shoreline Beach

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
75	Berrien	Lake Michigan	5	Grand Mere State Park- Waverland Beach
76	Berrien	Lake Michigan	6	Mizpah Park
77	Berrien	Lake Michigan	7	Warren Dunes State Park North
<b>10</b> 78	<b><u>Charlevoix</u></b>	Lake Michigan	1	Bill Wagner Memorial Campground Beach
79	Charlevoix	Lake Michigan	2	Cables Bay Beach
80	Charlevoix	Lake Michigan	3	Donegal Bay
81	Charlevoix	Lake Michigan	4	Harbor Beach
82	Charlevoix	Lake Michigan	5	Iron Ore Bay Beach
83	Charlevoix	Lake Michigan	6	Mt. McSauba Beach
<b>11</b> 84	<b><u>Cheboygan</u></b>	Lake Huron	1	Alexander Henry Park
85	Cheboygan	Lake Huron	2	Cheboygen State Park- Lighthouse Point
86	Cheboygan	Lake Huron	3	Ditta Park
87	Cheboygan	Lake Huron	4	Huron Street Beach
88	Cheboygan	Lake Huron	5	Mackinaw City Beach
89	Cheboygan	Lake Huron	6	Mill Creek Public Access
90	Cheboygan	Lake Huron	7	Pinewood Circle Road End Beach
91	Cheboygan	Lake Huron	8	Roadside Park MDOT, US-23
92	Cheboygan	Lake Huron	9	Stoney Point Road End Beach
<b>12</b> 93	<b><u>Chippewa</u></b>	Lake Huron	1	Bass Cove Beach-Drummond Island
94	Chippewa	Lake Huron	2	Betsey Seaman Memorial Park-Drummond Island
95	Chippewa	Lake Huron	3	De Tour State Park Shoreline Beach
96	Chippewa	Lake Huron	4	Detour Albany Beach
97	Chippewa	Lake Huron	5	Drummond Island Township Park
98	Chippewa	St. Mary's River	6	Dunbar Park
99	Chippewa	Lake Superior	7	Hiawatha National Forest- Nodoway Point Area
100	Chippewa	Lake Superior	8	Hiawatha National Forest- North of Big Pine Picnic
101	Chippewa	St. Mary's River	9	Hiawatha National Forest- North Pond
102	Chippewa	Lake Superior	10	Hiawatha National Forest- Pendills Bay
103	Chippewa	Lake Superior	11	Hiawatha National Forest- Pendills Lake
104	Chippewa	Lake Superior	12	Hiawatha National Forest- Point Iroquois Light
105	Chippewa	Lake Superior	13	Hiawatha National Forest- Tahquamenon Bay
106	Chippewa	St. Mary's River	14	Hiawatha National Forest- Waiska Bay
107	Chippewa	Lake Superior	15	Hiawatha National Forest- West of Salt Point
108	Chippewa	St. Mary's River	16	Lake Superior State Forest- Munuscong Lake
109	Chippewa	Lake Superior	17	Pendills Beach
110	Chippewa	Lake Superior	18	Public Shoreline Beach-Browns Creek Area
111	Chippewa	St. Mary's River	19	Public Shoreline Beach-Brush Point
112	Chippewa	Lake Superior	20	Public Shoreline Beach-Marsh Lake Area
113	Chippewa	Lake Superior	21	Public Shoreline Beach-Northwest of Two Mile Lake
114	Chippewa	St. Mary's River	22	Public Shoreline Beach-Point Aux Frenes

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
115	Chippewa	St. Mary's River	23	Public Shoreline Beach-Raber Bay stretch
116	Chippewa	Lake Superior	24	Public Shoreline Beach-Weatherhog Lake East Area
117	Chippewa	Lake Superior	25	Public Shoreline Beach-Weatherhog Lake West
118	Chippewa	Lake Superior	26	Public Shoreline Beach-West of Whitefish Point
119	Chippewa	Lake Huron	27	Sand Bay Beach-Drummond Island
120	Chippewa	Lake Superior	28	Tahquamenon Falls State Park-River Mouth Unit
121	Chippewa	St. Mary's River	29	Wilderness Beach
<b>13</b>	<b><u>Delta</u></b>	Fishdam River	1	Big Bay De Noc/Fishdam River Public Access
123	Delta	Lake Michigan	2	Fayette State Park
124	Delta	Lake Michigan	3	Fuller Park
125	Delta	Lake Michigan	4	Little Bay De Noc Public Beach Access
126	Delta	Lake Michigan	5	Portage Bay Forest Campground
127	Delta	Lake Michigan	6	Public Shoreline Beach-Charboneau Point
128	Delta	Lake Michigan	7	Public Shoreline Beach-County Road 481
129	Delta	Lake Michigan	8	Public Shoreline Beach-East Wilsey Bay
130	Delta	Lake Michigan	9	Public Shoreline Beach-Fishdam River
131	Delta	Lake Michigan	10	Public Shoreline Beach-Gilnet Haven
132	Delta	Lake Michigan	11	Public Shoreline Beach-Indian Point
133	Delta	Lake Michigan	12	Public Shoreline Beach-Indian Town Lake USFS
134	Delta	Lake Michigan	13	Public Shoreline Beach-Jacks Bluff
135	Delta	Lake Michigan	14	Public Shoreline Beach-Martin Bay
136	Delta	Lake Michigan	15	Public Shoreline Beach-Nahma
137	Delta	Lake Michigan	16	Public Shoreline Beach-North End of Kregg Bay
138	Delta	Lake Michigan	17	Public Shoreline Beach-North of Stonington
139	Delta	Lake Michigan	18	Public Shoreline Beach-Ogontz Bay
140	Delta	Lake Michigan	19	Public Shoreline Beach-Peninsula Point
141	Delta	Lake Michigan	20	Public Shoreline Beach-Point Detour
142	Delta	Lake Michigan	21	Public Shoreline Beach-Portage Bay
143	Delta	Lake Michigan	22	Public Shoreline Beach-Portage Peninsula
144	Delta	Lake Michigan	23	Public Shoreline Beach-St. Vital's Island
145	Delta	Lake Michigan	24	Public Shoreline Beach-USFS West Wilsey Bay
146	Delta	Lake Michigan	25	Public Shoreline Beach-West Side of Kregg Bay
147	Delta	Lake Michigan	26	Sac Bay County Park
148	Delta	Lake Michigan	27	Sac Bay County Park
149	Delta	Lake Michigan	28	Twin Springs Campground and Bathing Beach
<b>14</b>	<b><u>Emmet</u></b>	Lake Michigan	1	Bliss Township Beach
151	Emmet	Lake Michigan	2	Church Beach
152	Emmet	Lake Michigan	3	Colonial Michilimackinac State Park
153	Emmet	Lake Michigan	4	Forest Beach
154	Emmet	Lake Michigan	5	Petoskey Harbor
155	Emmet	Lake Michigan	6	The Headlands County Park
156	Emmet	Lake Michigan	7	Thorne Swift Preserve
157	Emmet	Lake Michigan	8	Wilderness State Park-East of the Beach



Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
158	Emmet	Lake Michigan	9	Wilderness State Park-Sturgeon Bay
159	Emmet	Lake Michigan	10	Wilderness State Park-West of Beach
<b>15</b> 160	<b>Gogebic</b>	Lake Superior	1	Black River Harbor Beach
161	Gogebic	Lake Superior	2	Little Girls Point Park
162	Gogebic	Lake Superior	3	Mouth of the Montreal River
163	Gogebic	Lake Superior	4	Porcupine Mountain State Park-North
164	Gogebic	Lake Superior	5	Presque Isle Beach
165	Gogebic	Lake Superior	6	Presque Isle State Campground
166	Gogebic	Lake Superior	7	Public Shoreline Beach-West of Black River
<b>16</b> 167	<b>Grand Traverse</b>	Grand Traverse Bay-East	1	Acme Roadside Park and Beach MDOT
168	Grand Traverse	Grand Traverse Bay-East	2	Acme Roadside Park (DNR)
169	Grand Traverse	Grand Traverse Bay	3	Archie Park
170	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	4	Bowers Harbor Public Access
171	Grand Traverse	Grand Traverse Bay-East	5	Deep Water Point
172	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	6	DNR Launch/Beach Center Road
173	Grand Traverse	Grand Traverse Bay-East	7	East Bay Township Four Mile Road
174	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	8	Haserot Beach
175	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	9	Kroupa Road Access M-22 South of Crain Hill Road
176	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	10	Leffingwell Point Beach
177	Grand Traverse	Grand Traverse Bay-West	11	Mouth of Boardman
178	Grand Traverse	Grand Traverse Bay	12	Old Mission - Center Road Natural Area
179	Grand Traverse	Grand Traverse Bay	13	Old Mission - MDOT Right of Way-South of M-37
180	Grand Traverse	Grand Traverse Bay	14	Old Mission - Old Mission Point State Park
181	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	15	Old Mission Lighthouse
182	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	16	Old Mission Peninsula Twp Park-East of Light House
183	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	17	Old Mission Peninsula Twp Park-West of Light House
184	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	18	Old Mission Road
185	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	19	Peninsula Volunteer Fire Station Point #2
186	Grand Traverse	Grand Traverse Bay-West	20	Power Island Bay Park
187	Grand Traverse	Grand Traverse Bay-West	21	Rose Street Access at Peninsula Drive
188	Grand Traverse	Grand Traverse Bay-East	22	Sayler Park
189	Grand Traverse	Grand Traverse Bay-West	23	Senior Center
190	Grand Traverse	Grand Traverse Bay-West	24	Sunset Park
191	Grand Traverse	Grand Traverse Bay-Old Mission Peninsula	25	Swaney Road

