

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU
JANUARY 2007

STAFF REPORT

MICHIGAN BEACH MONITORING
YEAR 2005 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. Determine whether waters of the state are safe for total body contact recreation.
3. Create and maintain a statewide database.
4. Compile data to determine overall water quality.
5. Evaluate the effectiveness of MDEQ programs in attaining water quality standards (WQS) for pathogen indicators.

The Michigan Beach Monitoring Year 2005 Annual Report contains information about the beach monitoring program, rule citations, and water quality data for 2005.

ASSIST LOCAL HEALTH DEPARTMENTS

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 various 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.

Funding for Beach Monitoring

Prior to 2000, health departments relied on local funding to conduct beach monitoring programs. Local funding is often not sufficient to execute a comprehensive monitoring program. The MDEQ awards Clean Michigan Initiative-Clean Water Fund (CMI-CWF) and Beaches Environmental Assessment and Coastal Health Act (BEACH Act) grants to local health departments and nonprofit entities to aid in the implementation or enhancement of their beach monitoring program. Eligible entities 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 and BEACH Act grants are designed to fund proposals that determine 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.

Prior to the availability of grant funding in 2000, health departments monitored beaches using local funding. Since 2000, the number of counties with a beach monitoring program has more than doubled with the assistance of state and federal grants. A history of Michigan's beach monitoring program growth is shown below in Table 1.

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

Year	2005	2004	2003	2002	2001	2000	1999
Number of Counties That Monitored	52	53	38	26	36	24	20
Beaches Monitored	406	494	392	210	250	< 50**	< 50**

**Estimated to be less than 50 beaches.

CMI-CWF Grants

The CMI-CWF bond initiative resulted in a substantial increase in annual funding for statewide surface water quality monitoring beginning in 2000. The CMI-CWF offers reliable funding for the monitoring of surface water over a period of approximately 15 years. In 2000 and 2001, CMI-CWF monies were distributed for inland and Great Lakes beach monitoring programs. Beginning in 2002, CMI-CWF funds were designated for inland beaches only due to the availability of federal funding for Great Lakes beaches.

The MDEQ awarded CMI-CWF funds in the amounts of \$193,000 in 2000, \$99,934 in 2001, \$112,833 in 2003, \$100,000 in 2004, and \$100,000 in 2005 to aid in the development and implementation of bathing beach monitoring programs throughout the state (Appendix C).

BEACH Act Grants

The MDEQ is allocated grant funds by the United States Environmental Protection Agency (USEPA), as authorized by the federal BEACH Act. These grant funds have been designated for Great Lakes beaches and assist various organizations with their 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.

The MDEQ distributed BEACH Act funds in the amount of \$269,204 in 2003, \$244,873 in 2004, and \$278,157 in 2005 (Appendix D). The funds were used by an average of 32 counties or health departments each year to monitor beaches.

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 result of 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 (USEPA, 2001) (Appendix F). The USEPA (1986, 2002) has determined that *E. coli* is an indicator for the presence of waterborne pathogens in fresh water.

Sources of Bacterial Contamination

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

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

Failing septic systems can cause leaching and/or runoff into the waterways, causing bacterial contamination. Urban storm water runoff from roads, roofs, construction sites, parking lots, etc., may contain fecal matter from pets and wildlife. Excessive waterfowl near the beaches and animal waste runoff from farms and large Concentrated Animal Feeding Operations 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 five or more sampling events representatively spread over a 30-day period. Each sampling event shall consist of three 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 three 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 for, and shall be protected for, total body contact recreation from May 1 to October 31 in accordance with the provisions of R 323.1062. Total body contact recreation immediately downstream of wastewater discharges, areas of significant urban runoff, combined sewer overflows, and areas influenced by certain agricultural practices is contrary to prudent public health and safety practices, even though water quality standards may be met.

Beach Closures

Beach advisories or closures in Michigan 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.

REPORTING BEACH MONITORING DATA

The MDEQ developed a centralized statewide database to track bathing beach monitoring *E. coli* test results. These results are available electronically to the public via the MDEQ's Web site. 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 information for beach monitoring procedures and methods, and additional links to beach monitoring resources.

