

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
AUGUST 2012

STAFF REPORT

MICHIGAN BEACH MONITORING
YEAR 2011 ANNUAL REPORT

INTRODUCTION

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

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

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

Beach Monitoring

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

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

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

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

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

Year	2006	2007	2008	2009	2010	2011
Number of Counties that Monitored	58	57	57	57	59	55
Number of Beaches Monitored	440	474	467	414	430	415

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 state-wide monitoring program. Beginning in 2000, funding became available from the Clean Michigan Initiative-Clean Water Fund (CMI-CWF). In 2003, the United States Environmental Protection Agency (USEPA) also began awarding funds from the Beaches Environmental Assessment and Coastal Health Act (BEACH Act) for monitoring Great Lakes beaches. In 2010, the MDEQ received funds from the Great Lakes Restoration Initiative (GLRI) to monitor, conduct routine and annual sanitary surveys, develop forecast tools to open or close beaches in real-time, use source tracking tools to identify sources of pollution that contaminate beach water quality, and remediate sources of pollution as they are identified.

CMI-CWF Grants

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

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

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

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 \$2,337,884 including 24 awards totaling \$207,539 for monitoring beaches in 2011. A list of the most recent grant awards is shown in Appendix B. The

availability of future BEACH Act grants is uncertain as the proposed budget of the President of the United States for fiscal year 2013 provided no funding.

GLRI Grants

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

2. CREATE AND MAINTAIN A STATEWIDE DATABASE

The MDEQ developed a centralized statewide database, BeachGuard, which includes beach locations and maps, beach monitoring *E. coli* test results, notification data, and routine sanitary survey data. These data are available electronically to the public via the MDEQ's Web site (<http://www.deq.state.mi.us/beach/>). The Web site includes information about individual beaches (by county or lake name), frequency of testing, monitoring history, beach closures, and monitoring efforts. The Web site also provides search tools, options for data export, information for beach monitoring procedures and methods, additional links to beach monitoring resources, and contact information for federal, state, and local beach monitoring staff.

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

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

Pathogens

Pathogens are microorganisms (bacteria, protozoans, or viruses) that cause disease. Most waterborne pathogens are readily found in the feces of humans and other warm-blooded animals. Gastroenteritis is the most common illness associated with swimming in contaminated water although other illnesses can occur. The severity of the disease or illness depends on the amount of exposure and the type of pathogen (Appendix C) (USEPA, 2001). The USEPA (1986 and 2002) has determined that *E. coli* and *Enterococci* are appropriate indicators for the presence of waterborne pathogens in fresh water.

Routine Sanitary Surveys

As part of the GLRI, local health departments conducted 3,424 routine sanitary surveys at 252 Great Lakes beaches and access points to identify sources of pollution that contaminate 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. Data from routine sanitary surveys for these beaches are available on BeachGuard.

Annual Sanitary Surveys

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

Sources of Bacterial Contamination

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

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

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

E. coli Standard

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

R 323.1062 Microorganisms

Rule 62(1): All waters of the state protected for total body contact recreation shall not contain more than 130 *E. coli* per 100 milliliters (ml), as a 30-day geometric mean. Compliance shall be based on the geometric mean of all individual samples taken during 5 or more sampling events representatively spread over a 30-day period. Each sampling event shall consist of 3 or more samples taken at representative locations

within a defined sampling area. At no time shall the waters of the state protected for total body contact recreation contain more than a maximum of 300 *E. coli* per 100 ml. Compliance shall be based on the geometric mean of 3 or more samples taken during the same sampling event at representative locations within a defined sampling area.

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

R 323.1100 Designated Uses

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

Beach Notification Data

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

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

Reporting Beach Monitoring and Notification Data

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

As a requirement of the BEACH Act, the MDEQ submits beach monitoring data to the USEPA. The USEPA has created several Web pages for beach information that can be found at <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/>.

4. COMPILE DATA TO DETERMINE OVERALL WATER QUALITY

List of Beaches

Michigan beaches identified by local health departments and the MDEQ are listed in Appendices D.1 (inland lakes-monitored), D.2 (inland lakes-not monitored), E.1 (Great Lakes-monitored), and E.2 (Great Lakes-not monitored). They are also listed on the MDEQ's beach

Web site. The beaches are arranged alphabetically by county, then water body, then location (site name). There are 574 identified public beaches on inland lakes and rivers and 612 identified public beaches on the Great Lakes.

Synopsis of Data

Monitoring and notification data reported for beaches included results of *E. coli* tests and the number of advisories or closures (actions) that were posted and the number of days for each posting. In 2011, monitoring was conducted at 415 (153 inland and 262 Great Lakes) public beaches in 55 Michigan counties. Local beach managers collected 6,128 daily water samples and 266 (4.3 percent) exceeded Michigan’s WQS (Appendix F).

Exceedances were reported at 124 beaches (30 percent of all monitored beaches) resulting in 111 of those beaches posting 165 advisories or closures lasting a total of 913 days. The number of beaches with exceedances differed from the number of beaches with actions due to any of the following reasons: (1) water samples were tested before or after the swimming season; (2) delays in receiving test results; (3) a second test (follow-up sample) was used to confirm an exceedance; or (4) preemptive closures or advisories were issued. Table 2 shows the number and percent of beaches with exceedances in comparison to previous years. The number and percent of samples exceeding WQS in 2011 are higher than the previous years (Table 2).

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

Year	2006	2007	2008	2009	2010	2011
Number of Beaches with Exceedances	99	77	75	83	108	124
Percent of Beaches with Exceedances	22.5	16.2	15.8	20	25	30
Number of Samples Exceeding WQS	200	145	154	212	209	266
Percent of Samples Exceeding WQS	3.6	2.6	2.8	3.6	4.0	4.3

Notification data in 2011 showed an increase in the number and percentage of beaches with an action and in the number of actions (Figure 1 and Table 3). However, the total number of days with actions decreased (Table 3). Collectively, these data show that exceedances and actions were of a short duration, usually one or two days (Table 4 and Table 7).

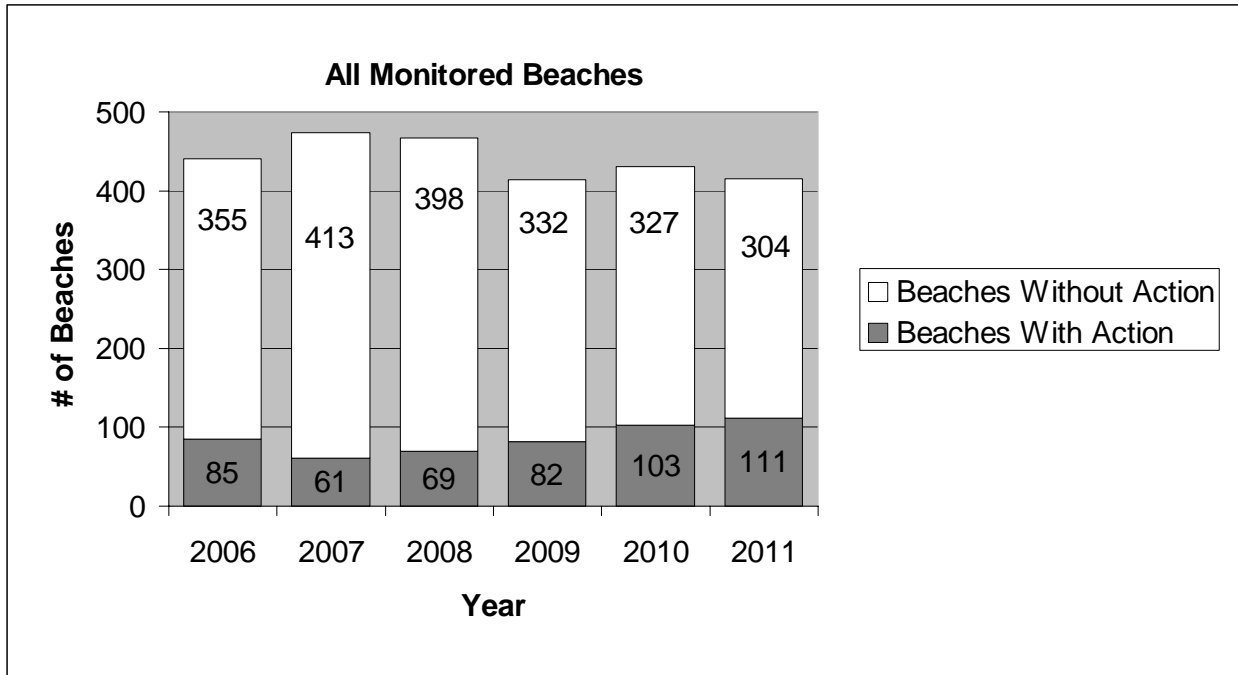


Figure 1. Each bar represents the total number of monitored beaches with divisions designating beaches with and without an action.

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

Year	2006	2007	2008	2009	2010	2011
Actions	110	89	108	125	152	165
Percent of Monitored Beaches with an Action	18.4	12.9	14.8	19.8	24.3	27
Total Days with an Action	886	1,568	697	1,596	1,003	913

Synopsis of Data from Great Lakes Beaches

In 2011, monitoring was conducted at 262 Great Lakes public beaches in 38 counties in Michigan. Out of 4,494 daily samples collected, 227 (5 percent) exceeded Michigan’s WQS (Appendix F). The exceedances were reported from 101 beaches (39 percent of monitored Great Lakes beaches), 89 (34 percent) of which reported actions (137 incidents lasting a total of 789 days). A summary of the exceedances of the *E. coli* WQS for Great Lakes beaches is provided in Table 4. Figure 2 shows that the number of monitored Great Lakes beaches has stayed about the same, but the number of beaches with an action has increased.

A summary of the 2011 beach action data for each of the Great Lakes, Lake St. Clair, and connecting channels is provided in Table 5. A summary of sources of contamination reported for actions in the Great Lakes, Lake St. Clair, and connecting channels is provided in Table 6.

Table 4. Number of exceedances and actions for Great Lakes beaches monitored in 2011.

a. Number of Exceedances Reported per Beach	b. Number of Beaches with Exceedence(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	63	63	1	64	64
2	18	36	2	15	30
3	6	18	3	3	9
4	4	16	4	3	12
5	2	10	5	2	10
6	1	6	6	2	12
7	2	14			
8	2	16			
12	1	12			
15	1	15			
21	1	21			
TOTAL	101	227		89	137

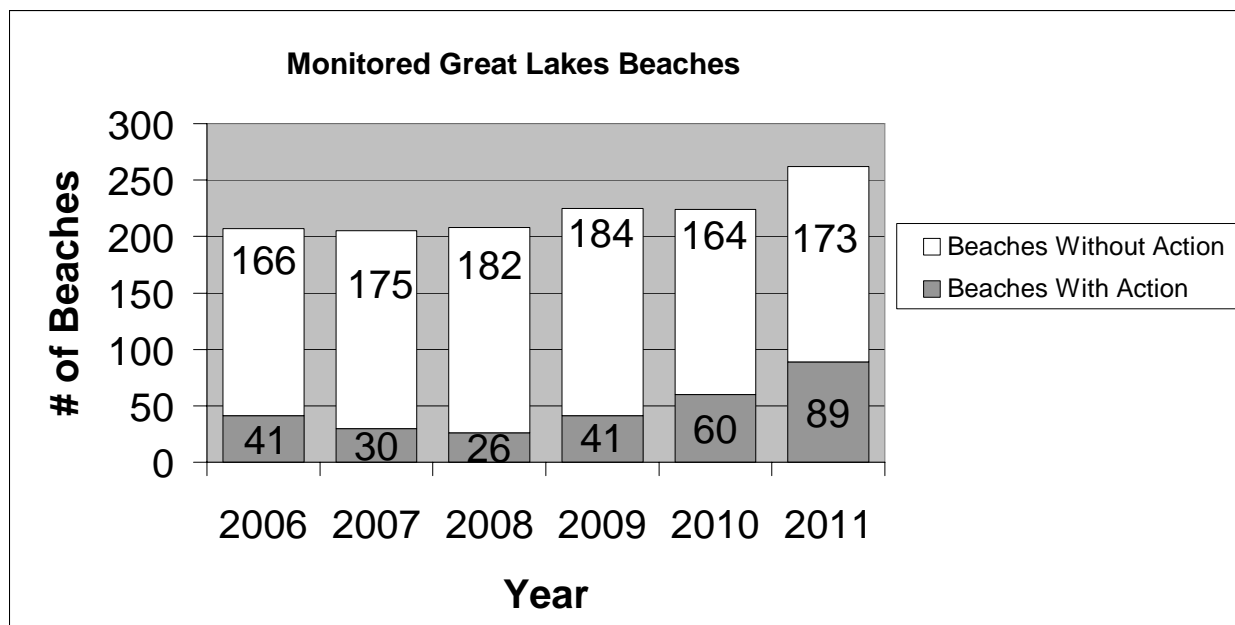


Figure 2. Each bar represents the total number of monitored Great Lakes beaches with divisions designating beaches with and without an action.

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

Water Body	Number of Public Beaches	Number of Beaches that were Monitored	Number of Beaches with an Action	Number of Beach Actions	Total Number of Days with Actions
Lake Erie	4	4	1	1	7
Lake Huron	167	71	34	56	362
Lake Michigan	304	120	35	42	76
Lake Superior	118	21	8	12	45
Lake St. Clair	5	5	7	21	288
Great Lakes Connecting Channels	14	6	4	5	11
TOTAL	612	227	89	137	789

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

Contamination Source	Number of Actions with Reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Wildlife	2	2	2
Agriculture	1	1	1
Storm water	33	75	24
Runoff	8	11	7
CSO	0	0	0
SSO	2	15	2
Other	4	14	4
Unknown	87	671	49
TOTAL	137	789	89

Synopsis of Data from Inland Beaches

In 2011, monitoring was conducted at 153 inland lake public beaches in 34 counties in Michigan. Out of 1,634 daily samples collected, 39 (2 percent) exceeded Michigan's WQS (Appendix F). The exceedances were reported from 23 beaches (15 percent of monitored inland beaches) and 22 beaches (14 percent) reported actions (28 incidents lasting a total of 124 days).

A summary of the exceedances of the *E. coli* WQS for inland beaches is provided in Table 7. Figure 3 shows that the number of monitored inland beaches varies by year and that the

number of beaches with an action was lower in 2011 compared to previous years. A summary of sources of contamination reported for beach actions for inland lakes is provided in Table 8.

Table 7. Number of exceedances and actions for inland beaches monitored in 2011.

a. Number of Exceedances Reported per Beach	b. Number of Beaches with Exceedance(s)	Total Number of Exceedances (a x b)	c. Number of Actions per Beach	d. Number of Beaches with Actions	Total Number of Actions (c x d)
1	15	15	1	17	17
2	5	10	2	4	8
3	1	3	3	1	3
4	1	4			
7	1	7			
TOTAL	23	39		22	28

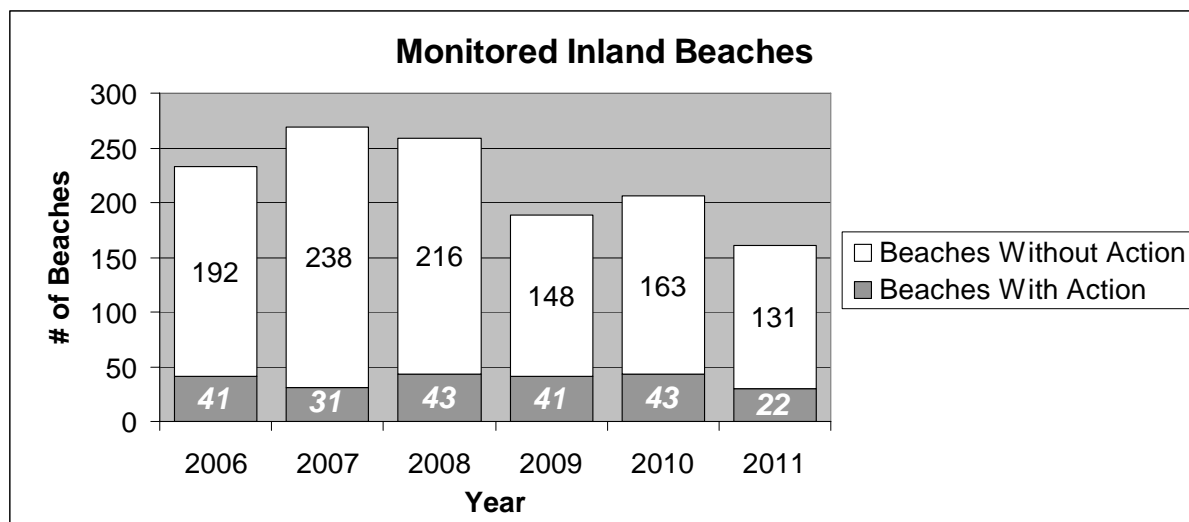


Figure 3. Each bar represents the total number of monitored inland beaches with divisions designating beaches with and without an action.