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
192	Grand Traverse	Grand Traverse Bay-East	26	Yuba Beach
<b>17</b> 193	<b>Houghton</b>	Lake Superior	1	Calument Waterworks Beach
194	Houghton	Lake Superior	2	Mink Farm
195	Houghton	Lake Superior	3	Public Shoreline Beach-Le Chance Creek
196	Houghton	Lake Superior	4	Public Shoreline Beach-Mc Lain State Park
197	Houghton	Lake Superior	5	Public Shoreline Beach-S. of Portage Entry
198	Houghton	Lake Superior	6	Public Shoreline Beach-Southwest County Border
199	Houghton	Lake Superior	7	White City
<b>18</b> 200	<b>Huron</b>	Lake Huron	1	County Road End
201	Huron	Lake Huron	2	Geiger Road Public Access
202	Huron	Lake Huron	3	Grindstone Public Access
203	Huron	Lake Huron	4	Harbor Beach Marina
204	Huron	Lake Huron	5	Helena Road End
205	Huron	Lake Huron	6	Kinch Road End
206	Huron	Lake Huron	7	Larned Road End
207	Huron	Lake Huron	8	Lighthouse County Park-South
208	Huron	Lake Huron	9	Mud Creek Public Access
209	Huron	Lake Huron	10	Stafford County Park
210	Huron	Lake Huron	11	Wagener County Park
<b>19</b> 211	<b>Iosco</b>	Lake Huron	1	Au Sable Point Beach
212	Iosco	Lake Huron	2	Tawas Point State Park-Central
<b>20</b> 213	<b>Keweenaw</b>	Lake Superior at Bete de Gris Bay	1	Bete de Gris Beach
214	Keweenaw	Lake Superior	2	Brunette Park
215	Keweenaw	Lake Superior	3	Cat Harbor Beach
216	Keweenaw	Lake Superior	4	Cooper Harbor Lighthouse Complex
217	Keweenaw	Lake Superior	5	Eagle River Beach
218	Keweenaw	Lake Superior	6	Fort Wilkins State Park
219	Keweenaw	Lake Superior	7	Fort Wilkins State Park-East
220	Keweenaw	Lake Superior	8	Fort Wilkins State Park-West
221	Keweenaw	Lake Superior	9	Great Sands Bay Beach
222	Keweenaw	Lake Superior	10	Mouth of the Gratiot River Beach
223	Keweenaw	Lake Superior	11	Point Isabelle Beach
224	Keweenaw	Lake Superior	12	Public Shoreline Beach-Big Traverse Bay
225	Keweenaw	Lake Superior	13	Public Shoreline Beach-Gay Park
<b>21</b> 226	<b>Leelanau</b>	Lake Michigan	1	Bay Front Park
227	Leelanau	Grand Traverse Bay	2	Boughy Park and Beach
228	Leelanau	Grand Traverse Bay-West	3	Cathead Bay, Leelanau State Park
229	Leelanau	Lake Michigan	4	Cedar Street Beach
230	Leelanau	Grand Traverse Bay-West	5	Christmas Cove

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
231	Leelanau	Lake Michigan	6	G. Marsten Dame Marina
232	Leelanau	Lake Michigan	7	Gils Pier
233	Leelanau	Lake Michigan	8	Glen Arbor/Manitou Boulevard Beach
234	Leelanau	Grand Traverse Bay-West	9	Graham Green Park
235	Leelanau	Grand Traverse Bay-West	10	Hendryx County Roadside Park
236	Leelanau	Lake Michigan	11	Lake Street Beach, Glen Arbor
237	Leelanau	Lake Michigan	12	Leelanau State Park, Lighthouse
238	Leelanau	Lake Michigan	13	Leland Harbor
239	Leelanau	Grand Traverse Bay-West	14	M-22 at M-72 Public Access
240	Leelanau	Grand Traverse Bay-West	15	MDOT Roadside Park and Beach
241	Leelanau	Grand Traverse Bay-West	16	MDOT Roadside Park and Beach M-22 North of Cherry Bend Drive
242	Leelanau	Lake Michigan	17	North Bar
243	Leelanau	Lake Michigan	18	North Street Beach
244	Leelanau	Grand Traverse Bay-West	19	Northport 4th Street Beach
245	Leelanau	Grand Traverse Bay-West	20	Northport 5th Street Beach
246	Leelanau	Grand Traverse Bay-West	21	Northport 7th Street Beach
247	Leelanau	Grand Traverse Bay-West	22	Northport Haserot Beach, Rose Street
248	Leelanau	Grand Traverse Bay-West	23	Omena Beach and Park
249	Leelanau	Lake Michigan	24	Peterson Park
250	Leelanau	Lake Michigan	25	Reynolds Street Beach
251	Leelanau	Lake Michigan	26	Smith Street Beach Northport
252	Leelanau	Grand Traverse Bay-West	27	Stoney Point County Roadside Park
253	Leelanau	Grand Traverse Bay-West	28	Suttons Bay North Shore Park
254	Leelanau	Grand Traverse Bay-West	29	Suttons Bay South Shore Park
255	Leelanau	Lake Michigan	30	Thompson Stree Beach
<b>22</b> 256	<b>Luce</b>	Lake Superior	1	Blind Sucker River #1
257	Luce	Lake Superior	2	Blind Sucker River #2
258	Luce	Lake Superior	3	Crisp Point Lighthouse
259	Luce	Lake Superior	4	Lake Superior Campground Beach
260	Luce	Lake Superior	5	Mouth of the Two Hearted River Campground
261	Luce	Lake Superior	6	Muskallonge Lake SFC
262	Luce	Lake Superior	7	Public Shoreline Beach-Blind Sucker Flooding Area
263	Luce	Lake Superior	8	Public Shoreline Beach-Coast Guard Line Road
264	Luce	Lake Superior	9	Public Shoreline Beach-County Road 407
265	Luce	Lake Superior	10	Public Shoreline Beach-County Road 412 and Crisp Point
266	Luce	Lake Superior	11	Public Shoreline Beach-Little Sucker/Two Hearted River
267	Luce	Lake Superior	12	Public Shoreline Beach-Three Mile Creek Area
268	Luce	Lake Superior	13	Public Shoreline Beach-West County Border Beach
269	Luce	Lake Superior	14	Unnamed Road End #1
270	Luce	Lake Superior	15	Unnamed Road End #2