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. All other health departments are encouraged to report their data via 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://www.epa.gov/beaches/>, along with an online directory of information regarding the water quality at our nation's beaches entitled, "Beach Advisory Closing Online Notification," that can be found at www.epa.gov/waterdata/beacon-20-beach-advisory-and-closing-online-notification. The Web site is updated annually, or sooner, as information becomes available.

COMPILE DATA TO DETERMINE OVERALL WATER QUALITY

List of Beaches

Michigan inland and Great Lakes beaches that have been identified by local health departments and the MDEQ are listed in Appendix A and Appendix B, respectively. The beaches are arranged alphabetically, by county, and the monitoring status for each beach is indicated. The beaches are also listed on the MDEQ's beach Web site. There are 470 public beaches on inland lakes and rivers and 411 public beaches on the Great Lakes.

Synopsis of Data

In 2005, beach monitoring was conducted in 52 of the 83 counties in Michigan. A total of 4,570 daily samples were collected at 406 public beaches (209 inland lakes, 197 Great Lakes). Of the 4,570 daily samples, 130 (<3 percent) exceeded the WQS of 300 *E. coli* per 100 ml (Appendix E). The exceedances were reported from 77 beaches (19 percent of all monitored beaches) and resulted in 80 beach closures or advisories at 51 different beaches, totaling 474 days. The number of beaches with exceedances differed from the number of beaches with closures or advisories. This was due to the following: 1) multiple exceedances were reported for a single closure; 2) water samples were tested before or after the swimming season; 3) there were delays in receiving test results; and 4) a second test (follow-up sample) was used to confirm an exceedance. A summary of exceedances of the *E. coli* standard for inland and Great Lakes beaches from 1999 to 2005 is provided in Table 2.

Table 2. Beach closures/advisories, days closed, percentage of monitored beaches with a closure, and percentage of samples exceeding WQS for all public beaches in Michigan.

Year	2005	2004	2003	2002	2001	2000	1999
Closures	80	92	140	117	119	276	100
Days	474	578	140+	211	122	*	*
Percent of Monitored Beaches Affected	19.0	13.5	10.2	*	*	*	*
Percent of Samples Exceeding WQS	2.8	3.1	3.0	4.2	3.9	9.2	*

*data not available

Synopsis of Data from Great Lakes Beaches

In 2005, 197 of the 411 Great Lakes beaches were monitored in 36 of the 41 counties that border the Great Lakes in Michigan. A total of 2,508 daily samples were collected, 84 of those daily samples (3.3 percent) exceeded the WQS of 300 *E. coli* per 100 ml (Appendix E). The 84 exceedances were reported from 47 beaches (24 percent of monitored Great Lakes beaches) and resulted in 50 beach closures or advisories at 28 beaches, totaling 278 days. A summary of the exceedances of the *E. coli* standard for Great Lakes beaches is provided below.

- Forty-seven Great Lakes beaches accounted for 84 exceedances: 31 beaches reported 1 exceedance, 8 beaches reported 2 exceedances, 3 beaches reported 3 exceedances,

2 beaches reported 4 exceedances, 1 beach reported 6 exceedances, and 2 beaches reported 7 exceedances.

- Twenty-eight Great Lakes beaches accounted for 50 closures: 17 beaches reported 1 closure, 4 beaches reported 2 closures, 3 beaches reported 3 closures, and 4 beaches reported 4 closures.

A summary of the 2005 beach monitoring and beach closure/advisory data for each of the Great Lakes is provided below.

- There are 2 public beaches on Lake Erie in 1 county. One beach was monitored and reported no beach closures or advisories.
- There are 130 public beaches on Lake Huron in 12 counties. Sixty three public beaches were monitored. There were 22 closures or advisories totaling 127 days for 14 beaches in Arenac, Bay, Huron, and St. Clair Counties.
- There are 202 public beaches on Lake Michigan in 17 counties. One hundred and two beaches were monitored in 16 counties. There were 10 closures or advisories totaling 45 days at 7 beaches in Charlevoix, Emmet, Menominee, and Ottawa Counties.
- There are 60 public beaches on Lake Superior in 9 counties. Twenty one beaches were monitored in 7 counties. There were 2 closures or advisories totaling 4 days at 2 beaches in Chippewa County.
- There are 5 public beaches on Lake St. Clair in 2 counties. All 5 beaches were monitored and there were 16 closures or advisories totaling 102 days in Macomb and Wayne Counties.
- There are 12 public beaches on Great Lakes Connecting waterways (St. Marys River, St. Clair River, and Detroit River). Five beaches were monitored. There were no closures or advisories.