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

Contamination Source	Number of Actions Reporting Source	Number of Days Affected by Source	Number of Beaches Reporting Source
Wildlife	1	1	1
Agriculture	0	0	0
Storm	3	3	3
Runoff	0	0	0
CSO	0	0	0
SSO	0	0	0
Other	1	1	1
Unknown	23	119	17
TOTAL	28	124	22

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

Beach Water Quality Data that do not Meet WQS

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

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

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

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

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

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- USEPA. 1986. Ambient Water Quality Criteria for Bacteria-1986. EPA 440/5-84/002.
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- USEPA. 2002. National Beach Guidance and Required Performance Criteria for Grants. EPA-823-B-02-004.

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

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

Appendix B. 2011 BEACH Act Grants for Great Lakes Beaches.

Local Health Department	Allocated Amount	Total Monitored Beaches
Allegan County Health Department	\$8,313	4
Bay County Health Department	\$5,954	5
Berrien County Health Department	\$11,819	14
Central Michigan District Health Department	\$9,155	11
Chippewa County Health Department	\$7,266	6
Delta-Menominee District Health Department	\$5,763	4
Detroit, City of	\$2,690	1
District Health Department #2	\$8,399	9
District Health Department #4	\$9,532	12
District Health Department #10	\$18,409	22
Huron County Health Department	\$9,910	13
Luce-Mackinac-Alger-Schoolcraft District Health Department	\$5,763	4
Macomb County Health Department	\$5,763	4
Marquette (City of Marquette)	\$5,954	5
Monroe County Health Department	\$5,763	4
Muskegon County Health Department	\$12,082	12
Northwest Michigan Community Health Agency	\$16,709	31
Ottawa County Health Department	\$8,399	9
St. Clair County Health Department	\$10,666	15
Sanilac County Health Department	\$5,954	5
Van Buren/Cass District Health Department	\$5,763	4
Watershed Center (Grand Traverse & Benzie-Leelanau)	\$15,668	9
Wayne County Health Department	\$2,690	1
Western Upper Peninsula District Health Department	\$9,155	11
Total	\$207,539	215

Appendix C. Waterborne Pathogens

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

Source: USEPA, 2001

Appendix D.1. Inland Beaches Monitored.

	County	Water Body		Location
1	1 Alcona	Alcona Pond	1	Alcona Park East Campground
	2 Alcona	Hubbard Lake	2	Caledonia Township Park
	3 Alcona	Cedar Lake	3	Greenbush Township beach
	4 Alcona	Brownlee Lake	4	Village of Lincoln Park
2	5 Alpena	Beaver Lake	1	Beaver Lake Park
	6 Alpena	Lake Avalon	2	Lake Avalon Public Access
3	7 Antrim	Torch Lake	1	Day Park
	8 Antrim	Torch Lake	2	Eastport
	9 Antrim	Torch Lake	3	Torch River Bridge
4	10 Arenac	AuGres River	1	AuGres River - DNR Access @ pier
	11 Arenac	Oasis Lake	2	Oasis Lake County Park
	12 Arenac	Pine River	3	Pine River - Arenac County
5	13 Barry	Thornapple Lake	1	Charlton Park
	14 Barry	Gun Lake	2	Main Beach - Day Use Area
	15 Barry	Gun Lake	3	Yankee Springs Recreation Area Campground Beach
6	16 Bay	Kawkawlin River	1	Boat Launch on Kawkawlin River
	17 Bay	Saginaw River	2	Vet's Park North Bay City
	18 Bay	Saginaw River	3	Vet's Park South River Rd.
7	19 Benzie	Otter Creek	1	Sleeping Bear Dunes-Otter Creek
8	20 Chippewa	Dukes Lake	1	Dukes Lake
	21 Chippewa	Kinross Lake	2	Kinross Lake
	22 Chippewa	Monocle Lake	3	Monocle Lake
9	23 Clare	Crooked Lake	1	Crooked Lake/Camp Neyati Beach
	24 Clare	Budd Lake	2	Wilson Lake State Park
10	25 Eaton	Fox Memorial Park Beach	1	Fox Memorial Park
11	26 Gladwin	Ross Lake	1	Beaverton City Park
	27 Gladwin	Lake Lancer	2	Berkshire Beach
	28 Gladwin	Cedar River	3	Gladwin City Park
	29 Gladwin	Lake Lancer	4	Islanders Way
	30 Gladwin	Lake Lancelot	5	Kingsway Beach
12	31 Gogebic	Lake Gogebic	1	Gogebic County Park
	32 Gogebic	Lake Gogebic	2	Lake Gogebic State Park Beach
	33 Gogebic	Sunday Lake	3	Sunday Lake Beach
13	34 Houghton	Lake Roland	1	Twin Lakes State Park
14	35 Ingham	Burchfield Pond	1	Burchfield Park
	36 Ingham	Hawk Island	2	Hawk Island County Park
	37 Ingham	Lake Lansing	3	Lake Lansing Park South
	38 Ingham	Valhalla Pond	4	Valhalla Park

Appendix D.1. Inland Beaches Monitored.

	County	Water Body		Location
15	39 Iosco	Long Lake	1	Long Lake Public Access
	40 Iosco	Foot Pond	2	Old Orchard Park
	41 Iosco	Van Ettan Lake	3	Oscoda Township Park- Van Ettan Lake
16	42 Isabella	Coldwater Lake	1	Coldwater Park
	43 Isabella	Borrow Pit	2	Herrick County Park
17	44 Kalamazoo	Blue Lake	1	Cold Brook County Park
	45 Kalamazoo	Eagle Lake	2	Fort Custer Recreation Area Beach
	46 Kalamazoo	Swimmers Lake	3	Markin Glen County Park
	47 Kalamazoo	Hogsett Lake	4	Prairie View County Park
	48 Kalamazoo	Long Lake	5	Ramona Park
	49 Kalamazoo	Campbell Lake	6	Robert Morris Park
	50 Kalamazoo	Gull Lake	7	Ross Township Park
	51 Kalamazoo	Sunset Lake	8	Sunset Lake Park
	52 Kalamazoo	Woods Lake	9	Woods Lake Beach
18	53 Leelanau	Sleeping Bear Dunes-Little Glen Lake	1	Little Glen Lake
	54 Leelanau	Sleeping Bear Dunes-North Bar Lake	2	North Bar Lake
19	55 Livingston	Bishop Lake	1	Brighton State Recreation Area
	56 Livingston	Bentley Lake	2	Camp Innisfree
	57 Livingston	Haynor Lake	3	Hamburg Fitness Center & Camp
	58 Livingston	Thompson Lake	4	Howell City Park
	59 Livingston	Pleasant Lake	5	Howell Nature Center
	60 Livingston	Spring Mill Pond	6	Island Lake Recreation Area
	61 Livingston	Kent Lake	7	Island Lake Recreation Area - Kent Lake
	62 Livingston	Lake Chemung	8	Lake Chemung Outdoor Resort
	63 Livingston	Winans Lake	9	Lakelands Golf & Country Club
	64 Livingston	Cook Lake	10	Taylor's Beach
	65 Livingston	Cordley Lake	11	Varsity Day Camp
	66 Livingston	Lake Walden	12	Waldenwoods Resort
	67 Livingston	Sandy Bottom Lake	13	Water's Edge Camp
	68 Livingston	Church Lake	14	Wildwood Ranch
20	69 Macomb	Stony Creek Lake-Impoundment	1	Stony Creek Metropark-Baypoint Beach
	70 Macomb	Stony Creek Lake-Impoundment	2	Stony Creek Metropark-Eastwood Beach
21	71 Midland	Sanford Lake	1	Sanford Lake Park
22	72 Montmorency	Clear Lake	1	Clear Lake Day Use
23	73 Oakland	Adams Lake	1	Addison Oaks Co. Park
	74 Oakland	Lower Trout	2	Bald Mountain Recreation Area
	75 Oakland	Green Lake	3	Bay Court Park
	76 Oakland	Walnut Lake	4	Bloomfield Parks & Recreation/West Hills M.S.
	77 Oakland	Tipsico Lake	5	Brown's Landing Mobile Home Park
	78 Oakland	Tommys Lake	6	Camp Agawam Boy Scout Camp
	79 Oakland	Phillips Lake	7	Camp Dearborn - Lake #1

Appendix D.1. Inland Beaches Monitored.

	County	Water Body		Location
80	Oakland	Phillips Lake	8	Camp Dearborn - Lake #5
81	Oakland	Phipps Lake	9	Camp Maas - Rodecker
82	Oakland	Phipps Lake	10	Camp Maas- Sobell Beach
83	Oakland	Handsome Lake	11	Camp Oakland - summer
84	Oakland	Fish Lake	12	Camp Ohiyesa - North
85	Oakland	Green Lake	13	Camp Wathana
86	Oakland	Long Lake	14	Christ the King Church Camp
87	Oakland	Green Lake	15	Clear Water Resort
88	Oakland	Orchard lake	16	Country Club (500 W. Shore Dr)
89	Oakland	Mill Pond	17	Davisburg Village Beach (Hart Community Center)
90	Oakland	Cass Lake	18	Dodge Park #4
91	Oakland	Walled Lake	19	E.V. Mercer City Beach
92	Oakland	Sylvan Lake	20	Ferndale
93	Oakland	Sun Lake	21	Finnish Day Camp
94	Oakland	Orion Lake	22	Greens Park Village Beach
95	Oakland	Stewart Lake	23	Groveland Oaks County Park - Paradise Beach
96	Oakland	Haas Lake	24	Haas Lake Park #1
97	Oakland	Big Peat Lake	25	Haas Lake Park #2
98	Oakland	Haas Lake	26	Haas Lake Park #3
99	Oakland	Heron Lake	27	Holly Recreation Area - Heron Beach
100	Oakland	Bush Lake	28	Holly Village Beach
101	Oakland	Crooked Lake	29	Independence Oaks County Park
102	Oakland	Deer Lake	30	Independence Township Village Beach
103	Oakland	Cass Lake	31	Keego Harbor City Beach
104	Oakland	Kent Lake	32	Kensington - Martindale Beach
105	Oakland	Walled Lake	33	Lakeshore Park
106	Oakland	Pontiac Lake	34	Pontiac Recreation Area
107	Oakland	Cass Lake	35	Pontiac Yacht Club
108	Oakland	Proud Lake	36	Proud Lake Recreation Area Campground
109	Oakland	Round Lake	37	Scripter Village Park Township Beach
110	Oakland	Big Seven Lake	38	Seven Lakes Park
111	Oakland	Sand Lake	39	Seven Lakes State Park - Campground
112	Oakland	Stony Lake	40	Stony Lake Park
113	Oakland	Teeple Lake	41	Teeple Lake Recreation Area - Highland State Park
114	Oakland	Lake at Park	42	Thelma Spencer Park
115	Oakland	Prince Lake	43	Upland Hills Farm
24	<u>Ogemaw</u>	Shady Shores Park Subdivision	1	Rifle Lake
117	Ogemaw	Grousehaven Lake	2	Rifle River Recreation Area Campground Beach
118	Ogemaw	Skidway Lake	3	Skidway Lake
25	<u>Ontonagon</u>	Lake Gogebic	1	Bergland Township Park
120	Ontonagon	Lake Gogebic	2	Ontonagon County Park
26	<u>Osceola</u>	Muskegon River	1	Crawford Park
27	<u>Oscoda</u>	Perry Lake	1	Comins Township. Park
123	Oscoda	Smith Lake	2	Oscoda County Park
28	<u>Ottawa</u>	Lake Macatawa	1	Dunton Park
125	Ottawa	Georgetown Lake	2	Georgetown Community Park

Appendix D.1. Inland Beaches Monitored.

	County	Water Body		Location
126	Ottawa	Crockery Lake	3	Grose Park
127	Ottawa	Lake Macatawa	4	Holland State Park
128	Ottawa	Maplewood Lake	5	Maplewood Lake Park
29	<u>Roscommon</u>	Houghton Lake	1	Denton Township Public Beach
129	Roscommon	Houghton Lake	2	Houghton Lake Heights
130	Roscommon	Higgins Lake	3	North Higgins State Park
131	Roscommon	Lake St. Helen	4	Richfield Township Public Fishing Site
132	Roscommon	Higgins Lake	5	South Higgins Lake State Park
133				
30	<u>Schoolcraft</u>	Quarry Lake	1	Quarry Beach
134				
31	<u>St. Clair</u>	Emmett K.O.A. Pond	1	Emmett K.O.A.
135	St. Clair	Fort Trodd Lake	2	Fort Trodd Campground North
136	St. Clair	Fort Trodd Lake	3	Fort Trodd South
137	St. Clair	Kimball Pond	4	Kimball Township Pond
138	St. Clair	Ruby Campground Pond	5	Ruby Campground
139				
32	<u>Washtenaw</u>	Independence Lake	1	Independence Lake County Park
140	Washtenaw	Silver Lake	2	Pinckney Recreation Area
141	Washtenaw	Half Moon Lake	3	Pinckney Recreation Area
142	Washtenaw	Bruin Lake	4	Pinckney Recreation Area
143	Washtenaw	Sugarloaf Lake	5	Waterloo Recreation Area
144				
33	<u>Wayne</u>	Blue Heron Pond	1	Blue Heron Condominiums Pond
145	Wayne	Silver Spring Lake	2	Silver Spring Lake
146	Wayne	Belleville Lake	3	Van Buren Township Park
147				
34	<u>Wexford</u>	Lake Cadillac	1	Cadillac City Dock
148	Wexford	Lake Cadillac	2	City Park
149	Wexford	Lake Meauwataka	3	Colfax Township Park
150	Wexford	Lake Cadillac	4	Kenwood Park
151	Wexford	Billings Lake	5	Manton Park
152	Wexford	Lake Mitchell	6	Mitchell State Park
153				

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
1	1 Alcona	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
2	4 Allegan	Dumont Lake	1	Dumont Lake County Park Beach
	5 Allegan	Ely Lake	2	Ely Lake Campground Beach
	6 Allegan	Gun Lake	3	Gun Lake County Park Beach
	7 Allegan	Little John Lake	4	Little John Lake County Park Beach
	8 Allegan	Swan Creek Pond	5	Pine Point Campground Beach
3	9 Alpena	Long Lake	1	Long Lake Day Use
	10 Alpena	Long Lake	2	Long Lake Park
4	11 Antrim	Lake Bellaire	1	Richardi Park
	12 Antrim	Central Lake	2	Thurston Park
	13 Antrim	Torch River	3	Torch River Sand Bar
	14 Antrim	Elsworth Lake	4	Wooden Shoe Park
5	15 Arenac	Man made Pond	1	Big Bend Campground
	16 Arenac	Au Gres River	2	DNR Access-Au Gres River
	17 Arenac	Flint Park Hunt Club Lake	3	Flint Park Hunt Club
	18 Arenac	Man made Pond	4	Outdoor Adventures
	19 Arenac	Pine River	5	Pine River Public Access
6	20 Barry	Gun Lake	1	Old Beach - Day Use Area
	21 Barry	Gull Lake	2	Prairieville Township Park
7	22 Benzie	Crystal Lake	1	Bellows
	23 Benzie	Crystal Lake	2	South Shore near Beulah
8	24 Berrien	St. Joseph River	1	Bertrand Park
	25 Berrien	St. Joseph River	2	Niles - French Paper
	26 Berrien	St. Joseph River	3	Niles - Marmont
	27 Berrien	Paw Paw Lake	4	Paw Paw Lake
9	28 Branch	Messenger Lake	1	Memorial Park
	29 Branch	First Lake	2	Quincy Park
10	30 Calhoun	Duck Lake	1	Springport
	31 Calhoun	Goguac Lake	2	Willard Beach in Battle Creek
11	32 Charlevoix	Huffman Lake	1	Hudson Township Park
	33 Charlevoix	Walloon Lake	2	Melrose Township Park
	34 Charlevoix	Thumb Lake	3	Thumb Lake Beach
12	35 Cheboygan	Mullett Lake	1	Aloha State Park
	36 Cheboygan	Black Lake	2	Black Lake S.F.C.G.
	37 Cheboygan	Black Lake	3	Bluffs Beach
	38 Cheboygan	Mullett Lake	4	Boy Scout Launch
	39 Cheboygan	Burt Lake	5	Burt Lake State Park
	40 Cheboygan	Burt Lake	6	Devoe Beach