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
271	Luce	Lake Superior	16	Unnamed Road End #3
<b>23</b> 272	<b>Mackinac</b>	Lake Huron	1	American Legion Memorial Park
273	Mackinac	Lake Huron	2	Antoine Road End
274	Mackinac	Lake Michigan	3	Big Knob State Forest Campground
275	Mackinac	Lake Michigan	4	Black River State Forest Campground
276	Mackinac	Lake Huron	5	Boot Island
277	Mackinac	Lake Huron	6	Coast Guard Pier Boat Launch and City Park
278	Mackinac	Lake Michigan	7	Epoufette Bay Campground
279	Mackinac	Lake Huron	8	Foley Creek Campground
280	Mackinac	Lake Huron	9	Government Island-Hiawatha National Forest
281	Mackinac	Lake Huron	10	Harbour Light
282	Mackinac	Lake Huron	11	Hazelton Road End
283	Mackinac	Lake Huron	12	Hiawatha National Forest- Carp River Access
284	Mackinac	Lake Michigan	13	Hog Island Campground
285	Mackinac	Lake Huron	14	Horseshoe Bay Wilderness-North
286	Mackinac	Lake Huron	15	Horseshoe Bay Wilderness-South
287	Mackinac	Lake Michigan	16	Lake Michigan US-2 Campground Beach
288	Mackinac	Lake Michigan	17	MDOT Overlook
289	Mackinac	Lake Michigan	18	MDOT Roadside Park on US-2
290	Mackinac	Lake Michigan	19	Mouth of Cut River Roadside Beach
291	Mackinac	Lake Michigan	20	Naubinway Bay Access
292	Mackinac	Lake Michigan	21	Public Shoreline Beach-Little Hog Island area
293	Mackinac	Lake Michigan	22	Public Shoreline Beach #2-Little Hog Island area
294	Mackinac	Lake Michigan	23	Public Shoreline Beach #3-Little Hog Island area
295	Mackinac	Lake Michigan	24	Public Shoreline Beach #4-Little Hog Island area
296	Mackinac	Lake Michigan	25	Public Shoreline Beach #5-Little Hog Island area
297	Mackinac	Lake Michigan	26	Public Shoreline Beach-Manitou Paymen Highbanks
298	Mackinac	Lake Michigan	27	Public Shoreline Beach #2-Manitou Paymen Highbanks
299	Mackinac	Lake Michigan	28	Public Shoreline Beach-Epoufette Bay
300	Mackinac	Lake Michigan	29	Public Shoreline Beach-Fod Point Area
301	Mackinac	Lake Michigan	30	Public Shoreline Beach-MDNR Matrix Point Area
302	Mackinac	Lake Michigan	31	Public Shoreline Beach-Morean Township, Section 25
303	Mackinac	Lake Michigan	32	Public Shoreline Beach-Naubinway Area
304	Mackinac	Lake Michigan	33	Public Shoreline Beach-Pointe Aux Chenes Bay
305	Mackinac	Lake Michigan	34	Public Shoreline Beach-Seiners Point
306	Mackinac	Lake Michigan	35	Public Shoreline Beach-South of Brevort River
307	Mackinac	Lake Michigan	36	Public Shoreline Beach-State Forest Matrix Point
308	Mackinac	Lake Michigan	37	Sand Point
309	Mackinac	Lake Michigan	38	State Roadside Park Beach
<b>24</b> 310	<b>Manistee</b>	Lake Michigan	1	Portage Park

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
<b>25</b> 311	<b><u>Marquette</u></b>	Lake Superior	1	Public Shoreline Beach-Big Huron River
312	Marquette	Lake Superior	2	Public Shoreline Beach-Little Presque Isle
313	Marquette	Lake Superior	3	Shiras Park Beach
<b>26</b> 314	<b><u>Mason</u></b>	Lake Michigan	1	Ludington State Park Public Shoreline Beach North
315	Mason	Lake Michigan	2	Ludington State Park Public Shoreline Beach South
316	Mason	Lake Michigan	3	Manistee National Forest Campground Beach
317	Mason	Lake Michigan	4	Manistee National Forest-Public Shoreline Beach North
318	Mason	Lake Michigan	5	Manistee National Forest-Public Shoreline Beach South
319	Mason	Lake Michigan	6	Pere Marquette Harbor
<b>27</b> 320	<b><u>Menominee</u></b>	Lake Michigan	1	Airport Park
321	Menominee	Lake Michigan	2	Fox Park
322	Menominee	Lake Michigan	3	Klienke Park
323	Menominee	Lake Michigan	4	Public Shoreline Beach-Cedar River
324	Menominee	Lake Michigan	5	Public Shoreline Beach-Fox village
325	Menominee	Lake Michigan	6	Wells State Park
<b>28</b> 326	<b><u>Oceana</u></b>	Lake Michigan	1	Cedar Point County Park
327	Oceana	Silver Lake-Lake Michigan	2	Silver Creek Channel
328	Oceana	Lake Michigan	3	Silver Lake State Park
<b>29</b> 329	<b><u>Ontonagon</u></b>	Lake Superior	1	Green Park
330	Ontonagon	Lake Superior	2	Gull Point Beach
331	Ontonagon	Lake Superior	3	Mouth of the Big Iron River Beach
332	Ontonagon	Lake Superior	4	Porcupine Mountain State Park
333	Ontonagon	Lake Superior	5	Porcupine Mountains Wilderness State Park-West
334	Ontonagon	Lake Superior	6	Public Shoreline Beach-Misery Bay
335	Ontonagon	Lake Superior	7	Public Shoreline Beach-Sleeping Bay
336	Ontonagon	Lake Superior	8	Public Shoreline Beach-Wolf Point
337	Ontonagon	Lake Superior	9	Union Bay Beach
<b>30</b> 338	<b><u>Ottawa</u></b>	Lake Michigan	1	Mountain Beach
339	Ottawa	Lake Michigan	2	P.J. Hoffmaster State Park- Shoreline Beach
<b>31</b> 340	<b><u>Presque Isle</u></b>	Lake Huron	1	40 Mile Point Park
341	Presque Isle	Lake Huron	2	Ball Diamond Park
342	Presque Isle	Lake Huron	3	Bell Bay
343	Presque Isle	Lake Huron	4	Evergreen Beach
344	Presque Isle	Lake Huron	5	Golden Beach
345	Presque Isle	Lake Huron	6	Grace Access Site