The following figures show the locations of Great Lakes beaches across the state:

- Figure 1: Michigan Great Lakes Public Beaches.
- Figure 2: Michigan Great Lakes Beaches Monitored in 2005.
- Figure 3: Michigan Great Lakes Beaches with WQS Exceedances in 2005.
- Figure 4: Michigan Great Lakes Beaches Not Monitored in 2005.

Synopsis of Data from Inland Beaches

In 2005, 209 of the 470 inland beaches were monitored in 33 counties. A total of 2,062 daily samples were collected and 46 of those daily samples (2.2 percent) exceeded the WQS of 300 *E. coli* per 100 ml (Appendix E). The 46 exceedances were reported from 30 beaches (14.3 percent of monitored inland beaches) and resulted in 30 beach closures or advisories at 23 beaches, totaling 196 days. A summary of the exceedances of the *E. coli* standard for inland beaches is provided below.

- Thirty inland beaches accounted for 46 exceedances: 20 beaches reported 1 exceedance, 7 beaches reported 2 exceedances, 2 beaches reported 3 exceedances, and 1 beach reported 6 exceedances.
- Twenty-three beaches accounted for 30 beach closures or advisories: 17 beaches reported 1 closure, 5 reported 2 closures, and 1 reported 3 closures.

The following figures show the locations of inland beaches across the state:

- Figure 5: Michigan Inland Public Beaches.

- Figure 6: Michigan Inland Beaches Monitored in 2005.
- Figure 7: Michigan Inland Beaches with WQS Exceedances in 2005.
- Figure 8: Michigan Inland Beaches Not Monitored in 2005.

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 review beach water quality data including the number of beach closures or advisories. 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 attain 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 average 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. Based on 2002 through 2004 beach monitoring data, 40 beaches have been added to the Section 303(d) list because they met at least one of the three criteria for placement of a beach on the TMDL list. There is now a total of 41 beaches on the Section 303(d) list.

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REFERENCES

- MDEQ. 1997. A Strategic Environmental Quality Monitoring Program for Michigan's Surface Waters. Michigan Department of Environmental Quality. Staff Report #MI/DEQ/SWQ-96/152. January 1997.
- USEPA. 1986. Ambient Water Quality Criteria for Bacteria-1986. EPA 440/5-84/002.
- USEPA. 2001. Protocol for Developing Pathogen TMDLs. January 2001. EPA 84/R-00-002.
- USEPA. 2002. National Beach Guidance and Required Performance Criteria for Grants. EPA-823-B-02-004.