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
41	Cheboygan	Mullett Lake	7	Foot Road Park
42	Cheboygan	Mullett Lake	8	Grand View Beach
43	Cheboygan	Mullett Lake	9	Hobert's Launch
44	Cheboygan	Burt Lake	10	Hoppie's Launch
45	Cheboygan	Burt Lake	11	Maple Bay Park
46	Cheboygan	Mullett Lake	12	Orchard Beach
47	Cheboygan	Mullett Lake	13	Polish Line Beach
48	Cheboygan	Douglass Lake	14	Ryder's Landing
49	Cheboygan	Mullett Lake	15	Topinabee Park
50	Cheboygan	Webber Lake	16	Webber Lake State Park
13	Chippewa	Caribou Lake	1	Caribou Lake
52	Chippewa	Soldiers Lake	2	Soldiers Lake
53	Chippewa	Carp Lake	3	Trout Lake
14	Clare	Arnold Lake	1	Arnold Lake Beach
55	Clare	Bertha Lake	2	Bertha Lake Beach
56	Clare	Townline Lake	3	Cedar Shores Beach
57	Clare	Shamrock Lake	4	City of Clare Park
58	Clare	Cranberry lake	5	Cranberry Lake South
59	Clare	Dodge Lake	6	Dodge Lake Beach
60	Clare	Crooked Lake	7	Hillcrest Public Landing
61	Clare	George Lake	8	Lake George Public Landing
62	Clare	Doc and Tom Lake	9	Lake of the Pines
63	Clare	Lilly Lake	10	Lilly Lake Beach
64	Clare	Long Lake	11	Long Lake Beach
65	Clare	Muskegon River	12	Muskegon River Township Park
66	Clare	Hayes Lake (Cranberry Lake)	13	Oak Hills Children's Camp
67	Clare	Sand Lake	14	Sand Lake Beach
68	Clare	Grass Lake	15	Sandy Shores Beach
69	Clare	Shingle Lake	16	Shingle Lake Park
70	Clare	Silver Lake	17	Silver Lake Park
15	Clinton	Lake Ovid	1	Sleepy Hollow State Park Beach
16	Eaton	Grand River	1	Lincoln Brick Park
17	Emmet	Pickerel Lake	1	Camp Petosega
74	Emmet	Pickerel Lake	2	Channel Beach
75	Emmet	Crooked Lake	3	Little Traverse Township Beach
76	Emmet	Crooked Lake	4	Oden Beach
77	Emmet	Larks Lake	5	Pioneer Picnic Park
78	Emmet	Walloon Lake	6	Resort Pike Road Beach
18	Genesee	Lake Ponemah	1	at Drain
80	Genesee	Barnum Lake	2	Barnum Lake
81	Genesee	Hasler Lake	3	Beach at Hasler Lake
82	Genesee	Pinewood Lake	4	Beach at Pinewood Lake
83	Genesee	Mott Lake	5	Bluebell Beach
84	Genesee	Mott Lake	6	Bluegill Boat Ramp
85	Genesee	Buell Lake	7	Boat Ramp at Buell Lake

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
86	Genesee	Holloway Reservoir	8	Buttercup Beach
87	Genesee	Copneconic Lake	9	Camp Copneconic
88	Genesee	Silver Lake	10	City Park Beach
89	Genesee	Byram Lake	11	Clover Beach
90	Genesee	Copneconic Lake	12	Copneconic Day Beach
91	Genesee	Covenant Hill Camp	13	Covenant Hill Camp
92	Genesee	Crane Lake	14	Crane Lake Beach
93	Genesee	Crooked Lake	15	Crooked Lake
94	Genesee	Fenton Lake	16	DNR Boat Dock-Fenton Lake
95	Genesee	Lake Ponemah	17	DNR Boat Launch at Lake Ponemah
96	Genesee	Lobdell Lake	18	DNR Boat Launch at Lobdell Lake
97	Genesee	Dollar lake	19	Dollar Lake
98	Genesee	Fenton Lake	20	Fenton Lake Marina
99	Genesee	Flagstone Point	21	Flagstone Point Beach
100	Genesee	Golden Rod Lake	22	Golden Rod Beach
101	Genesee	Hasler Lake	23	Hasler Lake Campground
102	Genesee	Kearsley Reservoir	24	Kearsley Reservoir Beach
103	Genesee	Kelly Lake	25	Kelly Lake
104	Genesee	Lake Helene	26	Lake Helene Beach
105	Genesee	Lake Linda	27	Lake Linda
106	Genesee	Lake Shinangaug	28	Lake Shinangaug
107	Genesee	Linden Mill Pond	29	Linden Mill Pond Beach
108	Genesee	Loon Lake	30	Loon Lake Beach
109	Genesee	Marl Lake	31	Marl Lake Beach
110	Genesee	McCaslin Lake	32	McCaslin Lake Beach
111	Genesee	McKane Lake	33	McKane Lake Beach
112	Genesee	Mott Lake Stepping Stone	34	Mott Lake Stepping Stone Beach
113	Genesee	Myers Lake	35	Myers Lake
114	Genesee	Pine Lake	36	Pine Lake Beach
115	Genesee	Silver Lake	37	Silver Lake Marina
116	Genesee	Smokerise Lake	38	Smokerise Beach
117	Genesee	Squaw Lake	39	Squaw Lake Beach
118	Genesee	Thread Lake	40	Thread Lake Beach
119	Genesee	Fenton Lake	41	Township Hall
120	Genesee	Holloway Reservoir	42	Walleye Pike Dock
121	Genesee	West Sister Lake	43	West Sister Lake
19	Gladwin	Cedar River	1	Cedar River Campground Beach
123	Gladwin	Tittabawassee River	2	Estey Road Access
124	Gladwin	Tittabawassee River	3	Gilman Springs Canoe Launch
125	Gladwin	Flowing well/pond	4	Gilman Springs Swimming Area
126	Gladwin	Cedar River	5	Gladwin North Park
127	Gladwin	Tittabawassee River	6	Good News Camp
128	Gladwin	Hoister Lake	7	Hoister Lake Beach
129	Gladwin	House Lake	8	House Lake
130	Gladwin	Lake Four	9	Lake Four
131	Gladwin	Lyle Drain/Tobacco River	10	Lost Haven Beach
132	Gladwin	Tittabawassee River	11	Pine Street Public Access
133	Gladwin	Pratt Lake	12	Pratt Lake
134	Gladwin	Secord Lake	13	Secord Lake
135	Gladwin	Secord Lake	14	Secord Lake - East

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
136	Gladwin	Lake Lancer	15	Sugar Springs/Lake Lancer
137	Gladwin	Trout Lake	16	Trout Lake SFCG
138	Gladwin	Secord Lake	17	West River Drive Boat Launch
139	Gladwin	Wiggins Lake South	18	Wiggins Lake - at Clendening Road
140	Gladwin	Wiggins Lake North	19	Wiggins Lake DNR Boat Launch
141	Gladwin	Wixon Lake	20	Wixon Lake - West
20	<u>Grand Traverse</u>	Long Lake (AKA: Mickey Lake)	1	Gilbert Beach
143	Grand Traverse	Long Lake (AKA: Mickey Lake)	2	Taylor Park
21	<u>Hillsdale</u>	Bird lake	1	Bird Lake Beach
145	Hillsdale	Baw Beese Lake	2	Sandy Beach
22	<u>Iosco</u>	Chain Lake	1	Chain Lake Beach
147	Iosco	Foot Pond	2	Footsite Park
148	Iosco	Loon Lake	3	Loon Lake Park
149	Iosco	Sand Lake	4	Sand Lake - Sand Lake Road Access
23	<u>Isabella</u>	Chippewa River	1	Deerfield County Park
151	Isabella	Halls Lake	2	Halls Lake
152	Isabella	Millpond	3	Millpond Park
24	<u>Jackson</u>	Clark Lake	1	Clark Lake County Park
154	Jackson	Clear Lake	2	Clear Lake County Park
155	Jackson	Gilletts Lake	3	Gilletts Lake County Park
156	Jackson	Grass Lake	4	Grass Lake County Park
157	Jackson	Lime Lake	5	Lime Lake County Park
158	Jackson	Little Wolf Lake	6	Little Wolf Lake County Park
159	Jackson	Pleasant Lake	7	Pleasant Lake County Park & Campground
160	Jackson	Portage Lake	8	Portage Lake County Park
161	Jackson	Round Lake	9	Round Lake County Park
162	Jackson	Swains Lake	10	Swains Lake County Park
163	Jackson	Vandercook Lake	11	Vandercook Lake County Park
164	Jackson	Vineyard Lake	12	Vineyard Lake County Park
25	<u>Kalamazoo</u>	Timber Lake	1	Timber Lake Campground
26	<u>Kent</u>	Reeds Lake	1	Collins Park
167	Kent	Lincoln Lake	2	Lincoln Lake Baptist Camp
168	Kent	Lincoln Lake	3	Lincoln Pines Resort
169	Kent	Long Lake	4	Long Lake County Park
170	Kent	Myers Lake	5	Myers Lake County Park
171	Kent	Scalley Lake	6	Scalley Lake Park
172	Kent	Versluis Lake	7	Versluis Park
173	Kent	Wabasis Lake	8	Wabasis Lake County Park
27	<u>Leelanau</u>	Lake Leelanau	1	Leelanau Township Park Beach
175	Leelanau	Lake Leelanau	2	Nedow's (Bartholomew) Beach
176	Leelanau	Lake Leelanau	3	Popp Road End
177	Leelanau	South Bar Lake	4	South Bar Lake - South End

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
28	178 Livingston	Chenago Lake	1	Camp Talahi
	179 Livingston	Dibrova Lake	2	Green Valley Camp
	180 Livingston	Pickereel Lake	3	Providence Medical Center
29	181 Marquette	Dead River Reservoir	1	Marquette Tourist Park Beach
30	182 Menominee	Hermansville lake	1	Hermansville Beach
	183 Menominee	Shakey Lakes	2	Shakey Lakes Campground
31	184 Monroe	Camp Lord Willing Pond	1	Camp Lord Willing
	185 Monroe	Covered Wagon Campground	2	Covered Wagon Campground
	186 Monroe	Heath Beach Pond	3	Heath Beach
	187 Monroe	K.C. Campground Pond	4	K.C. Campground
	188 Monroe	Monroe KOA Campground Pond	5	Monroe K.O.A. Campground
	189 Monroe	Pirollis Campground Pond	6	Pirolli's Campground
	190 Monroe	The Vine campground pond	7	The Vine
	191 Monroe	(man-made pond)	8	Totem Pole Campground Pond
	192 Monroe	Wilderness Retreat	9	Wilderness Retreat Campground
32	193 Montmorency	Clear Lake	1	Clear Lake State Park
	194 Montmorency	Crooked Lake	2	Crooked Lake Beach
	195 Montmorency	East Twin Lake	3	East Twin Beach/Albert Township Park
	196 Montmorency	Ess Lake	4	Ess Lake State Campground
33	197 Muskegon	Big Blue Lake	1	Blue Lake County Park Beach
	198 Muskegon	Duck Lake	2	Duck Lake State Park Beach
	199 Muskegon	Fox Lake	3	Fox Lake Park Beach
	200 Muskegon	Muskegon Lake	4	Harbor Towne Beach
	201 Muskegon	Bear Lake	5	Laketon Township Beach
	202 Muskegon	White Lake	6	Maple Park
	203 Muskegon	Mona Lake	7	Mona Lake Park Beach
	204 Muskegon	Half Moon Lake	8	Moore County Park Beach
	205 Muskegon	Muskegon Lake	9	Muskegon State Park - Muskegon Lake Side
	206 Muskegon	West Lake	10	Paddley Park
	207 Muskegon	Mona Lake	11	Ross Park Beach
	208 Muskegon	Wolf Lake	12	Sunset Park
	209 Muskegon	Twin Lake	13	Twin Lake County Park Beach
	210 Muskegon	Muskegon Lake	14	Water Sports Park
	211 Muskegon	Wolf Lake	15	Wolf Lake County Park
34	212 Oakland	Upper Pettibone Lake	1	657 Dunleavy
	213 Oakland	Union Lake	2	Alpha Beach
	214 Oakland	Long Lake	3	Annex 1
	215 Oakland	Avon Lake	4	Avon Lakes Beach #1
	216 Oakland	Avon Lake	5	Avon Lakes Beach #2
	217 Oakland	Upper Straits Lake	6	Banker's Subdivision
	218 Oakland	Upper Straits Lake	7	Bayside Beach Association
	219 Oakland	Walled Lake	8	Beachwalk Apartments
	220 Oakland	Loon Lake	9	Birch Park
	221 Oakland	Oakland Lake	10	Bird Island Subdivision
	222 Oakland	Elizabeth Lake	11	Bloomfield

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
223	Oakland	Walnut Lake	12	Bloomfield Square Beach Association
224	Oakland	Bogie Lake	13	Bogie Lake Property Owners - Beryl Drive
225	Oakland	Brendel Lake	14	Brendle Heights - Hillwood
226	Oakland	Huntoon Lake	15	Broadway Civic Association
227	Oakland	Long Lake	16	Bunny Run C.C.
228	Oakland	Union Lake	17	Burley & Barnsbury Streets
229	Oakland	Huntoon Lake	18	Burlingham Lake Park I
230	Oakland	Huntoon Lake	19	Burlingham Lake Park II
231	Oakland	Ekelund Lake	20	Camp Gordanwood
232	Oakland	Narrin Lake	21	Camp Narrin
233	Oakland	Cass Lake	22	Cass Lake Woods
234	Oakland	Elizabeth Lake	23	Cass-Elizabeth Heights
235	Oakland	Cedar Island Lake	24	Cedar Crest Subdivision
236	Oakland	Charnwood Lake	25	Charnwood
237	Oakland	Fox Lake	26	Cloister-on-the-Lakes
238	Oakland	Cranberry Lake	27	Cranberry Lake Village
239	Oakland	Cranberry Lake	28	Cranberry Lake Village
240	Oakland	Crescent Lake	29	Crescent Highlands
241	Oakland	Crescent Lake	30	Crescent Lake Park
242	Oakland	Middle Straits Lake	31	Crystal Echo
243	Oakland	Middle Straits Lake	32	Crystal Echo (the point)
244	Oakland	Sylvan Lake	33	Cunningham Park
245	Oakland	Deer Lake	34	Deer Lake Estates
246	Oakland	Lakeville Lake	35	Doll's Dock (Skip's Landing)
247	Oakland	Eagle Lake	36	Eagle Lake Road
248	Oakland	Elizabeth Lake	37	Elizabeth Lake Estates Improvement Assoc.
249	Oakland	Elizabeth Lake	38	Elizabeth Lakeshore
250	Oakland	Elizabeth Lake	39	Elizabeth Shores
251	Oakland	Emerald Lake	40	Emerald Lake
252	Oakland	Sandshores	41	Road
253	Oakland	Round Lake	42	Family Park
254	Oakland	Walnut Lake	43	Finnish American Club of Detroit
255	Oakland	Allen Lake	44	Fox Bay Civic Association
256	Oakland	Green Lake	45	Green Acres / Green Valley Park
257	Oakland	Hammond Lake	46	Hammond Estates
258	Oakland	Lotus Lake	47	Harris Park
259	Oakland	Harvey Lake	48	Harvey Lake Estates
260	Oakland	Harvey Lake	49	Harvey Lake Heights
261	Oakland	Heather Lake	50	Heather Lake Estates
262	Oakland	Watkins Lake	51	Heitch Street
263	Oakland	Wildwood Lake	52	Holly Recreation Area - Wildwood Beach
264	Oakland	Huntoon Lake	53	Huntoon Village
265	Oakland	Bass Lake	54	Idlewild Subdivision
266	Oakland	Indian Lake	55	Indian Lake Improvement Association
267	Oakland	Loon Lake	56	Indianwood
268	Oakland	Rowe Lake	57	Jacksina Subdivision
269	Oakland	Voorheis Lake	58	Keatington Subdivision - Eaton Gate - off Baldwin
270	Oakland	Voorheis Lake	59	Keatington Subdivision - Joslyn Ct.
271	Oakland	Cass Lake	60	Keego Harbor Trailer Park
272	Oakland	Kent Lake	61	Kensington - Maple beach
273	Oakland	Morgan Lake	62	Lake Angelus Lakeview Estates