Appendix E.2. Great Lakes Beaches Not Monitored.

	<b>County</b>	<b>Water Body</b>		<b>Location</b>
346	Presque Isle	Lake Huron	7	Hammond Bay Access Site
347	Presque Isle	Lake Huron	8	Hammond Bay Harbor
348	Presque Isle	Lake Huron	9	Hoeft State Park-South
349	Presque Isle	Lake Huron	10	Lakeside Park in Rogers City
350	Presque Isle	Lake Huron	11	Lakeview Park Beach
351	Presque Isle	Lake Huron	12	Manitou Beach
352	Presque Isle	Lake Huron	13	New Lighthouse Park
353	Presque Isle	Lake Huron	14	Presque Isle Harbor
354	Presque Isle	Lake Huron	15	Public Shoreline Beach-False Presque Isle Harbor
355	Presque Isle	Lake Huron	16	Seagull Point Park
356	Presque Isle	Lake Huron	17	Thompson's Harbor State Park
357	Presque Isle	Lake Huron	18	US-23 Hammond Bay
358	Presque Isle	Lake Huron	19	US-23 Roger City
<b>32</b>	<b><u>Sanilac</u></b>	Lake Huron	1	Birch Beach
360	Sanilac	Lake Huron	2	Birch Beach Middle #2
361	Sanilac	Lake Huron	3	Birch Beach North #3
362	Sanilac	Lake Huron	4	Delaware Park
363	Sanilac	Lake Huron	5	Great Lakes Beach
364	Sanilac	Lake Huron	6	Sanilac County Park #4
365	Sanilac	Lake Huron	7	Sanilac County Roadside Park #1
<b>33</b>	<b><u>Schoolcraft</u></b>	Lake Michigan	1	Doyle Township Access
367	Schoolcraft	Lake Michigan	2	Goudreau's Harbor Seul Choix Point-Boat Landing
368	Schoolcraft	Lake Michigan	3	Lakeview Park
369	Schoolcraft	Lake Michigan	4	Public Shoreline Beach-South of McDonald Lake
370	Schoolcraft	Lake Michigan	5	Public Shoreline Beach-Thompson
371	Schoolcraft	Lake Michigan	6	Public Shoreline Beach-Thompson Village
<b>34</b>	<b><u>Wayne</u></b>	Detroit River	1	Belle Isle Beach

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>
<u>1</u>	<u>Alcona</u>	1	Village of Lincoln Park	Brownlee Lake	08-Aug-13	425.8818
<u>2</u>	<u>Antrim</u>	1	Richardi Park	Lake Bellaire	08-Jul-13	488.3634
	Antrim	2	Richardi Park	Lake Bellaire	09-Jul-13	333.0838
	Antrim	3	Thurston Park	Central Lake	08-Jul-13	644.8696
<u>3</u>	<u>Barry</u>	1	Charlton Park	Thornapple Lake	17-Jun-13	309.6599
	Barry	2	Charlton Park	Thornapple Lake	29-Jul-13	439.7421
	Barry	3	Main Beach - Day Use Area	Gun Lake	08-Jul-13	455.3811
	Barry	4	Main Beach - Day Use Area	Gun Lake	05-Aug-13	547.9361
	Barry	5	Main Beach - Day Use Area	Gun Lake	07-Aug-13	438.6888
	Barry	6	Main Beach - Day Use Area	Gun Lake	19-Aug-13	386.4452
	Barry	7	Yankee Springs Recreation Area Campground Beach	Gun Lake	08-Jul-13	642.4485
<u>4</u>	<u>Bay</u>	1	Boat Launch on Kawkawlin River	Kawkawlin River	31-May-13	1748.528
	Bay	2	Vet's Park North Bay City	Saginaw River	29-May-13	1539.775
	Bay	3	Vet's Park North Bay City	Saginaw River	07-Aug-13	488.2349
<u>5</u>	<u>Benzie</u>	1	Beulah Beach	Crystal Lake	10-Jul-13	1310.838
	Benzie	2	Beulah Beach	Crystal Lake	28-Aug-13	507.1078
	Benzie	3	Beulah Beach	Crystal Lake	29-Aug-13	906.0611
<u>6</u>	<u>Kalamazoo</u>	1	Woods Lake Beach	Woods Lake	11-Jun-13	326.4693
<u>7</u>	<u>Leelanau</u>	1	Sleeping Bear Dunes-Little Glen Lake	inland lake	04-Sep-13	521.7985
<u>8</u>	<u>Livingston</u>	1	Howell City Park	Thompson Lake	30-Jul-13	361.9104
<u>9</u>	<u>Macomb</u>	1	Stony Creek Metropark-Baypoint Beach	Stony Creek Lake-Impoundment	31-Jul-13	312.44
<u>10</u>	<u>Oakland</u>	1	Davisburg Village Beach (Hart Community Center)	Mill Pond	09-Jul-13	631
	Oakland	2	Dodge Park #4	Cass Lake	10-Jun-13	750
	Oakland	3	Eagle Lake Road	Eagle Lake	09-Jul-13	332
	Oakland	4	Emerald Lake Homeowners Assoc. - Little Creek Road	Sandshores	10-Jun-13	661
	Oakland	5	Finnish Day Camp	Sun Lake	10-Jun-13	591
	Oakland	6	Fox Bay Civic Association	Allen Lake	01-Jul-13	442
	Oakland	7	Fox Bay Civic Association	Allen Lake	17-Jul-13	676
	Oakland	8	Fox Bay Civic Association	Allen Lake	22-Jul-13	307
	Oakland	9	Kensington - Maple beach	Kent Lake	10-Jun-13	521