Michigan's Inland Beaches -2005

County	Monitoring Status	Beach Name	Waterbody Name
Alcona			
	Monitored	Alcona Park	Alcona Pond
	Not Monitored	City Park	Lake Cadillac
Allegan			
	Monitored	Dumont Lake County Park Beach	Dumont Lake
	Monitored	Ely Lake Campground Beach	Ely Lake
	Monitored	Gun Lake County Park Beach	Gun Lake
	Monitored	Little John Lake County Park Beach	Little John Lake
	Monitored	Pine Point Campground Beach	Swan Creek Pond
Alpena			
	Not Monitored	Beaver Lake Park	Beaver Lake
	Not Monitored	Long Lake Day Use	Long Lake
	Not Monitored	Long Lake Park	Long Lake
	Not Monitored	Sunken Lake County Park	Sunken Lake
Antrim			
	Monitored	Day Park	Torch Lake
	Monitored	Richardi Park	Lake Bellaire
	Monitored	Thurston Park	Central Lake
	Monitored	Torch River Bridge	Torch Lake
	Not Monitored	Torch River Sand Bar	Torch River
	Monitored	Wooden Shoe Park	Elsworth Lake
Arenac			
	Not Monitored	Big Bend Campground	Man made Pond
	Not Monitored	DNR Access	Au Gres River
	Not Monitored	Flint Park Hunt Club	Flint Park Hunt Club Lake
	Monitored	Oasis Lake County Park	Oasis Lake
	Not Monitored	Outdoor Adventures	Man made Pond
	Not Monitored	Pine River Public Access	Pine River
Barry			
	Not Monitored	Charlton Park	Thornapple Lake
	Not Monitored	Main Beach - Dayuse Area	Gun Lake
	Not Monitored	Old Beach - Dayuse Area	Gun Lake
	Not Monitored	Prairieville Township Park	Gull Lake
	Not Monitored	Yankee Springs Recreation Area Campground Beach	Gun Lake
Bay			
	Monitored	Boat Launch on Kawkawlin River	Kawkawlin River
	Monitored	Vet's Park North Bay City	Saginaw River
	Monitored	Vet's Park South River Rd.	Saginaw River
Benzie			
	Not Monitored	Bellows	Crystal Lake
	Not Monitored	South shore near Beulah	Crystal Lake
Berrien			

Appendix A. Michigan List of Inland Beaches - 2005

Not Monitored	Bertrand Park	St. Joseph River
Not Monitored	Niles - French Paper	St. Joseph River
Not Monitored	Niles - Marmont	St. Joseph River
Not Monitored	Paw Paw Lake	Paw Paw Lake
Branch		
Not Monitored	Memorial Park	Messenger Lake
Not Monitored	Quincy Park	First Lake
Calhoun		
Not Monitored	Battle Creek	Gogua Lake
Not Monitored	Springport	Duck Lake
Charlevoix		
Not Monitored	Hudson Township Park	Huffman Lake
Monitored	Melrose Township Park	Walloon Lake
Monitored	Thumb Lake Beach	Thumb Lake
Cheboygan		
Monitored	Aloha State Park	Mullett Lake
Not Monitored	Black Lake SFCG	Black Lake
Not Monitored	Bluffs Beach	Black Lake
Not Monitored	Boy Scout Launch	Mullett Lake
Monitored	Burt Lake State Park	Burt Lake
Monitored	Devoe Beach	Burt Lake
Not Monitored	Foot Road Park	Mullett Lake
Not Monitored	Hoberts Launch	Mullett Lake
Not Monitored	Hoppie's Launch	Burt Lake
Not Monitored	Maple Bay Park	Burt Lake
Not Monitored	Polish Line Beach	Mullett Lake
Not Monitored	Ryder's Landing	Douglass Lake
Not Monitored	Topinabee Park	Mullett Lake
Not Monitored	Webber Lake State Park	Webber Lake
Chippewa		
Not Monitored	Caribou Lake	Caribou Lake
Not Monitored	Dukes Lake	Dukes Lake
Not Monitored	Kinross Lake	Kinross Lake
Not Monitored	Monocle Lake	Monocle Lake
Not Monitored	Soldiers Lake	Soldiers Lake
Not Monitored	Trout Lake	Carp Lake
Clare		
Not Monitored	Arnold Lake Beach	Arnold Lake
Monitored	Bertha Lake Beach	Bertha Lake
Not Monitored	Cedar Shores Beach	Townline Lake
Not Monitored	City of Clare Park	Shamrock Lake
Not Monitored	Cranberry Lake South	Cranberry Lake
Not Monitored	Crooked Lake Beach	Crooked Lake
Not Monitored	Dodge Lake Beach	Dodge Lake
Not Monitored	Hillcrest Public Landing	Crooked Lake
Not Monitored	Lake George Public Landing	George Lake
Not Monitored	Lake of the Pines	Doc and Tom Lake
Not Monitored	Lilly Lake Beach	Lilly Lake
Not Monitored	Long Lake Beach	Long Lake