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
274	Oakland	Oakland Lake	63	Lake Oakland Heights
275	Oakland	Oakland Lake	64	Lake Oakland Shores
276	Oakland	Orion Lake	65	Lake Orion Heights
277	Oakland	Waumegah Lake	66	Lake Waumegah Homeowners Association
278	Oakland	Watkins Lake	67	Lakeland Association #1
279	Oakland	Watkins Lake	68	Lakeland Association #2
280	Oakland	Eagle Lake	69	Lakeland Estates
281	Oakland	Clear Lake	70	Lakeland Improvement Association - Keith Street
282	Oakland	Sylvan Lake	71	Lakeview
283	Oakland	Carpenter Lake	72	Lakeview Recreation
284	Oakland	Geneva Lake	73	Lakewood Farms - Crocus Street
285	Oakland	Geneva Lake	74	Lakewood Farms - Sharon Street
286	Oakland	Brendel Lake	75	Lakewood Village
287	Oakland	Neva Lake	76	Lakewood Village Subdivision
288	Oakland	Watkins Lake	77	Lanarh Street
289	Oakland	Sherwood Lake	78	Ledgewood
290	Oakland	Marion Lake	79	Locklin Pines Association
291	Oakland	Commerce Lake	80	Log Cabin Sub.
292	Oakland	Walnut Lake	81	Lone Pine Association
293	Oakland	Lotus Lake	82	Lotus Park
294	Oakland	Lower Straits Lake	83	Lower Straits Beach Club
295	Oakland	Lower Straits	84	Maple Point
296	Oakland	Tan Lake	85	Mary K. Subdivision
297	Oakland	Meadow Lake	86	Meadow Lake Association
298	Oakland	Davis Lake	87	Meagher Park/Woodland Manor
299	Oakland	Darb Lake	88	Mission Springs Subdivision
300	Oakland	Lotus Lake	89	Mountain View
301	Oakland	Maceday Lake	90	Moutain View C.C. Subdivision
302	Oakland	Walnut Lake	91	North Cove
303	Oakland	Upper Pettibone Lake	92	Lakeview
304	Oakland	Sugden Lake	93	Oakridge Subdivision
305	Oakland	Upper Straits Lake	94	Outlet A
306	Oakland	Brendel Lake	95	Pawlaks Campground
307	Oakland	Pine Lake	96	Pine Lake Manor
308	Oakland	Bogie Lake	97	Pincrest Shores
309	Oakland	Sylvan Lake	98	Pioneer Highlands
310	Oakland	Pleasant Lake	99	Pleasant Lake Highlands
311	Oakland	Pleasant Lake	100	Pleasant Lake Manor
312	Oakland	Pleasant Lake	101	Pleasant Lake Woods
313	Oakland	Square Lake	102	Pleasant View Subdivision
314	Oakland	Square Lake	103	Pleasant View Subdivision - Kempster St
315	Oakland	Elizabeth Lake	104	Rangate Park
316	Oakland	Sherwood Lake	105	Ravinewood East
317	Oakland	Sherwood Lake	106	Ravinewood West
318	Oakland	Reed Lake	107	Reed Lake Property Owners
319	Oakland	White Lake	108	Rolling Acres
320	Oakland	Mud Lake	109	Rose Hill Center
321	Oakland	Loon Lake	110	Sandy Beach
322	Oakland	Scotch Lake	111	Scotch Lake Residents
323	Oakland	Upper Straits Lake	112	Shady Beach
324	Oakland	Walnut Lake	113	Shenandoah Farms Association

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
325	Oakland	Sherwood Lake	114	Sherwood Boat Ramp
326	Oakland	Sherwood Lake	115	Sherwood Property Owners
327	Oakland	Lower Straits Lake	116	Shores at Bay Point
328	Oakland	Silver Lake	117	Silver Hill Road
329	Oakland	Carpenter Lake	118	Silver Valley Subdivision
330	Oakland	Orchard Lake	119	St. Mary's Park
331	Oakland	White Lake	120	Stanley Beach
332	Oakland	Middle Straits Lake	121	Stony Beach
333	Oakland	Walters Lake	122	Sunny Beach #1 - Eston Road
334	Oakland	Walters Lake	123	Sunny Beach #2 - Clarkston Road
335	Oakland	Orion Lake	124	Sunset Club
336	Oakland	Cedar Island Lake	125	Sunset Subdivision
337	Oakland	Sylvan Lake	126	Sylvan Shores Improvement Association
338	Oakland	Cass Lake	127	Sylvan-on-the-Lakes
339	Oakland	Elizabeth Lake	128	Terrace
340	Oakland	Middle Straits Lake	129	Tripps Sub. Park
341	Oakland	Middle Straits Lake	130	Twin Beach Park
342	Oakland	Long Lake	131	Twin Shores Subdivision
343	Oakland	Union Lake	132	Union Lake Beach Club
344	Oakland	Union Lake	133	Union Lake Heights Subdivision #2
345	Oakland	Walnut Lake	134	Walnut Lake Estates
346	Oakland	Walnut Lake	135	Walnut Lake Hills Corporation
347	Oakland	Walnut Lake	136	Walnut Lake Park
348	Oakland	Walnut Lake	137	Walnut Lake Property Owners Sub #1
349	Oakland	Elizabeth Lake	138	Walters
350	Oakland	Van Norman Lake	139	Waterford Hill
351	Oakland	Middle Straits Lake	140	West Acres
352	Oakland	Wing Lake	141	Westwood Manor
353	Oakland	Whipple Lake	142	Whipple Shores Subdivision
354	Oakland	Maceday Lake	143	Whitfield-Maceday Association - North
355	Oakland	Maceday Lake	144	Whitfield-Maceday Association - South
356	Oakland	Watkins Lake	145	Whitney Street
357	Oakland	Cass Lake	146	Willow Beach Subdivision
358	Oakland	Wing Lake	147	Wing Lake Farms Association
359	Oakland	Wing Lake	148	Wing Lake Property Owners Association
360	Oakland	Woodhull Lake	149	Woodhull Lake Civic Association
35	Ogemaw	Hardwood Lake	1	Hardwood Lake
362	Ogemaw	Lake George	2	Lake George Campground
363	Ogemaw	Devoe Lake	3	Rifle River Recreation Area
364	Ogemaw	Grousehaven Lake	4	Rifle River Recreation Area Day Use Area
36	Osceola	Center Lake	1	Center Lake Bible Camp
366	Osceola	Center Lake	2	Center Lake Park
367	Osceola	Muskegon River	3	City of Evert Campground
368	Osceola	Big Lake	4	Crittenden Park
369	Osceola	Diamond Lake	5	Diamond Lake
370	Osceola	Diamond Lake	6	DNR Access Diamond Lake
371	Osceola	Hicks Lake	7	DNR Access Hicks Lake
372	Osceola	McCoy Lake	8	DNR Access McCoy Lake
373	Osceola	Todd Lake	9	DNR Access Todd Lake

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
374	Osceola	Wells Lake	10	DNR Access Wells Lake
375	Osceola	Muskegon River	11	Hersey Road Access
376	Osceola	Center Lake	12	Kettunen Center
377	Osceola	Rose Lake	13	Rose Lake County Park
378	Osceola	Rose Lake	14	Rose Lake Youth Camp
379	Osceola	Sunrise Lake	15	Sunrise Lake Park
37	380	Oscoda	Mio Pond	1 Mio Pond Campground
38	381	Otsego	Otsego Lake	1 Arbutus Beach
	382	Otsego	Otsego Lake	2 Arbutus Beach
	383	Otsego	Bear Lake	3 Bear Lake State Forest Campground
	384	Otsego	Big lake	4 Big Lake
	385	Otsego	Otsego Lake	5 Otsego County Park
	386	Otsego	Otsego Lake	6 Otsego Lake State Park North
	387	Otsego	Otsego Lake	7 Otsego State Park
	388	Otsego	Pickeral Lake	8 Pickeral Lake State Forest Campground
	389	Otsego	Otsego Lake	9 WahWahSoo Beach
39	390	Ottawa	Lake Macatawa	1 Fallen Leaf Park
	391	Ottawa	Spring Lake	2 Lakeside Beach
	392	Ottawa	Pottawattamie Bayou	3 Pottawattamie Park
40	393	Presque Isle	Grand Lake	1 Grand Lake Northwest
	394	Presque Isle	Grand Lake	2 Grand Lake Public Access
	395	Presque Isle	Lake May	3 Lake May Public Access
	396	Presque Isle	Ocquoec River	4 Millersburg Park
	397	Presque Isle	Ocquoec River	5 Ocquoec Falls Park
	398	Presque Isle	Black Lake	6 Onaway State Park
	399	Presque Isle	Shoepac Lake	7 Shoepac Lake Camp Ground
	400	Presque Isle	Sunken Lake	8 Sunken Lake County Park
	401	Presque Isle	Tomahawk Lake	9 Tomahawk Lake Camp Ground
41	402	Roscommon	Backus Pond	1 Backus Township. Park
	403	Roscommon	Bambi Lake/Sinkhole Lake	2 Bambi Lake Camp
	404	Roscommon	Higgins Lake	3 Beaver Creek Road End
	405	Roscommon	Owens Lake	4 Camp Co-Be-Ac
	406	Roscommon	Higgins Lake	5 DNR Public Fishing Site
	407	Roscommon	Higgins Lake	6 Gerrish Township Park
	408	Roscommon	Higgins Lake	7 Higgins Lake Public Fishing Site
	409	Roscommon	Houghton Lake	8 Houghton Lake DNR Boat Launch and Park
	410	Roscommon	Houghton Lake	9 Houghton Lake Public Fishing Site
	411	Roscommon	Houghton Lake	10 Houghton Lake State Forest Campground
	412	Roscommon	Higgins Lake	11 Kelly Beach
	413	Roscommon	Houghton Lake	12 Old 27 DNR Access
	414	Roscommon	Higgins Lake	13 Phoenix Park
	415	Roscommon	Higgins Lake	14 Sam-O-Set Road End
42	416	Saginaw	Haithco Lake	1 Haithco Recreation Area
	417	Saginaw	Lake of Dreams	2 Lake of Dreams Campground

Appendix D.2. Inland Beaches Not Monitored.

	County	Water Body		Location
43 418	St. Joseph	Cade Lake	1	Cade Lake Beach
419	St. Joseph	Sand Lake	2	Nottawa Park
420	St. Joseph	Palmer Lake	3	Palmer Lake Beach
44 421	Tuscola	Murphy Lake	1	Murphy Lake

Appendix E.1. Great Lakes Beaches Monitored.

	County	Water Body		Location
1	Alcona	Lake Huron	1	Black River Public Access
	Alcona	Lake Huron	2	Greenbush Township
	Alcona	Lake Huron	3	Harrisville State Park
	Alcona	Lake Huron	4	Negwegon State Park
	Alcona	Lake Huron	5	Point Rd. Beach
	Alcona	Lake Huron	6	Trask Lake Road Beach
2	Alger	Lake Superior	1	Au Train Beach
	Alger	Lake Superior	2	Bay Furnace Recreation Area Beach
3	Allegan	Lake Michigan	1	Douglas Beach
	Allegan	Lake Michigan	2	Laketown Township Park
	Allegan	Lake Michigan	3	Oval Beach
	Allegan	Lake Michigan	4	Pier Cove Beach
	Allegan	Lake Michigan	5	Saugatuck Dunes State Park Shoreline Beach
	Allegan	Lake Michigan	6	West Side County Park Beach
4	Alpena	Lake Huron	1	Blair Street Park
	Alpena	Lake Huron	2	Michekewis Beach
	Alpena	Lake Huron	3	Ossineke Beach
	Alpena	Lake Huron	4	Starlite Beach
	Alpena	Lake Huron	5	Thompson Park
5	Antrim	Lake Michigan	1	Antrim County Day Park North
	Antrim	Lake Michigan	2	Antrim County Day Park South
	Antrim	Lake Michigan	3	Banks Township. Park
	Antrim	Lake Michigan	4	Barnes Park
	Antrim	Lake Michigan	5	Elk Rapids
	Antrim	Lake Michigan	6	Veterans Memorial Park
6	Arenac	Saginaw Bay-Lake Huron	1	16th Street Beach
	Arenac	Saginaw Bay-Lake Huron	2	28th Street Beach
	Arenac	Saginaw Bay-Lake Huron	3	Arenac County Park
	Arenac	Saginaw Bay-Lake Huron	4	Bessinger Road Beach
	Arenac	Saginaw Bay-Lake Huron	5	Cemetery Beach
	Arenac	Saginaw Bay-Lake Huron	6	Dyer Road Beach
	Arenac	Saginaw Bay-Lake Huron	7	Foster Road Beach
	Arenac	Saginaw Bay-Lake Huron	8	Hammel Beach Road Access
	Arenac	Saginaw Bay-Lake Huron	9	Singing Bridge Beach
	Arenac	Saginaw Bay-Lake Huron	10	Twining Road Beach
	Arenac	Saginaw Bay-Lake Huron	11	Whites Beach
	Arenac	Lake Huron	12	Whites Beach- Isle Rd Ramp
Arenac	Lake Huron	13	Whites Beach- Point Rd Culvert	

Appendix E.1. Great Lakes Beaches Monitored.

	County	Water Body		Location
39	Arenac	Lake Huron	14	Whites Beach- Wenonah Rd- West Ramp
<u>7</u>	<u>Baraga</u>	Keweenaw Bay / Lake Superior	1	L'Anse Waterfront Park
<u>8</u>	<u>Bay</u>	Saginaw Bay-Lake Huron	1	Bay City State Recreation Area
42	Bay	Saginaw Bay-Lake Huron	2	Brissette Beach Township Park
43	Bay	Saginaw Bay-Lake Huron	3	Pinconning Park
44	Bay	Saginaw Bay-Lake Huron	4	South Linwood Beach Township Park
45	Bay	Saginaw Bay-Lake Huron	5	Wenona Beach
<u>9</u>	<u>Benzie</u>	Lake Michigan	1	Frankfort: Anchor Road Beach
47	Benzie	Lake Michigan	2	Sleeping Bear Dunes-Esch Road Beach
48	Benzie	Lake Michigan	3	Sleeping Bear Dunes-Peterson Road Beach
49	Benzie	Lake Michigan	4	Sleeping Bear Dunes-Platte Point Bay
50	Benzie	Platte River	5	Sleeping Bear Dunes-Platte River Outlet
<u>10</u>	<u>Berrien</u>	Lake Michigan	1	Cherry Beach
52	Berrien	Lake Michigan	2	Grand Beach
53	Berrien	Lake Michigan	3	Hagar Township Park
54	Berrien	Lake Michigan	4	Harbert Beach
55	Berrien	Lake Michigan	5	Jean Klock Park
56	Berrien	Lake Michigan	6	Lincoln Township Park
57	Berrien	Lake Michigan	7	Lions Park
58	Berrien	Lake Michigan	8	Michiana Village
59	Berrien	Lake Michigan	9	New Buffalo City
60	Berrien	Lake Michigan	10	Rocky Gap
61	Berrien	Lake Michigan	11	Silver Beach
62	Berrien	Lake Michigan	12	Tiscornia Park
63	Berrien	Lake Michigan	13	Union Pier- Townline Rd
64	Berrien	Lake Michigan	14	Warren Dunes Beach
65	Berrien	Lake Michigan	15	Weko Beach
<u>11</u>	<u>Charlevoix</u>	Lake Charlevoix	1	Depot Beach
67	Charlevoix	Lake Charlevoix	2	East Jordan Tourist Park
68	Charlevoix	Lake Charlevoix	3	Elm Point Beach
69	Charlevoix	Lake Charlevoix	4	Ferry Beach
70	Charlevoix	Lake Michigan	5	Fisherman's Island State Park
71	Charlevoix	Lake Charlevoix	6	Glenwood Beach
72	Charlevoix	Lake Charlevoix	7	Hayes Township Park
73	Charlevoix	Lake Michigan	8	Lake Michigan Beach
74	Charlevoix	Lake Michigan	9	Michigan Avenue
75	Charlevoix	Lake Michigan	10	Norwood Township Park
76	Charlevoix	Lake Charlevoix	11	Peninsula Beach

Appendix E.1. Great Lakes Beaches Monitored.