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>
31	Oakland	10	Lakeland Association #1	Watkins Lake	25-Jun-13	329
32	Oakland	11	Oak Heights Improvement Association, 3015 Lakeview	Upper Pettibone Lake	16-Jul-13	307
33	Oakland	12	Pleasant Lake Highlands	Pleasant Lake	09-Jul-13	1047
34	Oakland	13	Pleasant Lake Highlands	Pleasant Lake	10-Jul-13	460
35	Oakland	14	Seven Lakes Park	Big Seven Lake	15-Jul-13	350
36	Oakland	15	Walnut Lake Hills Corporation	Walnut Lake	10-Jun-13	2419
37	Oakland	16	Westwood Manor	Wing Lake	10-Jun-13	325
<b>11</b>	<b>Ottawa</b>	1	Dunton Park	Lake Macatawa	13-Jun-13	479.6
39	Ottawa	2	Dunton Park	Lake Macatawa	14-Aug-13	508
40	Ottawa	3	Holland State Park	Lake Macatawa	19-Jun-13	308
41	Ottawa	4	Holland State Park	Lake Macatawa	31-Jul-13	352
42	Ottawa	5	Maplewood Lake Park	Maplewood Lake	01-Jul-13	386
43	Ottawa	6	Maplewood Lake Park	Maplewood Lake	09-Jul-13	1148
44	Ottawa	7	Maplewood Lake Park	Maplewood Lake	23-Jul-13	1870
45	Ottawa	8	Maplewood Lake Park	Maplewood Lake	06-Aug-13	2131
46	Ottawa	9	Maplewood Lake Park	Maplewood Lake	13-Aug-13	1795
47	Ottawa	10	Maplewood Lake Park	Maplewood Lake	26-Aug-13	1422
<b>12</b>	<b>Schoolcraft</b>	1	Indian Lake State Park	Indian Lake	23-Jul-13	522.0531
49	Schoolcraft	2	Indian Lake State Park	Indian Lake	13-Aug-13	1308.956
<b>13</b>	<b>St. Clair</b>	1	Fort Trodd Campground North	Fort Trodd Lake	09-Jul-13	507.2045
51	St. Clair	2	Kimball Township Pond	Kimball Pond	09-Jul-13	404.7482
<b>14</b>	<b>Wexford</b>	1	Manton Park	Billings Lake	18-Jun-13	333.7
53	Wexford	2	Manton Park	Billings Lake	25-Jun-13	319.6
54	Wexford	3	Manton Park	Billings Lake	29-Aug-13	1148.5
55	Wexford	4	Mitchell State Park	Lake Mitchell	20-Aug-13	1074.5