Appendix A. Michigan List of Inland Beaches - 2005

Not Monitored	Muskegon River Twp. Park	Muskegon River
Not Monitored	Oak Hills Children's Camp	Hayes Lake
Not Monitored	Sand Lake Beach	Sand Lake
Not Monitored	Sandy Shores Beach	Grass Lake
Monitored	Shingle Lake Park	Shingle Lake
Monitored	Silver Lake Park	Silver Lake
Monitored	Wilson Lake State Park	Budd Lake
Crawford		
Monitored	North Higgins State Park	Higgins Lake
Eaton		
Not Monitored	Fox Memorial Park	Fox Memorial Park
Not Monitored	Lincoln Brick Park	Grand River
Emmet		
Monitored	Little Traverse Township Beach	Crooked Lake
Not Monitored	Oden Beach	Crooked Lake
Genesee		
Not Monitored	McCaslin Lake	McCaslin Lake
Not Monitored	McKane Lake	McKane Lake
Not Monitored	Lake Shinangaug	Lake Shinangaug
Not Monitored	Crane Lake	Crane Lake
Not Monitored	Linden Mill Pond	Linden Mill Pond
Not Monitored	Loon Lake	Loon Lake
Not Monitored	Marl Lake	Marl Lake
Not Monitored	Pine Lake	Pine Lake
Not Monitored	Squaw Lake	Squaw Lake
Not Monitored	Thread Lake	Thread Lake
Not Monitored	Flagstone Point	Flagstone Lake
Not Monitored	Kearsley Reservoir	Kearsley Reservoir
Not Monitored	Mott Lake Stepping	Mott Lake Stepping
Not Monitored	Lake Helene	Lake Helene
Not Monitored	Golden Rod	Golden Rod Lake
Not Monitored	Smokerise	Smokerise Lake
Not Monitored	at Drain	Lake Ponemah
Not Monitored	Barnum Lake	Barnum Lake
Not Monitored	Beach at Hasler Lake	Hasler Lake
Monitored	Beach at Pinewood Lake	Pinewood Lake
Monitored	Bluebell Beach	Mott Lake
Monitored	Bluegill Boat Ramp	Mott Lake
Monitored	Boat Ramp at Buell Lake	Buell Lake
Monitored	Buttercup Beach	Holloway Reservoir
Monitored	Camp Copneconic	Copneconic Lake
Monitored	City Park Beach	Silver Lake
Monitored	Clover Beach	Byram Lake
Not Monitored	Copneconic Day Beach	Copneconic Lake
Monitored	Covenant Hill Camp	Covenant Hill Camp
Monitored	Crooked Lake	Crooked Lake
Monitored	DNR Boat Dock	Fenton Lake
Monitored	DNR Boat Launch at Lake Ponemah	Lake Ponemah
Monitored	DNR Boat Launch at Lobdell Lake	Lobdell Lake
Monitored	Dollar Lake	Dollar Lake

Appendix A. Michigan List of Inland Beaches - 2005

Not Monitored	Fenton Lake Marina	Fenton Lake
Monitored	Hasler Lake Campground	Hasler Lake
Monitored	Lake Linda	Lake Linda
Monitored	Myers Lake	Myers Lake
Monitored	Silver Lake Marina	Silver Lake
Monitored	Twp Hall	Fenton Lake
Monitored	Walleye Pike Dock	Holloway Reservoir
Monitored	West Sister Lake	West Sister Lake
Gladwin		
Monitored	Beaverton City Park	Ross Lake
Not Monitored	Cedar River Campground Beach	Cedar River
Not Monitored	Estey Rd. Access	Tittabawassee River
Not Monitored	Gilman Springs Canoe Launch	Tittabawassee River
Not Monitored	Gilman Springs Swimming Area	Flowing well/pond
Monitored	Gladwin City Park	Cedar River
Not Monitored	Gladwin North Park	Cedar River
Not Monitored	Good News Camp	Tittabawassee River
Not Monitored	Hoister Lake Beach	Hoister Lake
Not Monitored	House Lake	House Lake
Not Monitored	Lake Four	Lake Four
Not Monitored	Lost Haven Beach	Lyle Drain/Tobacco River
Not Monitored	Pine Street Public Access	Tittabawassee River
Monitored	Pratt Lake	Pratt Lake
Not Monitored	Secord Lake	Secord Lake
Not Monitored	Secord Lake - East	Secord Lake
Not Monitored	Sugar Springs/Lake Lancer	Lake Lancer
Not Monitored	Trout Lake SFCG	Trout Lake
Not Monitored	West River Dr. Boat Launch	Secord Lake
Not Monitored	Wiggins Lake - at Clendenning Rd.	Wiggins Lake
Not Monitored	Wiggins Lake DNR Boat Launch	Wiggins Lake
Not Monitored	Wixon Lake - West	Wixon Lake
Gogebic		
Not Monitored	Gogebic County Park	Lake Gogebic
Not Monitored	Lake Gogebic State Park Beach	Lake Gogebic
Not Monitored	Sunday Lake Beach	Sunday Lake
Grand Traverse		
Not Monitored	Gilbert Beach	Long Lake
Not Monitored	Taylor Park	Long Lake
Hillsdale		
Not Monitored	Bird Lake Beach	Bird Lake
Not Monitored	Sandy Beach	Baw Beese Lake
Houghton		
Not Monitored	Twin Lakes State Park	Lake Roland
Ingham		
Monitored	Burchfield Park	Burchfield Pond
Monitored	Hawk Island County Park	Hawk Island