	County	Water Body		Location
77	Charlevoix	Lake Charlevoix	12	Tannery Park
78	Charlevoix	Lake Charlevoix	13	Washington Street Beach
79	Charlevoix	Lake Charlevoix	14	Whiting Park Beach
80	Charlevoix	Lake Charlevoix	15	Young State Park Beach
12	<u>Cheboygan</u>	Lake Huron	1	Cheboygan City Park
82	Cheboygan	Lake Huron	2	Cheboygan State Park Duncan Bay
83	Cheboygan	Lake Huron	3	Mackinaw City Lighthouse Park
84	Cheboygan	Lake Huron	4	Wawatam City Park
13	<u>Chippewa</u>	Lake Superior	1	Back Bay Boat Launch
86	Chippewa	Lake Superior	2	Bayview Campground
87	Chippewa	Lake Superior	3	Big Pines Day Use Area
88	Chippewa	Lake Huron	4	Big Shoal Cove
89	Chippewa	Lake Superior	5	Brimley State Park
90	Chippewa	Lake Huron	6	Detour Albany Beach
91	Chippewa	Lake Huron	7	Drummond Island Township Park
92	Chippewa	St. Mary's River	8	Dunbar Park
93	Chippewa	St. Mary's River	9	Four Mile Beach
94	Chippewa	Lake Superior	10	Pendills Beach
95	Chippewa	Lake Superior	11	Sherman Park
96	Chippewa	St. Mary's River	12	Sugar Island Township Park
97	Chippewa	Lake Superior	13	Superior Township Park
14	<u>Delta</u>	Lake Michigan	1	Escanaba Bathing Beach
99	Delta	Lake Michigan	2	Gladstone Bathing Beach/Van Cleve Park
15	<u>Emmet</u>	Lake Michigan	1	Cross Village Beach
101	Emmet	Lake Michigan	2	Mackinaw City Beach #1
102	Emmet	Lake Michigan	3	Mackinaw City Beach #2
103	Emmet	Lake Michigan	4	Magnus Park
104	Emmet	Lake Michigan	5	Middle Village Park
105	Emmet	Lake Michigan	6	Petoskey State Park
106	Emmet	Lake Michigan	7	Readmond Township Beach
107	Emmet	Lake Michigan	8	Sturgeon Bay Township Beach
108	Emmet	Lake Michigan	9	Wilderness State Park
109	Emmet	Lake Michigan	10	Zoll Street Beach
110	Emmet	Lake Michigan	11	Zorn Park - Harbor Springs
16	<u>Grand Traverse</u>	Grand Traverse Bay-West	1	Bryant Park Beach
112	Grand Traverse	Grand Traverse Bay-West	2	Clinch Park
113	Grand Traverse	Grand Traverse Bay-East	3	East Bay Park (Milliken Park)
114	Grand Traverse	Grand Traverse Bay-East	4	Traverse City State Park

Appendix E.1. Great Lakes Beaches Monitored.

	County	Water Body		Location
115	Grand Traverse	Grand Traverse Bay-West	5	West End Beach
17	<u>Houghton</u>	Lake Superior	1	Agate Beach
117	Houghton	Lake Superior	2	Chassell Beach
118	Houghton	Portage Canal / Lake Superior	3	Hancock City Beach
119	Houghton	Portage Canal / Lake Superior	4	Houghton City Beach
120	Houghton	Lake Superior	5	Hubbell Park
121	Houghton	Lake Superior	6	Lake Linden Campground Beach
122	Houghton	Lake Superior	7	McLain State Park Beach
123	Houghton	Portage Canal / Lake Superior	8	Sandy Bottom Beach/ Dollar Bay
18	<u>Huron</u>	Lake Huron	1	Bird Creek County Park
125	Huron	Lake Huron	2	Caseville County Park
126	Huron	Lake Huron	3	Harbor Beach City Park
127	Huron	Lake Huron	4	Jenks County Park
128	Huron	Lake Huron	5	Lighthouse County Park
129	Huron	Lake Huron	6	McGraw County Park
130	Huron	Lake Huron	7	Oak Beach County Park
131	Huron	Lake Huron	8	Philp County Park
132	Huron	Lake Huron	9	Port Crescent State Park - Camping Area
133	Huron	Lake Huron	10	Port Crescent State Park - Day Use
134	Huron	Lake Huron	11	Sleeper State Park
135	Huron	Lake Huron	12	Thompson Park
136	Huron	Lake Huron	13	Veterans Park
19	<u>Iosco</u>	Lake Huron	1	Alabaster Township
138	Iosco	Lake Huron	2	Au Sable Township Park
139	Iosco	Lake Huron (Tawas Bay)	3	County Road End off Tawas Beach Rd.
140	Iosco	Tawas Bay	4	East Tawas City Park
141	Iosco	Lake Huron (Tawas Bay)	5	Gateway Park Beach
142	Iosco	Lake Huron	6	Interlake Road End
143	Iosco	Lake Huron	7	Lake To Lake Road
144	Iosco	Lake Huron	8	MDNR Access East Tawas
145	Iosco	Lake Huron	9	MDOT Roadside Park - Three Mile Park
146	Iosco	Lake Huron	10	Oscoda Township Beach
147	Iosco	Tawas Bay	11	Tawas City Park
148	Iosco	Lake Huron	12	Tawas Point State Park Campground
149	Iosco	Lake Huron	13	Tawas Point State Park-Day Use area
20	<u>Keweenaw</u>	Lake Superior	1	Eagle Harbor Beach
21	<u>Leelanau</u>	Grand Traverse Bay-West	1	Elmwood/Greiliville Park & Beach
152	Leelanau	Lake Michigan	2	Empire Municipal Beach

Appendix E.1. Great Lakes Beaches Monitored.

	County	Water Body		Location
153	Leelanau	Grand Traverse Bay-West	3	Northport Bay Marina
154	Leelanau	Lake Michigan	4	Sleeping Bear Dunes- CR 669 Good Harbor Bay
155	Leelanau	Lake Michigan	5	Sleeping Bear Dunes- Shalda Creek
156	Leelanau	Lake Michigan	6	Sleeping Bear Dunes-CR 651 Good Harbor Bay
157	Leelanau	Lake Michigan	7	Sleeping Bear Dunes-DH Day Campground
158	Leelanau	Lake Michigan	8	Sleeping Bear Dunes-Glen Haven Beach
159	Leelanau	Lake Michigan	9	Sleeping Bear Dunes-North Bar Lake MI Beach
160	Leelanau	Grand Traverse Bay-West	10	Suttons Bay Marina Park & Beach South
161	Leelanau	Grand Traverse Bay-West	11	Suttons Bay Park
22	Mackinac	Lake Huron	1	American Legion Memorial Park
163	Mackinac	Lake Huron	2	Kiwanis Beach
164	Mackinac	Lake Michigan	3	Lake Michigan US-2 Campground Beach
165	Mackinac	Lake Michigan	4	Sand Point
166	Mackinac	Lake Huron	5	Straits State Park
167	Mackinac	Lake Michigan	6	US 2 Sand Dunes Beach (East of Brevort)
23	Macomb	Lake St. Clair	1	H.C.M.A. - Metropolitan Beach Metropark
169	Macomb	Lake St. Clair	2	New Baltimore Park Beach
170	Macomb	Lake St. Clair	3	St. Clair Shores Blossom Heath Beach
171	Macomb	Lake St. Clair	4	St. Clair Shores Memorial Park Beach
24	Manistee	Lake Michigan	1	Arcadia Park
173	Manistee	Lake Michigan	2	Bar Lake Outlet
174	Manistee	Lake Michigan	3	Fifth Avenue Beach
175	Manistee	Lake Michigan	4	First Street Beach
176	Manistee	Lake Michigan	5	Magoon Creek
177	Manistee	Lake Michigan	6	Onekama Township Beach
178	Manistee	Lake Michigan	7	Orchard Beach State Park
179	Manistee	Lake Michigan	8	Pierport Township Beach
180	Manistee	Lake Michigan	9	Sundling Park
25	Marquette	Lake Superior	1	Marquette South Beach
182	Marquette	Lake Superior	2	McCarty's Cove
183	Marquette	Lake Superior	3	North Beach
184	Marquette	Lake Superior	4	North of Picnic Rocks
185	Marquette	Lake Superior	5	Shiras Park Beach
26	Mason	Lake Michigan	1	Bass Lake Outlet Beach
187	Mason	Lake Michigan	2	Buttersville Park Beach
188	Mason	Lake Michigan	3	Ludington State Park Campground Beach
189	Mason	Lake Michigan	4	South Pier Beach
190	Mason	Lake Michigan	5	South Summit Beach - Sunset Boulevard Beach

Appendix E.1. Great Lakes Beaches Monitored.

	County	Water Body		Location
191	Mason	Lake Michigan	6	Stearns Park Beach
192	Mason	Lake Michigan	7	Summit Township Beach
27	Menominee	Lake Michigan	1	Henes Park
194	Menominee	Lake Michigan	2	Memorial Beach
28	Monroe	Lake Erie	1	Estral Beach
196	Monroe	Lake Erie	2	Luna Pier City Beach
197	Monroe	Lake Erie	3	Sterling State Park
198	Monroe	Lake Erie	4	Woodland Beach
29	Muskegon	Lake Michigan	1	Bronson/Kruse Park
200	Muskegon	Lake Michigan	2	Duck Lake Channel Beach
201	Muskegon	Lake Michigan	3	Lake Harbor Park
202	Muskegon	Lake Michigan	4	Lighthouse/Sylvan Beach
203	Muskegon	Lake Michigan	5	Medbury Park Beach
204	Muskegon	Lake Michigan	6	Meinert County Park
205	Muskegon	Lake Michigan	7	Muskegon State Park
206	Muskegon	Lake Michigan	8	Muskegon State Park-Shoreline Beach North
207	Muskegon	Lake Michigan	9	Old Channel Beach
208	Muskegon	Lake Michigan	10	P.J. Hoffmaster State Park - Campground
209	Muskegon	Lake Michigan	11	P.J. Hoffmaster State Park - Public Beach Area
210	Muskegon	Lake Michigan	12	Pere Marquette Park
211	Muskegon	Lake Michigan	13	Pioneer County Park
212	Muskegon	Lake Michigan	14	Private Shoreline Beach-S. of Lake Harbor Park
30	Oceana	Lake Michigan	1	Claybanks Township Park
214	Oceana	Lake Michigan	2	Lighthouse Beach at Silver Lake State Park
215	Oceana	Lake Michigan	3	Mears State Park
216	Oceana	Stony Lake and Lake Michigan	4	Stony Lake Channel
217	Oceana	Lake Michigan	5	Whiskey Creek
31	Ontonagon	Lake Superior	1	Ontonagon Township Park and Campground
219	Ontonagon	Lake Superior	2	Porcupine Mountains State Park- Union Bay
32	Ottawa	Lake Michigan	1	Grand Haven City Beach
221	Ottawa	Lake Michigan	2	Grand Haven State Park
222	Ottawa	Lake Michigan	3	Holland State Park
223	Ottawa	Lake Michigan	4	Kirk Park
224	Ottawa	Lake Michigan	5	Kouw Park
225	Ottawa	Lake Michigan	6	North Beach Park
226	Ottawa	Lake Michigan	7	Rosy Mound Recreation Area
227	Ottawa	Lake Michigan	8	Tunnel Park

Appendix E.1. Great Lakes Beaches Monitored.

	County	Water Body		Location
228	Ottawa	Lake Michigan	9	Windsnest Park
33	<u>Presque Isle</u>	Lake Huron	1	Hoelt State Park-North
229	Presque Isle	Lake Huron	2	Lakeside Park in Rogers City
230	Presque Isle	Lake Huron	3	Presque Isle Harbor Beach
231				
34	<u>Sanilac</u>	Lake Huron	1	Forester County Park
232	Sanilac	Lake Huron	2	Forester Creek
233	Sanilac	Lake Huron	3	Forestville Beach
234	Sanilac	Lake Huron	4	Lexington Beach
235	Sanilac	Lake Huron	5	Lexington County Park
236	Sanilac	Lake Huron	6	Port Sanilac Park
237				
35	<u>Schoolcraft</u>	Lake Michigan	1	Manistique Township Park
238	Schoolcraft	Lake Michigan	2	Public Shoreline Beach-Thompson
239	Schoolcraft	Lake Michigan	3	Roadside Park Beach
240	Schoolcraft	Lake Michigan	4	Rogers Park-MDOT
241				
36	<u>St. Clair</u>	Lake Huron	1	Burtchville Township Park
242	St. Clair	St. Clair River	2	Chrysler Park Beach
243	St. Clair	Lake Huron	3	Conger-Lighthouse Beach
244	St. Clair	Lake Huron	4	Fort Gratiot County Park
245	St. Clair	Lake Huron	5	Holland Road Beach
246	St. Clair	Lake Huron	6	Jeddo Road Beach
247	St. Clair	Lake Huron	7	Keewadhin Road Beach
248	St. Clair	Lake Huron	8	Krafft Road Beach
249	St. Clair	Lake Huron	9	Lakeport State Campground
250	St. Clair	Lake Huron	10	Lakeport State Park
251	St. Clair	Lake Huron	11	Lakeside Beach
252	St. Clair	St. Clair River	12	Marine City Beach
253	St. Clair	St. Clair River	13	Marine City Diving Area
254	St. Clair	Lake Huron	14	Metcalf Road Beach
255	St. Clair	Lake Huron	15	Washington Street Park
256				
37	<u>Van Buren</u>	Lake Michigan	1	Covert Township Park Beach
257	Van Buren	Lake Michigan	2	South Haven North Beach
258	Van Buren	Lake Michigan	3	South Haven South Beach
259	Van Buren	Lake Michigan	4	Van Buren State Park Beach
260				
38	<u>Wayne</u>	Detroit River	1	Belle Isle Beach
261	Wayne	Lake St. Clair	2	Pier Park
262				

Appendix E.2. Great Lakes Beaches not Monitored.

	County	Water Body		Location
1	1 Alcona	Lake Huron	1	Harrisville Public Access
	2 Alcona	Lake Huron	2	Public Shoreline Beach-Huron National Forest North
	3 Alcona	Lake Huron	3	Public Shoreline Beach-Huron National Forest South
2	4 Alger	Lake Superior	1	Christmas Beach
	5 Alger	Lake Superior	2	Grand Marais Harbor Beach
	6 Alger	Lake Superior	3	Grand Marais Township Beach
	7 Alger	Lake Superior	4	Hurricane Campground Beach
	8 Alger	Lake Superior	5	Miners Beach
	9 Alger	Lake Superior	6	Munising Beach
	10 Alger	Lake Superior	7	Public Shoreline Beach-Au Train Bay
	11 Alger	Lake Superior	8	Public Shoreline Beach-Au Train to Five Mile Pts
	12 Alger	Lake Superior	9	Public Shoreline Beach-East County Border area
	13 Alger	Lake Superior	10	Public Shoreline Beach-Grand Sable Dunes
	14 Alger	Lake Superior	11	Public Shoreline-Grand Portal Point
	15 Alger	Lake Superior	12	Public Shoreline-Sand Point to Miners Castle Point
	16 Alger	Lake Superior	13	Rathfoot Park Beach
	17 Alger	Lake Superior	14	Roadside Park
	18 Alger	Lake Superior	15	Sand Point
	19 Alger	Lake Superior	16	Twelve-Mile Beach
3	20 Alpena	Lake Huron	1	Bay View Park
	21 Alpena	Lake Huron	2	Elcajon Bay
	22 Alpena	Lake Huron	3	Issineke Hardwood Point
	23 Alpena	Lake Huron	4	Negwegon State Park-Ossineke South Point
	24 Alpena	Lake Huron	5	Ossineke Campground
	25 Alpena	Lake Huron	6	Ossineke State Park
	26 Alpena	Lake Huron	7	Partridge Point
	27 Alpena	Lake Huron	8	Rock Port Beach
	28 Alpena	Lake Huron	9	Whitefish Bay
4	29 Antrim	Lake Michigan	1	Antrim Creek Natural Area
	30 Antrim	Lake Michigan	2	Elk Rapids Park
	31 Antrim	Lake Michigan	3	Erickson Road
	32 Antrim	Lake Michigan	4	Lore Road End Beach
	33 Antrim	Lake Michigan	5	Michigan Trail
	34 Antrim	Lake Michigan	6	Nature Preserve
	35 Antrim	Lake Michigan	7	North Bay Shore (Conservancy)
	36 Antrim	Lake Michigan	8	O'Dell Road
	37 Antrim	Grand Traverse Bay-	9	Petobego Pond Area
	38 Antrim	Lake Michigan	10	Road Crossing near Winters Road
5	39 Arenac	Saginaw Bay Inner-	1	Au Sable State Forest- Greens Point
	40 Arenac	Inner Saginaw Bay	2	Augres Township Park Beach
	41 Arenac	Inner Saginaw Bay	3	Booth Road Beach
	42 Arenac	Inner Saginaw Bay	4	Gordon Road Beach
	43 Arenac	Saginaw Bay-Lake	5	Pump Station
	44 Arenac	Inner Saginaw Bay	6	Terrace Road
6	45 Baraga	Huron Bay / Lake	1	Arvon Township Park
	46 Baraga	Keweenaw Bay / Lake	2	Baraga State Park

Appendix E.2. Great Lakes Beaches not Monitored.