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	Black River Public Access	Lake Huron	09-Jul-13	1336.609
	Alcona	2	Harrisville State Park	Lake Huron	09-Jul-13	1693.851
	Alcona	3	Negwegon State Park	Lake Huron	09-Jul-13	578.4091
	Alcona	4	Trask Lake Road Beach	Lake Huron	09-Jul-13	322.6972
<b>2</b>	<b>Allegan</b>	1	Pier Cove Beach	Lake Michigan	22-Jul-13	2022.73
	Allegan	2	Pier Cove Beach	Lake Michigan	12-Aug-13	2164.007
	Allegan	3	West Side County Park Beach	Lake Michigan	17-Jun-13	329.4195
<b>3</b>	<b>Alpena</b>	1	Blair Street Park	Lake Huron	28-Aug-13	493.2424
<b>4</b>	<b>Arenac</b>	1	16th Street Beach	Saginaw Bay-Lake Huron	01-Jul-13	443.4787
	Arenac	2	28th Street Beach	Saginaw Bay-Lake Huron	01-Jul-13	305.0255
	Arenac	3	Bessinger Road Beach	Saginaw Bay-Lake Huron	27-Jun-13	1561.109
	Arenac	4	Bessinger Road Beach	Saginaw Bay-Lake Huron	24-Jul-13	422.2462
	Arenac	5	Cemetery Beach	Saginaw Bay-Lake Huron	01-Jul-13	388.9586
	Arenac	6	Cemetery Beach	Saginaw Bay-Lake Huron	24-Jul-13	515.6495
	Arenac	7	Dyer Road Beach	Saginaw Bay-Lake Huron	29-May-13	2419.6
	Arenac	8	Foster Road Beach	Saginaw Bay-Lake Huron	10-Jul-13	675.0774
	Arenac	9	Hammel Beach Road Access	Saginaw Bay-Lake Huron	29-May-13	579.4
	Arenac	10	Hammel Beach Road Access	Saginaw Bay-Lake Huron	06-Jun-13	506.3596
	Arenac	11	Hammel Beach Road Access	Saginaw Bay-Lake Huron	20-Jun-13	589.8492
	Arenac	12	Hammel Beach Road Access	Saginaw Bay-Lake Huron	27-Jun-13	1003.651
	Arenac	13	Hammel Beach Road Access	Saginaw Bay-Lake Huron	01-Jul-13	613.2224
	Arenac	14	Hammel Beach Road Access	Saginaw Bay-Lake Huron	24-Jul-13	469.5647
	Arenac	15	Singing Bridge Beach	Saginaw Bay-Lake Huron	29-May-13	594.7942
	Arenac	16	Singing Bridge Beach	Saginaw Bay-Lake Huron	13-Jun-13	350.0048
	Arenac	17	Singing Bridge Beach	Saginaw Bay-Lake Huron	10-Jul-13	511.7082
	Arenac	18	Twining Road Beach	Saginaw Bay-Lake Huron	01-Jul-13	451.9329
	Arenac	19	Whites Beach	Saginaw Bay	10-Apr-13	2027.069
	Arenac	20	Whites Beach	Saginaw Bay	29-May-13	2419.6
	Arenac	21	Whites Beach	Saginaw Bay	13-Jun-13	2419.6
	Arenac	22	Whites Beach	Saginaw Bay	01-Jul-13	580.5994
<b>5</b>	<b>Berrien</b>	1	Cherry Beach	Lake Michigan	28-May-13	939.5803
	Berrien	2	Lions Park	Lake Michigan	08-Jul-13	501.1387
	Berrien	3	Silver Beach	Lake Michigan	08-Jul-13	519.7435
	Berrien	4	Weko Beach	Lake Michigan	20-May-13	335.8669
	Berrien	5	Weko Beach	Lake Michigan	21-May-13	414.3693
	Berrien	6	Weko Beach	Lake Michigan	28-May-13	573.6607
<b>6</b>	<b>Chippewa</b>	1	Brimley State Park	Lake Superior	30-Jun-13	387.3747
	Chippewa	2	Brimley State Park	Lake Superior	10-Jul-13	1567.951
	Chippewa	3	Brimley State Park	Lake Superior	10-Jul-13	1567.9

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>
40	Chippewa	4	Brimley State Park	Lake Superior	17-Jul-13	303.3312
41	Chippewa	5	Brimley State Park	Lake Superior	23-Jul-13	561.1632
42	Chippewa	6	Sherman Park	Lake Superior	30-Jun-13	1196.317
43	Chippewa	7	Sherman Park	Lake Superior	10-Jul-13	1680.691
44	Chippewa	8	Sherman Park	Lake Superior	23-Jul-13	457.3349
45	Chippewa	9	Sherman Park	Lake Superior	24-Jul-13	376.1186
<b>7</b>	<b><u>Grand Traverse</u></b>	1	Bayside Acme Township Park	Grand Traverse Bay-East	10-Jul-13	514.5935
47	Grand Traverse	2	Bayside Acme Township Park	Grand Traverse Bay-East	07-Aug-13	455.6041
48	Grand Traverse	3	Bryant Park Beach	Grand Traverse Bay-West	28-Aug-13	537.0569
49	Grand Traverse	4	East Bay Park (Milliken Park)	Grand Traverse Bay-East	28-Aug-13	2419
50	Grand Traverse	5	West End Beach	Grand Traverse Bay-West	28-Aug-13	562.3393
<b>8</b>	<b><u>Huron</u></b>	1	Port Crescent State Park - Camping Area	Lake Huron	09-Jul-13	338.4763
52	Huron	2	Port Crescent State Park - Camping Area	Lake Huron	10-Jul-13	478.4975
53	Huron	3	Port Crescent State Park - Camping Area	Lake Huron	13-Aug-13	356.9947
54	Huron	4	Veterans Park	Lake Huron	13-Aug-13	714.6232
<b>9</b>	<b><u>Iosco</u></b>	1	Gateway Park Beach	Lake Huron (Tawas Bay)	09-Jul-13	867.5461
56	Iosco	2	Tawas Point State Park Campground	Lake Huron	09-Jul-13	1867.406
<b>10</b>	<b><u>Macomb</u></b>	1	New Baltimore Park Beach	Lake St. Clair	29-May-13	318.45
58	Macomb	2	New Baltimore Park Beach	Lake St. Clair	30-May-13	372.65
59	Macomb	3	New Baltimore Park Beach	Lake St. Clair	30-Sep-13	536.46
60	Macomb	4	St. Clair Shores Memorial Park Beach	Lake St. Clair	13-Jun-13	1176.62
61	Macomb	5	St. Clair Shores Memorial Park Beach	Lake St. Clair	26-Jun-13	1258.73
62	Macomb	6	St. Clair Shores Memorial Park Beach	Lake St. Clair	08-Jul-13	307.28
63	Macomb	7	St. Clair Shores Memorial Park Beach	Lake St. Clair	09-Jul-13	905.26
64	Macomb	8	St. Clair Shores Memorial Park Beach	Lake St. Clair	10-Jul-13	2419.6
65	Macomb	9	St. Clair Shores Memorial Park Beach	Lake St. Clair	23-Sep-13	1809.73
<b>11</b>	<b><u>Manistee</u></b>	1	Fifth Avenue Beach	Lake Michigan	27-Aug-13	362.1601