Appendix A. Michigan List of Inland Beaches - 2005

	Monitored	Lake Lansing Park South	Lake Lansing
	Monitored	Valhalla Park	Valhalla Pond
Iosco			
	Monitored	Old Orchard Park	Foote Pond
	Monitored	Oscoda Twp. Park- Van Ettan Lake	Van Ettan Lake
Isabella			
	Monitored	Coldwater Park	Coldwater Lake
	Monitored	Deerfield County Park	Chippewa River
	Not Monitored	Halls Lake	Halls Lake
	Monitored	Herrick County Park	Borrow Pit
	Monitored	Millpond Park	Millpond
Jackson			
	Monitored	Clark Lake County Park	Clark Lake
	Monitored	Clear Lake County Park	Clear Lake
	Monitored	Gilletts Lake County Park	Gilletts Lake
	Monitored	Grass Lake County Park	Grass Lake
	Monitored	Lime Lake County Park	Lime Lake
	Monitored	Little Wolf Lake County Park	Little Wolf Lake
	Monitored	Pleasant Lake County Park & Campground	Pleasant Lake
	Monitored	Portage Lake County Park	Portage Lake
	Monitored	Round Lake County Park	Round Lake
	Monitored	Swains Lake County Park	Swains Lake
	Monitored	Vandercook Lake County Park	Vandercook Lake
	Monitored	Vineyard Lake County Park	Vineyard Lake
Kalamazoo			
	Monitored	Cold Brook County Park	Blue Lake
	Monitored	Fort Custer Recreation Area Beach	Eagle Lake
	Monitored	Markin Glen County Park	Swimmers Lake
	Monitored	Prairie View County Park	Hogsett Lake
	Monitored	Ramona Park	Long Lake
	Monitored	Robert Morris Park	Campbell Lake
	Monitored	Ross Township Park	Gull Lake
	Monitored	Sunset Lake Park	Sunset Lake
	Not Monitored	Timber Lake Campground	Timber Lake
	Monitored	Woods Lake Beach	Woods Lake
Kent			
	Not Monitored	Collins Park	Reeds Lake
	Not Monitored	Lincoln Lake Baptist Camp	Lincoln Lake
	Not Monitored	Lincoln Pines Resort	Lincoln Lake
	Not Monitored	Long Lake County Park	Long Lake
	Not Monitored	Myers Lake County Park	Myers Lake
	Not Monitored	Scalley Lake Park	Scalley Lake
	Not Monitored	Versluis Park	Versluis Lake
	Not Monitored	Wabasis Lake County Park	Wabasis Lake
Leelanau			
	Not Monitored	Nedow's (Bartholomew) Beach	Lake Leelanau
	Not Monitored	South Bar Lake - south end	South Bar Lake