	County	Water Body		Location
47	Baraga	Keweenaw Bay / Lake	3	First Sand Beach
48	Baraga	Lake Superior	4	Keweenaw Bay Village Public Roadside Park
49	Baraga	Keweenaw Bay / Lake	5	L'Anse Township Park
50	Baraga	Lake Superior	6	Mouth of the Huron River
51	Baraga	Lake Superior	7	Public Shoreline Beach-Cooper Country Huron Bay
52	Baraga	Lake Superior	8	Public Shoreline Beach-Northwest Abbaye Peninsula
53	Baraga	Lake Superior	9	Public Shoreline Beach-Point Abbaye
54	Baraga	Lake Superior	10	Public Shoreline Beach-Sand Point
55	Baraga	Keweenaw Bay / Lake	11	Second Sands Beach
7	Bay	Saginaw Bay	1	Nayanquing Point Wildlife Area
8	Benzie	Lake Michigan	1	Alberta Village Beach & Bluffs
58	Benzie	Lake Michigan	2	County Road # 669
59	Benzie	Lake Michigan	3	Esch Road/Otter Creek
60	Benzie	Lake Michigan	4	Platte River Point
61	Benzie	Lake Michigan	5	Point Betsie Lighthouse Beach
62	Benzie	Lake Michigan	6	Zettenberg Preserve
9	Berrien	Lake Michigan	1	Galien River Park
64	Berrien	Lake Michigan	2	Gordon Beach
65	Berrien	Lake Michigan	3	Grand Mere State Park- Rosemary Beach
66	Berrien	Lake Michigan	4	Grand Mere State Park- Shoreline Beach
67	Berrien	Lake Michigan	5	Grand Mere State Park- Waverland Beach
68	Berrien	Lake Michigan	6	Mizpah Park
69	Berrien	Lake Michigan	7	Warren Dunes State Park North
10	Charlevoix	Lake Michigan	1	Bill Wagner Memorial Campground Beach
71	Charlevoix	Lake Michigan	2	Cables Bay Beach
72	Charlevoix	Lake Michigan	3	Donegal Bay
73	Charlevoix	Lake Michigan	4	Harbor Beach
74	Charlevoix	Lake Michigan	5	Iron Ore Bay Beach
75	Charlevoix	Lake Michigan	6	Mt. McSauba Beach
11	Cheboygan	Lake Huron	1	Alexander Henry Park
77	Cheboygan	Lake Huron	2	Cheboygen State Park- Lighthouse Point
78	Cheboygan	Lake Huron	3	Ditta Park
79	Cheboygan	Lake Huron	4	Huron Street Beach
80	Cheboygan	Lake Huron	5	Mackinaw City Beach
81	Cheboygan	Lake Huron	6	Mill Creek Public Access
82	Cheboygan	Lake Huron	7	Pinewood Circle Road End Beach
83	Cheboygan	Lake Huron	8	Roadside Park MDOT, US-23
84	Cheboygan	Lake Huron	9	Stoney Point Road End Beach
12	Chippewa	Lake Huron	1	Bass Cove Beach-Drummond Island
86	Chippewa	Lake Huron	2	Betsey Seaman Memorial Park-Drummond Island
87	Chippewa	Lake Huron	3	De Tour State Park Shoreline Beach
88	Chippewa	Lake Superior	4	Hiawatha National Forest- Nodoway Point Area
89	Chippewa	Lake Superior	5	Hiawatha National Forest- North of Big Pine Picnic
90	Chippewa	St. Mary's River	6	Hiawatha National Forest- North Pond
91	Chippewa	Lake Superior	7	Hiawatha National Forest- Pendills Bay

Appendix E.2. Great Lakes Beaches not Monitored.

	County	Water Body		Location
92	Chippewa	Lake Superior	8	Hiawatha National Forest- Pendills Lake
93	Chippewa	Lake Superior	9	Hiawatha National Forest- Point Iroquois Light
94	Chippewa	Lake Superior	10	Hiawatha National Forest- Tahquamenon Bay
95	Chippewa	St. Mary's River	11	Hiawatha National Forest- Waiska Bay
96	Chippewa	Lake Superior	12	Hiawatha National Forest- West of Salt Point
97	Chippewa	St. Mary's River	13	Lake Superior State Forest- Munuscong Lake
98	Chippewa	Lake Superior	14	Public Shoreline Beach-Browns Creek Area
99	Chippewa	St. Mary's River	15	Public Shoreline Beach-Brush Point
100	Chippewa	Lake Superior	16	Public Shoreline Beach-Marsh Lake Area
101	Chippewa	Lake Superior	17	Public Shoreline Beach-Northwest of Two Mile Lake
102	Chippewa	St. Mary's River	18	Public Shoreline Beach-Point Aux Frenes
103	Chippewa	St. Mary's River	19	Public Shoreline Beach-Raber Bay stretch
104	Chippewa	Lake Superior	20	Public Shoreline Beach-Weatherhog Lake East Area
105	Chippewa	Lake Superior	21	Public Shoreline Beach-Weatherhog Lake West
106	Chippewa	Lake Superior	22	Public Shoreline Beach-West of Whitefish Point
107	Chippewa	Lake Huron	23	Sand Bay Beach-Drummond Island
108	Chippewa	Lake Superior	24	Tahquamenon Falls State Park-River Mouth Unit
109	Chippewa	St. Mary's River	25	Wilderness Beach
13	Delta	Lake Michigan	1	Big Bay De Noc/ Fishdam River Public Access
111	Delta	Lake Michigan	2	Fayette State Park
112	Delta	Lake Michigan	3	Fuller Park
113	Delta	Lake Michigan	4	Little Bay De Noc Public Beach Access
114	Delta	Lake Michigan	5	Portage Bay Forest Campground
115	Delta	Lake Michigan	6	Public Shoreline Beach-Charboneau Point
116	Delta	Lake Michigan	7	Public Shoreline Beach-County Road 481
117	Delta	Lake Michigan	8	Public Shoreline Beach-East Wilsey Bay
118	Delta	Lake Michigan	9	Public Shoreline Beach-Fishdam River
119	Delta	Lake Michigan	10	Public Shoreline Beach-Gilnet Haven
120	Delta	Lake Michigan	11	Public Shoreline Beach-Indian Point
121	Delta	Lake Michigan	12	Public Shoreline Beach-Indian Town Lake USFS
122	Delta	Lake Michigan	13	Public Shoreline Beach-Jacks Bluff
123	Delta	Lake Michigan	14	Public Shoreline Beach-Martin Bay
124	Delta	Lake Michigan	15	Public Shoreline Beach-Nahma
125	Delta	Lake Michigan	16	Public Shoreline Beach-North End of Kregg Bay
126	Delta	Lake Michigan	17	Public Shoreline Beach-North of Stonington
127	Delta	Lake Michigan	18	Public Shoreline Beach-Ogontz Bay
128	Delta	Lake Michigan	19	Public Shoreline Beach-Peninsula Point
129	Delta	Lake Michigan	20	Public Shoreline Beach-Point Detour
130	Delta	Lake Michigan	21	Public Shoreline Beach-Portage Bay
131	Delta	Lake Michigan	22	Public Shoreline Beach-Portage Peninsula
132	Delta	Lake Michigan	23	Public Shoreline Beach-St. Vital's Island
133	Delta	Lake Michigan	24	Public Shoreline Beach-USFS West Wilsey Bay
134	Delta	Lake Michigan	25	Public Shoreline Beach-West Side of Kregg Bay
135	Delta	Lake Michigan	26	Sac Bay County Park
136	Delta	Lake Michigan	27	Sac Bay County Park
137	Delta	Lake Michigan	28	Twin Springs Campground and Bathing Beach
14	Emmet	Lake Michigan	1	Bliss Township Beach
139	Emmet	Lake Michigan	2	Church Beach
140	Emmet	Lake Michigan	3	Colonial Michilimackinac State Park

Appendix E.2. Great Lakes Beaches not Monitored.

	County	Water Body		Location
141	Emmet	Lake Michigan	4	Forest Beach
142	Emmet	Lake Michigan	5	Petoskey Harbor
143	Emmet	Lake Michigan	6	The Headlands County Park
144	Emmet	Lake Michigan	7	Thorne Swift Preserve
145	Emmet	Lake Michigan	8	Wilderness State Park-East of the Beach
146	Emmet	Lake Michigan	9	Wilderness State Park-Sturgeon Bay
147	Emmet	Lake Michigan	10	Wilderness State Park-West of Beach
15	Gogebic	Lake Superior	1	Black River Harbor Beach
149	Gogebic	Lake Superior	2	Little Girls Point Park
150	Gogebic	Lake Superior	3	Mouth of the Montreal River
151	Gogebic	Lake Superior	4	Porcupine Mountain State Park-North
152	Gogebic	Lake Superior	5	Presque Isle Beach
153	Gogebic	Lake Superior	6	Presque Isle State Campground
154	Gogebic	Lake Superior	7	Public Shoreline Beach-West of Black River
16	Grand Traverse	Grand Traverse Bay-	1	Acme Roadside Park & Beach MDOT
156	Grand Traverse	Grand Traverse Bay-	2	Acme Roadside Park (DNR)
157	Grand Traverse	Grand Traverse Bay	3	Archie Park
158	Grand Traverse	Grand Traverse Bay-	4	Bayside Acme Township Park
159	Grand Traverse	Grand Traverse Bay-	5	Bowers Harbor Public Access
160	Grand Traverse	Grand Traverse Bay-	6	Deep Water Point
161	Grand Traverse	Grand Traverse Bay-	7	DNR Launch/Beach Center Road
162	Grand Traverse	Grand Traverse Bay-	8	East Bay Township Four Mile Road
163	Grand Traverse	Grand Traverse Bay-	9	Haserot Beach
164	Grand Traverse	Grand Traverse Bay-	10	Kroupa Road Access M-22 South of Crain Hill Road
165	Grand Traverse	Grand Traverse Bay-	11	Leffingwell Point Beach
166	Grand Traverse	Grand Traverse Bay-	12	Mouth of Boardman
167	Grand Traverse	Grand Traverse Bay	13	Old Mission - Center Road Natural Area
168	Grand Traverse	Grand Traverse Bay	14	Old Mission - MDOT Right of Way-South of M-37
169	Grand Traverse	Grand Traverse Bay	15	Old Mission - Old Mission Point State Park
170	Grand Traverse	Grand Traverse Bay-	16	Old Mission Lighthouse
171	Grand Traverse	Grand Traverse Bay-	17	Old Mission Peninsula Twp Park-East of Light House
172	Grand Traverse	Grand Traverse Bay-	18	Old Mission Peninsula Twp Park-West of Light House
173	Grand Traverse	Grand Traverse Bay-	19	Old Mission Road
174	Grand Traverse	Grand Traverse Bay-	20	Peninsula Volunteer Fire Station Point #2
175	Grand Traverse	Grand Traverse Bay-	21	Power Island Bay Park
176	Grand Traverse	Grand Traverse Bay-	22	Rose Street Access at Peninsula Drive
177	Grand Traverse	Grand Traverse Bay-	23	Sayler Park
178	Grand Traverse	Grand Traverse Bay-	24	Senior Center
179	Grand Traverse	Grand Traverse Bay-	25	Sunset Park
180	Grand Traverse	Grand Traverse Bay-	26	Swaney Road
181	Grand Traverse	Grand Traverse Bay-	27	Yuba Beach
17	Houghton	Lake Superior	1	Calument Waterworks Beach
183	Houghton	Lake Superior	2	Mink Farm
184	Houghton	Lake Superior	3	Public Shoreline Beach-Le Chance Creek
185	Houghton	Lake Superior	4	Public Shoreline Beach-Mc Lain State Park
186	Houghton	Lake Superior	5	Public Shoreline Beach-S. of Portage Entry
187	Houghton	Lake Superior	6	Public Shoreline Beach-Southwest County Border
188	Houghton	Lake Superior	7	White City

Appendix E.2. Great Lakes Beaches not Monitored.

	County	Water Body		Location
18	189	Huron	Lake Huron	1 County Road End
	190	Huron	Lake Huron	2 Geiger Road Public Access
	191	Huron	Lake Huron	3 Grindstone Public Access
	192	Huron	Lake Huron	4 Harbor Beach Marina
	193	Huron	Lake Huron	5 Helena Road End
	194	Huron	Lake Huron	6 Kinch Road End
	195	Huron	Lake Huron	7 Larned Road End
	196	Huron	Lake Huron	8 Lighthouse County Park-South
	197	Huron	Lake Huron	9 Mud Creek Public Access
	198	Huron	Lake Huron	10 Stafford County Park
	199	Huron	Lake Huron	11 Wagener County Park
19	200	Iosco	Lake Huron	1 Au Sable Point Beach
	201	Iosco	Lake Huron	2 Tawas Point State Park-Central
20	202	Keweenaw	Lake Superior at Bete	1 Bete de Gris Beach
	203	Keweenaw	Lake Superior	2 Brunette Park
	204	Keweenaw	Lake Superior	3 Cat Harbor Beach
	205	Keweenaw	Lake Superior	4 Cooper Harbor Lighthouse Complex
	206	Keweenaw	Lake Superior	5 Eagle River Beach
	207	Keweenaw	Lake Superior	6 Fort Wilkins State Park
	208	Keweenaw	Lake Superior	7 Fort Wilkins State Park-East
	209	Keweenaw	Lake Superior	8 Fort Wilkins State Park-West
	210	Keweenaw	Lake Superior	9 Great Sands Bay Beach
	211	Keweenaw	Lake Superior	10 Mouth of the Gratiot River Beach
	212	Keweenaw	Lake Superior	11 Point Isabelle Beach
	213	Keweenaw	Lake Superior	12 Public Shoreline Beach-Big Traverse Bay
	214	Keweenaw	Lake Superior	13 Public Shoreline Beach-Gay Park
21	215	Leelanau	Lake Michigan	1 Bay Front Park
	216	Leelanau	Grand Traverse Bay	2 Boughy Park & Beach
	217	Leelanau	Grand Traverse Bay-	3 Cathead Bay, Leelanau State Park
	218	Leelanau	Lake Michigan	4 Cedar Street Beach
	219	Leelanau	Grand Traverse Bay-	5 Christmas Cove
	220	Leelanau	Lake Michigan	6 G. Marsten Dame Marina
	221	Leelanau	Lake Michigan	7 Gils Pier
	222	Leelanau	Lake Michigan	8 Glen Arbor/Manitou Boulevard Beach
	223	Leelanau	Grand Traverse Bay-	9 Graham Green Park
	224	Leelanau	Grand Traverse Bay-	10 Hendryx County Roadside Park
	225	Leelanau	Lake Michigan	11 Lake Street Beach, Glen Arbor
	226	Leelanau	Lake Michigan	12 Leelanau State Park, Lighthouse
	227	Leelanau	Lake Michigan	13 Leland Harbor
	228	Leelanau	Grand Traverse Bay-	14 M-22 at M-72 Public Access
	229	Leelanau	Grand Traverse Bay-	15 MDOT Roadside Park & Beach
	230	Leelanau	Grand Traverse Bay-	16 MDOT Roadside Park & Beach M-22 N of Cherry Bend
	231	Leelanau	Lake Michigan	17 North Bar
	232	Leelanau	Lake Michigan	18 North Street Beach
	233	Leelanau	Grand Traverse Bay-	19 Northport 4th Street Beach
	234	Leelanau	Grand Traverse Bay-	20 Northport 5th Street Beach
	235	Leelanau	Grand Traverse Bay-	21 Northport 7th Street Beach

Appendix E.2. Great Lakes Beaches not Monitored.