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>
67	Manistee	2	Fifth Avenue Beach	Lake Michigan	28-Aug-13	323.1423
68	Manistee	3	Magoon Creek	Lake Michigan	08-Jul-13	2419.6
69	Manistee	4	Pierport Township Beach	Lake Michigan	27-Aug-13	327.8035
<b>12</b>	<b><u>Marquette</u></b>	1	Marquette South Beach	Lake Superior	26-Aug-13	374.7549
71	Marquette	2	North Beach	Lake Superior	26-Aug-13	534.3281
<b>13</b>	<b><u>Mason</u></b>	1	Bass Lake Outlet Beach	Lake Michigan	06-Aug-13	444.9905
73	Mason	2	Ludington State Park Campground	Lake Michigan	08-Jul-13	577.3573
74	Mason	3	Summit Township Beach	Lake Michigan	06-Aug-13	460.9531
<b>14</b>	<b><u>Menominee</u></b>	1	Henes Park	Lake Michigan	07-Aug-13	443.3771
76	Menominee	2	Henes Park	Lake Michigan	22-Aug-13	616.4555
77	Menominee	3	Henes Park	Lake Michigan	23-Aug-13	461.8766
<b>15</b>	<b><u>Monroe</u></b>	1	Luna Pier City Beach	Lake Erie	02-Jul-13	478.6232
79	Monroe	2	Luna Pier City Beach	Lake Erie	27-Aug-13	487.2726
80	Monroe	3	Luna Pier City Beach	Lake Erie	29-Aug-13	362.9502
<b>16</b>	<b><u>Muskegon</u></b>	1	Duck Lake Channel Beach	Lake Michigan	25-Jun-13	391.8948
82	Muskegon	2	Lighthouse/Sylvan Beach	Lake Michigan	10-Jun-13	496.8531
83	Muskegon	3	Meinert County Park	Lake Michigan	17-Jun-13	317.1326
84	Muskegon	4	Meinert County Park	Lake Michigan	18-Jun-13	884.1665
85	Muskegon	5	Meinert County Park	Lake Michigan	25-Jun-13	316.4623
86	Muskegon	6	P.J. Hoffmaster State Park - Campground	Lake Michigan	08-Jul-13	602.199
87	Muskegon	7	Pioneer County Park	Lake Michigan	10-Jun-13	634.2174
<b>17</b>	<b><u>Oceana</u></b>	1	Lighthouse Beach at Silver Lake State Park	Lake Michigan	25-Jun-13	426.7489
89	Oceana	2	Whiskey Creek	Lake Michigan	25-Jun-13	410.208
<b>18</b>	<b><u>Ottawa</u></b>	1	Grand Haven City Beach	Lake Michigan	13-Jun-13	884.6
91	Ottawa	2	Grand Haven State Park	Lake Michigan	13-Jun-13	306.9
92	Ottawa	3	Kirk Park	Lake Michigan	13-Jun-13	443.8
<b>19</b>	<b><u>Sanilac</u></b>	1	Forestville Beach	Lake Huron	09-Jul-13	364.6074
<b>20</b>	<b><u>Schoolcraft</u></b>	1	Manistique Township Park	Lake Michigan	23-Jul-13	387.084
95	Schoolcraft	2	Rogers Park-MDOT	Lake Michigan	06-Aug-13	545.8003
<b>21</b>	<b><u>St. Clair</u></b>	1	Conger-Lighthouse Beach	Lake Huron	24-Jul-13	426.4988
97	St. Clair	2	Holland Road Beach	Lake Huron	18-Jun-13	365.2931

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>
98	St. Clair	3	Holland Road Beach	Lake Huron	24-Jul-13	547.144
99	St. Clair	4	Keewadhin Road Beach	Lake Huron	24-Jul-13	478.6632
100	St. Clair	5	Lakeside Beach	Lake Huron	24-Jul-13	460.9765
<b>22</b> 101	<b><u>Van Buren</u></b>	1	South Haven North Beach	Lake Michigan	07-Aug-13	1966.197
102	Van Buren	2	South Haven North Beach	Lake Michigan	27-Aug-13	305.0349
103	Van Buren	3	South Haven South Beach	Lake Michigan	07-Aug-13	801.9598
104	Van Buren	4	South Haven South Beach	Lake Michigan	08-Aug-13	451.8977
105	Van Buren	5	South Haven South Beach	Lake Michigan	12-Aug-13	1077.807
106	Van Buren	6	Van Buren State Park Beach	Lake Michigan	27-Aug-13	329.1015
<b>23</b> 107	<b><u>Wayne</u></b>	1	Pier Park	Lake St. Clair	22-Jul-13	1930.45