	County	Water Body		Location
236	Leelanau	Grand Traverse Bay-	22	Northport Haserot Beach, Rose Street
237	Leelanau	Grand Traverse Bay-	23	Omena Beach & Park
238	Leelanau	Lake Michigan	24	Peterson Park
239	Leelanau	Lake Michigan	25	Reynolds Street Beach
240	Leelanau	Lake Michigan	26	Smith Street Beach Northport
241	Leelanau	Grand Traverse Bay-	27	Stoney Point County Roadside Park
242	Leelanau	Grand Traverse Bay-	28	Suttons Bay Public Launch and Beach
243	Leelanau	Grand Traverse Bay-	29	Suttons Bay South Shore Park
244	Leelanau	Lake Michigan	30	Thompson Stree Beach
22	Luce	Lake Superior	1	Blind Sucker River # 1
246	Luce	Lake Superior	2	Blind Sucker River # 2
247	Luce	Lake Superior	3	Crisp Point Light House
248	Luce	Lake Superior	4	Lake Superior Campground Beach
249	Luce	Lake Superior	5	Mouth of the Two Hearted River Campground
250	Luce	Muskallonge Lake	6	Muskallonge Lake SFC
251	Luce	Lake Superior	7	Public Shoreline Beach-Blind Sucker Flooding Area
252	Luce	Lake Superior	8	Public Shoreline Beach-Coast Guard Line Road
253	Luce	Lake Superior	9	Public Shoreline Beach-County Rd 407
254	Luce	Lake Superior	10	Public Shoreline Beach-County Rd 412 and Crisp Pt
255	Luce	Lake Superior	11	Public Shoreline Beach-Little Sucker/Two Hearted R
256	Luce	Lake Superior	12	Public Shoreline Beach-Three Mile Creek Area
257	Luce	Lake Superior	13	Public Shoreline Beach-West County Border Beach
258	Luce	Lake Superior	14	Unnamed Road End #1
259	Luce	Lake Superior	15	Unnamed Road End #2
260	Luce	Lake Superior	16	Unnamed Road End #3
23	Mackinac	Lake Huron	1	Antoine Road End
262	Mackinac	Lake Michigan	2	Big Knob State Forest Campground
263	Mackinac	Lake Michigan	3	Black River State Forest Campground
264	Mackinac	Lake Huron	4	Boot Island
265	Mackinac	Lake Huron	5	Coast Guard Pier Boat Launch and City Park
266	Mackinac	Lake Michigan	6	Epoufette Bay Campground
267	Mackinac	Lake Huron	7	Foley Creek Campground
268	Mackinac	Lake Huron	8	Government Island-Hiawatha National Forest
269	Mackinac	Lake Huron	9	Harbour Light
270	Mackinac	Lake Huron	10	Hazelton Road End
271	Mackinac	Lake Huron	11	Hiawatha National Forest- Carp River Access
272	Mackinac	Lake Michigan	12	Hog Island Campground
273	Mackinac	Lake Huron	13	Horseshoe Bay Wilderness-North
274	Mackinac	Lake Huron	14	Horseshoe Bay Wilderness-South
275	Mackinac	Lake Michigan	15	MDOT Overlook
276	Mackinac	Lake Michigan	16	MDOT Roadside Park on US 2
277	Mackinac	Lake Michigan	17	Mouth of Cut River Roadside Beach
278	Mackinac	Lake Michigan	18	Naubinway Bay Access
279	Mackinac	Lake Michigan	19	Public Shoreline Beach-Epoufette Bay
280	Mackinac	Lake Michigan	20	Public Shoreline Beach-Fox Point Area
281	Mackinac	Lake Michigan	21	Public Shoreline Beach-Little Hog Island area
282	Mackinac	Lake Michigan	22	Public Shoreline Beach-Manitou Paymen Highbanks
283	Mackinac	Lake Michigan	23	Public Shoreline Beach-MDNR Matrix Point Area
284	Mackinac	Lake Michigan	24	Public Shoreline Beach-Morean Township, Section 25

Appendix E.2. Great Lakes Beaches not Monitored.

	County	Water Body		Location
285	Mackinac	Lake Michigan	25	Public Shoreline Beach-Naubinway Area
286	Mackinac	Lake Michigan	26	Public Shoreline Beach-Pointe Aux Chenes Bay
287	Mackinac	Lake Michigan	27	Public Shoreline Beach-Seiners Point
288	Mackinac	Lake Michigan	28	Public Shoreline Beach-South of Brevort River
289	Mackinac	Lake Michigan	29	Public Shoreline Beach-State Forest Matrix Point
290	Mackinac	Lake Michigan	30	State Roadside Park Beach
24	Manistee	Lake Michigan	1	Portage Park
25	Marquette	Lake Superior	1	Public Shoreline Beach-Big Huron River
292	Marquette	Lake Superior	2	Public Shoreline Beach-Little Presque Isle
26	Mason	Lake Michigan	1	Ludington State Park Public Shoreline Beach North
294	Mason	Lake Michigan	2	Ludington State Park Public Shoreline Beach South
295	Mason	Lake Michigan	3	Manistee National Forest Campground Beach
296	Mason	Lake Michigan	4	Manistee National Forest-Public Shoreline Beach N
297	Mason	Lake Michigan	5	Manistee National Forest-Public Shoreline Beach S
298	Mason	Lake Michigan	6	Pere Marquette Harbor
299	Mason	Lake Michigan		
27	Menominee	Lake Michigan	1	Airport Park
300	Menominee	Lake Michigan	2	Fox Park
301	Menominee	Lake Michigan	3	Klienke Park
302	Menominee	Lake Michigan	4	Public Shoreline Beach-Cedar River
303	Menominee	Lake Michigan	5	Public Shoreline Beach-Fox village
304	Menominee	Lake Michigan	6	Wells State Park
305	Menominee	Lake Michigan		
28	Oceana	Lake Michigan	1	Cedar Point County Park
306	Oceana	Silver Lake-Lake	2	Silver Creek Channel
307	Oceana	Lake Michigan	3	Silver Lake State Park
308	Oceana	Lake Michigan		
29	Ontonagon	Lake Superior	1	Green Park
309	Ontonagon	Lake Superior	2	Gull Point Beach
310	Ontonagon	Lake Superior	3	Mouth of the Big Iron River Beach
311	Ontonagon	Lake Superior	4	Porcupine Mountain State Park
312	Ontonagon	Lake Superior	5	Porcupine Mountains Wilderness State Park-West
313	Ontonagon	Lake Superior	6	Public Shoreline Beach-Misery Bay
314	Ontonagon	Lake Superior	7	Public Shoreline Beach-Sleeping Bay
315	Ontonagon	Lake Superior	8	Public Shoreline Beach-Wolf Point
316	Ontonagon	Lake Superior	9	Union Bay Beach
317	Ontonagon	Lake Superior		
30	Ottawa	Lake Michigan	1	Mountain Beach
318	Ottawa	Lake Michigan	2	P.J. Hoffmaster State Park- Shoreline Beach
319	Ottawa	Lake Michigan		
31	Presque Isle	Lake Huron	1	40 Mile Point Park
320	Presque Isle	Lake Huron	2	Ball Diamond Park
321	Presque Isle	Lake Huron	3	Bell Bay
322	Presque Isle	Lake Huron	4	Evergreen Beach
323	Presque Isle	Lake Huron	5	Golden Beach
324	Presque Isle	Lake Huron	6	Grace Access Site
325	Presque Isle	Lake Huron	7	Hammond Bay Access Site
326	Presque Isle	Lake Huron	8	Hammond Bay Harbor
327	Presque Isle	Lake Huron		

Appendix E.2. Great Lakes Beaches not Monitored.

	County	Water Body		Location
328	Presque Isle	Lake Huron	9	Hoefft State Park-South
329	Presque Isle	Lake Huron	10	Lakeside Park Beach
330	Presque Isle	Lake Huron	11	Lakeview Park Beach
331	Presque Isle	Lake Huron	12	Manitou Beach
332	Presque Isle	Lake Huron	13	New Lighthouse Park
333	Presque Isle	Lake Huron	14	Presque Isle Harbor
334	Presque Isle	Lake Huron	15	Public Shoreline Beach-False Presque Isle Harbor
335	Presque Isle	Lake Huron	16	Seagull Point Park
336	Presque Isle	Lake Huron	17	Thompson's Harbor State Park
337	Presque Isle	Lake Huron	18	US 23 Hammond Bay
338	Presque Isle	Lake Huron	19	US 23 Roger City
32	Sanilac	Lake Huron	1	Birch Beach
340	Sanilac	Lake Huron	2	Birch Beach Middle #2
341	Sanilac	Lake Huron	3	Birch Beach North #3
342	Sanilac	Lake Huron	4	Delaware Park
343	Sanilac	Lake Huron	5	Great Lakes Beach
344	Sanilac	Lake Huron	6	Sanilac County Park #4
345	Sanilac	Lake Huron	7	Sanilac County Roadside Park #1
33	Schoolcraft	Lake Michigan	1	Doyle Township Access
347	Schoolcraft	Lake Michigan	2	Goudreau's Harbor Seul Choix Point-Boat Landing
348	Schoolcraft	Lake Michigan	3	Lakeview Park
349	Schoolcraft	Lake Michigan	4	Public Shoreline Beach-S. of McDonald Lake
350	Schoolcraft	Lake Michigan	5	Public Shoreline Beach-Thompson Village

Appendix F. Daily Water Samples that Exceeded Michigan's WQS.

	County	Location	Waterbody	Sampling Date	<i>E. coli</i> Test Results	
1	1 Allegan	West Side County Park Beach	Lake Michigan	31-May-11	308	
	2 Allegan	West Side County Park Beach	Lake Michigan	18-Jul-11	330	
	3 Allegan	Laketown Township Park	Lake Michigan	18-Jul-11	436	
2	4 Alpena	Blair Street Park	Lake Huron	18-Jul-11	1268	
3	5 Arenac	Bessinger Road Beach	Saginaw Bay-Lake Huron	08-Aug-11	1426	
	6 Arenac	Bessinger Road Beach	Saginaw Bay-Lake Huron	15-Aug-11	345	
	7 Arenac	Foster Road Beach	Saginaw Bay-Lake Huron	19-Jul-11	702	
	8 Arenac	Hammel Beach Road Access	Saginaw Bay-Lake Huron	08-Aug-11	902	
	9 Arenac	Pine River	Pine River	15-Dec-11	661	
	10 Arenac	Singing Bridge Beach	Saginaw Bay-Lake Huron	08-Aug-11	590	
	11 Arenac	Singing Bridge Beach	Saginaw Bay-Lake Huron	15-Aug-11	649	
	12 Arenac	Singing Bridge Beach	Saginaw Bay-Lake Huron	25-Jul-11	951	
	13 Arenac	Singing Bridge Beach	Saginaw Bay-Lake Huron	13-Jul-11	547	
	14 Arenac	Singing Bridge Beach	Saginaw Bay-Lake Huron	22-Jun-11	1535	
	15 Arenac	Twining Road Beach	Saginaw Bay-Lake Huron	26-Jul-11	700	
	16 Arenac	Arenac County Park	Saginaw Bay-Lake Huron	08-Aug-11	625	
	17 Arenac	Arenac County Park	Saginaw Bay-Lake Huron	15-Aug-11	804	
	18 Arenac	28th Street Beach	Saginaw Bay-Lake Huron	19-Jul-11	568	
	19 Arenac	Cemetery Beach	Saginaw Bay-Lake Huron	08-Aug-11	712	
	20	Arenac	Whitney Drain-Site #9 (Delano Rd; upstream of Singing Bridge Beach)	Lake Huron	16-Jun-11	1240
	21	Arenac	Whitney Drain Site #2 Mouth at Bridge (Singing Bridge Beach)	Whitney Drain	14-May-11	1060
	22	Arenac	Whitney Drain Site #2 Mouth at Bridge (Singing Bridge Beach)	Whitney Drain	14-May-11	1060
	23	Arenac	Whites Beach	Lake Huron	08-Jun-11	402
	4	24 Baraga	L'Anse Waterfront Park	Keweenaw Bay / Lake Superior	22-Jun-11	1615
5	25 Barry	Main Beach - Day Use Area	Gun Lake	19-Jul-11	557	
6	26 Bay	Vet's Park North Bay City	Saginaw River	29-Aug-11	742	
	27 Bay	Vet's Park North Bay City	Saginaw River	31-May-11	759	
	28 Bay	Boat Launch on Kawkawlin River	Kawkawlin River	08-Aug-11	498	
	29 Bay	Vet's Park South River Rd.	Saginaw River	15-Aug-11	386	
	30 Bay	Vet's Park South River Rd.	Saginaw River	31-May-11	1249	
	31 Bay	Brissette Beach Township Park	Saginaw Bay-Lake Huron	08-Aug-11	579	
	32 Bay	Brissette Beach Township Park	Saginaw Bay-Lake Huron	04-Aug-11	1144	
	33 Bay	Brissette Beach Township Park	Saginaw Bay-Lake Huron	15-Aug-11	537	
	34 Bay	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	15-Aug-11	479	
	35 Bay	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	04-Aug-11	1071	
	36 Bay	South Linwood Beach Township Park	Saginaw Bay-Lake Huron	14-Jul-11	333	
	37 Bay	Pinconning Park	Saginaw Bay-Lake Huron	18-Jul-11	1379	
	38 Bay	Pinconning Park	Saginaw Bay-Lake Huron	09-Jun-11	2419	
	39 Bay	Pinconning Park	Saginaw Bay-Lake Huron	22-Jun-11	488	
40	Bay	Pinconning Park	Saginaw Bay-Lake Huron	12-Sep-11	402	

Appendix F. Daily Water Samples that Exceeded Michigan's WQS.

	County	Location	Waterbody	Sampling Date	<i>E. coli</i> Test Results
41	Bay	Pinconning Park	Saginaw Bay-Lake Huron	13-Sep-11	395
42	Bay	Wenona Beach	Saginaw Bay-Lake Huron	15-Aug-11	324
43	Bay	Wenona Beach	Saginaw Bay-Lake Huron	04-Aug-11	2419
7	<u>Benzie</u>	Sleeping Bear Dunes-Otter Creek	Otter Creek	22-Jun-11	499
45	Benzie	Sleeping Bear Dunes-Otter Creek	Otter Creek	11-May-11	471
8	<u>Berrien</u>	Hagar Township Park	Lake Michigan	15-Aug-11	594
47	Berrien	Weko Beach	Lake Michigan	18-Jul-11	583
48	Berrien	Jean Klock Park	Lake Michigan	23-May-11	448
49	Berrien	Lions Park	Lake Michigan	01-Aug-11	600
50	Berrien	Michiana Village	Lake Michigan	16-May-11	669
51	Berrien	Grand Beach	Lake Michigan	16-May-11	928
52	Berrien	Grand Beach	Lake Michigan	18-May-11	431
53	Berrien	Grand Beach	Lake Michigan	22-Jun-11	468
54	Berrien	Silver Beach	Lake Michigan	22-Jun-11	336
55	Berrien	Warren Dunes Beach	Lake Michigan	23-May-11	1000
56	Berrien	Warren Dunes Beach	Lake Michigan	31-May-11	433
57	Berrien	Cherry Beach	Lake Michigan	31-May-11	1000
9	<u>Charlevoix</u>	Young State Park Beach	Lake Charlevoix	18-Jul-11	315
59	Charlevoix	Young State Park Beach	Lake Charlevoix	19-Jul-11	318
60	Charlevoix	Fisherman's Island State Park	Lake Michigan	18-Jul-11	652
61	Charlevoix	Tannery Park	Lake Charlevoix	18-Jul-11	842
10	<u>Cheboygan</u>	Cheboygan State Park Duncan Bay	Lake Huron	19-Jul-11	1178
63	Cheboygan	Cheboygan State Park Duncan Bay	Lake Huron	12-Jul-11	389
11	<u>Chippewa</u>	Big Pines Day Use Area	Lake Superior	21-Jul-11	317
65	Chippewa	Four Mile Beach	St. Mary's River	18-Jul-11	442
66	Chippewa	Sugar Island Township Park	St. Mary's River	18-Jul-11	1215
67	Chippewa	Sugar Island Township Park	St. Mary's River	12-Jul-11	403
68	Chippewa	Sherman Park	Lake Superior	21-Jul-11	920
69	Chippewa	Sherman Park	Lake Superior	26-Jul-11	848
70	Chippewa	Sherman Park	Lake Superior	09-Aug-11	310
71	Chippewa	Sherman Park	Lake Superior	10-Aug-11	771
72	Chippewa	Sherman Park	Lake Superior	21-Jul-11	922
73	Chippewa	Sherman Park	Lake Superior	08-Aug-11	667
74	Chippewa	Sherman Park	Lake Superior	03-Aug-11	480
75	Chippewa	Brimley State Park	Lake Superior	10-Aug-11	1008
76	Chippewa	Brimley State Park	Lake Superior	11-Aug-11	461
77	Chippewa	Brimley State Park	Lake Superior	03-Aug-11	1609
78	Chippewa	Brimley State Park	Lake Superior	18-Aug-11	417
79	Chippewa	Brimley State Park	Lake Superior	13-Jul-11	516
80	Chippewa	Brimley State Park	Lake Superior	13-Jul-11	516
81	Chippewa	Brimley State Park	Lake Superior	12-Jul-11	310
82	Chippewa	Brimley State Park	Lake Superior	26-Jul-11	471
83	Chippewa	Drummond Island Township Park	Lake Huron	05-Jul-11	359
84	Chippewa	Dunbar Park	St. Mary's River	05-Jul-11	1221

Appendix F. Daily Water Samples that Exceeded Michigan's WQS.

	County	Location	Waterbody	Sampling Date	<i>E. coli</i> Test Results
85	Chippewa	Pendills Beach	Lake Superior	21-Jul-11	1220
86	Chippewa	Superior Township Public Access	Lake Superior	11-Jul-11	2420
12	Emmet	Petoskey State Park	Lake Michigan	28-Jun-11	313
88	Emmet	Mackinaw City Beach #1	Lake Michigan	27-Jun-11	366
89	Emmet	Mackinaw City Beach #1	Lake Michigan	13-Sep-11	373
90	Emmet	Magnus Park	Lake Michigan	28-Jun-11	558
13	Gladwin	Gladwin City Park	Cedar River	17-Aug-11	537
14	Gogebic	Lake Gogebic State Park Beach	Lake Gogebic	20-Jul-11	428
15	Grand Traverse	Traverse City State Park	Grand Traverse Bay-East	03-Aug-11	1867
94	Grand Traverse	East Bay Park (Milliken Park)	Grand Traverse Bay-East	03-Aug-11	924
95	Grand Traverse	East Bay Park (Milliken Park)	Grand Traverse Bay-East	20-Sep-11	1082
96	Grand Traverse	East Bay Park (Milliken Park)	Grand Traverse Bay-East	22-Sep-11	506
97	Grand Traverse	East Bay Park (Milliken Park)	Grand Traverse Bay-East	05-Sep-11	395
98	Grand Traverse	East Bay Park (Milliken Park)	Grand Traverse Bay-East	24-Aug-11	1590
99	Grand Traverse	East Bay Park (Milliken Park)	Grand Traverse Bay-East	22-Jun-11	795
100	Grand Traverse	East Bay Park (Milliken Park)	Grand Traverse Bay-East	18-Jul-11	2419
101	Grand Traverse	Bryant Park Beach	Grand Traverse Bay-West	22-Jun-11	330
102	Grand Traverse	Bryant Park Beach	Grand Traverse Bay-West	24-Aug-11	361
103	Grand Traverse	Bryant Park Beach	Grand Traverse Bay-West	03-Aug-11	628
104	Grand Traverse	West End Beach	Grand Traverse Bay-West	03-Aug-11	824
16	Houghton	Chassell Beach	Pike Bay at Portage Canal / Lake Superior	21-Jul-11	418
106	Houghton	McLain State Park Beach	Lake Superior	21-Jul-11	637
17	Huron	Philp County Park	Lake Huron	18-Jul-11	590
108	Huron	Lighthouse County Park	Lake Huron	19-Jul-11	943
109	Huron	Lighthouse County Park	Lake Huron	26-Jul-11	1718
110	Huron	Lighthouse County Park	Lake Huron	06-Jul-11	568
18	Iosco	East Tawas City Park	Tawas Bay	23-Jun-11	356
112	Iosco	Tawas City Park	Tawas Bay	23-Jun-11	1867
113	Iosco	Tawas City Park	Tawas Bay	03-Aug-11	393
114	Iosco	Gateway Park Beach	Lake Huron (Tawas Bay)	23-Aug-11	346
115	Iosco	Gateway Park Beach	Lake Huron (Tawas Bay)	24-Aug-11	301
116	Iosco	County Road End off Tawas Beach Rd.	Lake Huron (Tawas Bay)	26-Jul-11	351
117	Iosco	MDNR access E. Tawas	Lake Huron (Tawas Bay)	09-Aug-11	571
19	Leelanau	Sleeping Bear Dunes-Little Glen Lake	inland lake	15-Jun-11	387
119	Leelanau	Northport Bay Marina	Grand Traverse Bay-West	22-Jun-11	568
120	Leelanau	Suttons Bay Park	Grand Traverse Bay-West	03-Aug-11	811
121	Leelanau	Elmwood/Greilikville Park & Beach	Grand Traverse Bay-West	24-Aug-11	460
123	Leelanau	Sleeping Bear Dunes- Shalda Creek	Shalda Creek	22-Jun-11	352
124	Leelanau	Sleeping Bear Dunes- Shalda Creek	Shalda Creek	23-Jun-11	345

Appendix F. Daily Water Samples that Exceeded Michigan's WQS.

	County	Location	Waterbody	Sampling Date	<i>E. coli</i> Test Results
20	Livingston	Howell City Park	Thompson Lake	31-May-11	330
21	Mackinac	Lake Michigan US-2 Campground Beach	Lake Michigan	09-Aug-11	1303
127	Mackinac	Sand Point	Lake Michigan	09-Aug-11	306
128	Mackinac	Sand Point	Lake Michigan	26-Jul-11	488
22	Macomb	Stony Creek Metropark-Baypoint Beach	Stony Creek Lake-Impoundment	12-Sep-11	444
130	Macomb	Stony Creek Metropark-Baypoint Beach	Stony Creek Lake-Impoundment	31-Aug-11	373
131	Macomb	Stony Creek Metropark-Baypoint Beach	Stony Creek Lake-Impoundment	26-Sep-11	425
132	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	22-Jun-11	2420
133	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	23-Jun-11	819
134	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	23-May-11	1090
135	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	31-May-11	380
136	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	01-Jun-11	433
137	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	07-Jun-11	330
138	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	08-Jun-11	558
139	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	04-Aug-11	339
140	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	05-Aug-11	1090
141	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	09-Aug-11	329
142	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	16-Aug-11	637
143	Macomb	H.C.M.A. - Metropolitan Beach Metropark	Lake St. Clair	23-Aug-11	408
144	Macomb	New Baltimore Park Beach	Lake St. Clair	24-Aug-11	993
145	Macomb	New Baltimore Park Beach	Lake St. Clair	19-Sep-11	452
146	Macomb	New Baltimore Park Beach	Lake St. Clair	21-Jul-11	330
147	Macomb	New Baltimore Park Beach	Lake St. Clair	28-Jul-11	789
148	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	18-Jul-11	477
149	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	25-Jul-11	2420
150	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	27-Jul-11	309
151	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	01-Aug-11	2165
152	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	08-Aug-11	416
153	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	10-Aug-11	1684
154	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	19-Sep-11	325
155	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	12-Sep-11	614
156	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	14-Sep-11	400
157	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	26-Sep-11	581
158	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	21-Sep-11	560
159	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	31-Aug-11	869
160	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	07-Sep-11	1872
161	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	15-Aug-11	490
162	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	17-Aug-11	489
163	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	25-May-11	461
164	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	16-May-11	2420
165	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	18-May-11	1380
166	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	15-Jun-11	460

Appendix F. Daily Water Samples that Exceeded Michigan's WQS.

	County	Location	Waterbody	Sampling Date	<i>E. coli</i> Test Results
167	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	13-Jul-11	1094
168	Macomb	St. Clair Shores Blossom Heath Beach	Lake St. Clair	06-Jul-11	417
169	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	07-Jul-11	1446
170	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	22-Jun-11	1867
171	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	27-Jun-11	735
172	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	16-May-11	675
173	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	18-May-11	1695
174	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	25-May-11	1465
175	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	31-May-11	497
176	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	02-Jun-11	651
177	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	04-Aug-11	1209
178	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	08-Aug-11	358
179	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	10-Aug-11	444
180	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	18-Jul-11	470
181	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	20-Jul-11	312
182	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	27-Jul-11	893
183	Macomb	St. Clair Shores Memorial Park Beach	Lake St. Clair	28-Jul-11	730
23	Manistee	Fifth Avenue Beach	Lake Michigan	23-Aug-11	387
185	Manistee	Arcadia Park	Lake Michigan	28-Jun-11	380
186	Manistee	Orchard Beach State Park	Lake Michigan	28-Jun-11	314
24	Marquette	Shiras Park Beach	Lake Superior	22-Jun-11	804
188	Marquette	North of Picnic Rocks	Lake Superior	25-Aug-11	480
189	Marquette	North Beach	Lake Superior	25-Aug-11	753
25	Menominee	Henes Park	Lake Michigan	21-Jun-11	340
191	Menominee	Henes Park	Lake Michigan	22-Jun-11	651
192	Menominee	Memorial Beach	Lake Michigan	21-Jun-11	332
193	Menominee	Memorial Beach	Lake Michigan	22-Jun-11	342
26	Monroe	Luna Pier City Beach	Lake Erie	06-Sep-11	1177
27	Muskegon	Meinert County Park	Lake Michigan	20-Jun-11	587
196	Muskegon	Pere Marquette Park	Lake Michigan	27-Jun-11	717
197	Muskegon	Bronson/Kruse Park	Lake Michigan	05-Jul-11	460
28	Oakland	Camp Oakland - summer	Handsome Lake	25-Jul-11	389
199	Oakland	Pontiac Recreation Area	Pontiac Lake	19-Jul-11	728
200	Oakland	Pontiac Recreation Area	Pontiac Lake	05-Jul-11	1070
201	Oakland	Finnish Day Camp	Sun Lake	19-Jul-11	402
202	Oakland	Independence Oaks County Park	Crooked Lake	19-Jul-11	351
29	Oceana	Claybanks Township Park	Lake Michigan	11-Jul-11	459
204	Oceana	Lighthouse Beach at Silver Lake State Park	Lake Michigan	11-Jul-11	1872
30	Osceola	Crawford Park	Muskegon River	22-Jun-11	380

Appendix F. Daily Water Samples that Exceeded Michigan's WQS.

	County	Location	Waterbody	Sampling Date	<i>E. coli</i> Test Results
31	<u>Ottawa</u>	Grose Park	Crockery Lake	04-Aug-11	469
207	Ottawa	Maplewood Lake Park	Maplewood Lake	10-Aug-11	1369
208	Ottawa	Maplewood Lake Park	Maplewood Lake	03-Aug-11	361
209	Ottawa	Maplewood Lake Park	Maplewood Lake	25-Aug-11	385
210	Ottawa	Maplewood Lake Park	Maplewood Lake	18-Aug-11	410
211	Ottawa	Dunton Park	Lake Macatawa	13-Jul-11	327
212	Ottawa	Dunton Park	Lake Macatawa	20-Jul-11	1047
213	Ottawa	Dunton Park	Lake Macatawa	26-Jul-11	555
214	Ottawa	Dunton Park	Lake Macatawa	02-Aug-11	2131
215	Ottawa	Dunton Park	Lake Macatawa	09-Aug-11	454
216	Ottawa	Dunton Park	Lake Macatawa	15-Aug-11	1855
217	Ottawa	Dunton Park	Lake Macatawa	24-Aug-11	504
218	Ottawa	North Beach Park	Lake Michigan	27-Jun-11	1231
219	Ottawa	Grand Haven State Park	Lake Michigan	27-Jun-11	1253
220	Ottawa	Grand Haven State Park	Lake Michigan	20-Jun-11	1127
221	Ottawa	Grand Haven State Park	Lake Michigan	15-Jun-11	904
222	Ottawa	Grand Haven State Park	Lake Michigan	21-Jul-11	1321
223	Ottawa	Grand Haven State Park	Lake Michigan	04-Aug-11	1644
224	Ottawa	Grand Haven State Park	Lake Michigan	28-Jul-11	306
225	Ottawa	Grand Haven State Park	Lake Michigan	23-Aug-11	428
226	Ottawa	Grand Haven City Beach	Lake Michigan	28-Jul-11	353
227	Ottawa	Grand Haven City Beach	Lake Michigan	04-Aug-11	1711
228	Ottawa	Grand Haven City Beach	Lake Michigan	27-Jun-11	715
229	Ottawa	Grand Haven City Beach	Lake Michigan	20-Jun-11	771
230	Ottawa	Tunnel Park	Lake Michigan	22-Jun-11	342
231	Ottawa	Kouw Park	Lake Michigan	22-Jun-11	355
32	<u>Roscommon</u>	Houghton Lake Heights	Houghton Lake	16-Jun-11	506
233	Roscommon	Richfield Township Public Fishing Site	Lake St. Helen	23-Jun-11	380
234	Roscommon	Denton Township Public Beach	Houghton Lake	23-Jun-11	558
33	<u>Sanilac</u>	Forestville Beach	Lake Huron	26-Jul-11	805
236	Sanilac	Forester Creek	Forester Creek	23-Aug-11	439
237	Sanilac	Forester Creek	Forester Creek	08-Aug-11	462
34	<u>Schoolcraft</u>	Rogers Park-MDOT	Lake Michigan	17-Aug-11	691
239	Schoolcraft	Rogers Park-MDOT	Lake Michigan	20-Jul-11	558
240	Schoolcraft	Roadside Park Beach	Lake Michigan	17-Aug-11	528
241	Schoolcraft	Manistique Township Park	Lake Michigan	07-Sep-11	537
242	Schoolcraft	Public Shoreline Beach-Thompson	Lake Michigan	20-Jul-11	456
243	Schoolcraft	Public Shoreline Beach-Thompson	Lake Michigan	17-Aug-11	426
35	<u>St. Clair</u>	Fort Trodd Campground North	Fort Trodd Lake	22-Jun-11	569
245	St. Clair	Ruby Campground	Ruby Campground Pond	23-Jun-11	2121
246	St. Clair	Ruby Campground	Ruby Campground Pond	22-Jun-11	2419
247	St. Clair	Chrysler Park Beach	St. Clair River	23-Aug-11	577
248	St. Clair	Lakeside Beach	Lake Huron	31-May-11	1220
249	St. Clair	Lakeside Beach	Lake Huron	18-Jul-11	1574
250	St. Clair	Lakeside Beach	Lake Huron	25-Jul-11	551

Appendix F. Daily Water Samples that Exceeded Michigan's WQS.

	County	Location	Waterbody	Sampling Date	<i>E. coli</i> Test Results
251	St. Clair	Holland Road Beach	Lake Huron	18-Jul-11	1967
252	St. Clair	Holland Road Beach	Lake Huron	25-Jul-11	744
253	St. Clair	Holland Road Beach	Lake Huron	31-May-11	821
254	St. Clair	Holland Road Beach	Lake Huron	08-Aug-11	435
255	St. Clair	Conger-Lighthouse Beach	Lake Huron	08-Aug-11	329
256	St. Clair	Conger-Lighthouse Beach	Lake Huron	31-May-11	590
257	St. Clair	Conger-Lighthouse Beach	Lake Huron	25-Jul-11	337
258	St. Clair	Conger-Lighthouse Beach	Lake Huron	18-Jul-11	2419
259	St. Clair	Krafft Road Beach	Lake Huron	08-Aug-11	345
260	St. Clair	Keewadhin Road Beach	Lake Huron	09-Aug-11	548
261	St. Clair	Keewadhin Road Beach	Lake Huron	08-Aug-11	345
262	St. Clair	Keewadhin Road Beach	Lake Huron	10-Aug-11	395
263	St. Clair	Keewadhin Road Beach	Lake Huron	16-Aug-11	625
36	Van Buren	Van Buren State Park Beach	Lake Michigan	07-Jun-11	1540
37	Wayne	Pier Park	Lake St. Clair	01-Aug-11	300
266	Wayne	Van Buren Township Park	Belleville Lake	28-Jul-11	308