Appendix A. Michigan List of Inland Beaches - 2005

Livingston

Monitored	Brighton State Recreation Area	Bishop Lake
Monitored	Camp Innisfree	Bentley Lake
Monitored	Camp Talahi	Chenago Lake
Monitored	Green Valley Camp	Dibrova Lake
Monitored	Howell City Park	Thompson Lake
Monitored	Howell Nature Center	Pleasant Lake
Monitored	Island Lake Recreation Area	Spring Mill Pond
Monitored	Island Lake Recreation Area - Kent Lake	Kent Lake
Monitored	Lake Chemung Outdoor Resort	Lake Chemung
Monitored	Lakelands Golf & Country Club	Winans Lake
Monitored	Nazarene Camp	Sandy Bottom Lake
Monitored	Pine Hills Camp	Haynor Lake
Not Monitored	Providence Medical Center	Pickerel Lake
Monitored	Taylor's Beach	Cook Lake
Monitored	Varsity Day Camp	Cordley Lake
Monitored	Waldenwoods Resort	Lake Walden
Monitored	Wildwood Ranch	Church Lake

Macomb

Monitored	Stoney Creek Metropark-Baypoint Beach	Stoney Creek Lake
Monitored	Stoney Creek Metropark-Eastwood Beach	Stoney Creek Lake

Marquette

Not Monitored	Marquette Tourist Park Beach	Dead River Reservoir
Monitored	Shiras Swimming Area	Shiras Pool

Menominee

Not Monitored	Hermansville Beach	Hermansville Lake
Not Monitored	Shakey Lakes Campground	Shakey Lakes

Monroe

Not Monitored	Camp Lord Willing	Camp Lord Willing Pond
Not Monitored	Covered Wagon Campground	Covered Wagon Pond
Monitored	Heath Beach	Heath Beach Pond
Not Monitored	K.C. Campground	K.C. Campground Pond
Not Monitored	Monroe KOA Campground	Monroe KOA Pond
Not Monitored	Pirolli's Campground	Pirolli's Campground Pond
Not Monitored	The Vine	The Vine Campground Pond
Monitored	Totem Pole Campground Pond	(man-made pond)
Not Monitored	Wilderness Retreat Campground	Wilderness Retreat Pond

Montmorency

Not Monitored	Clear Lake Day Use	Clear Lake
Monitored	Clear Lake State Park	Clear Lake
Not Monitored	Crooked Lake Beach	Crooked Lake
Not Monitored	East Twin Beach/Albert Township Park	East Twin Lake
Not Monitored	Ess Lake State Campground	Ess Lake

Muskegon

Not Monitored	Blue Lake County Park Beach	Big Blue Lake
Not Monitored	Deremo County Park	Big Blue Lake

Appendix A. Michigan List of Inland Beaches - 2005

Not Monitored	Duck Lake State Park Beach	Duck Lake
Not Monitored	Fox Lake Park Beach	Fox Lake
Not Monitored	Fred Jacks Park	Bear Lake
Not Monitored	Goodrich Park	White Lake
Not Monitored	Harbour Towne Beach	Muskegon Lake
Monitored	Laketon Township Beach	Bear Lake
Not Monitored	Maple Park	White Lake
Not Monitored	Mona Lake Park Beach	Mona Lake
Not Monitored	Moore County Park Beach	Half Moon Lake
Not Monitored	Muskegon State Park - Muskegon Lk Side	Muskegon Lake
Monitored	Ross Park Beach	Mona Lake
Not Monitored	Sunset Park	Wolf Lake
Monitored	Twin Lake County Park Beach	Twin Lake
Not Monitored	Wolf Lake County Park	Wolf Lake

Oakland

Not Monitored	657 Dunleavy	Upper Pettibone Lake
Monitored	Addison Oaks Co. Park	Adams Lake
Not Monitored	Alpha Beach	Union Lake
Monitored	Bald Mountian Rec. Area	Lower Trout
Not Monitored	Banker's Sub.	Upper Straits Lake
Monitored	Bay Court Park	Green Lake
Not Monitored	Birch Park	Loon Lake
Not Monitored	Bird Island Sub.	Oakland Lake
Monitored	Bloomfield Parks & Rec./West Hills H.S.	Walnut Lake
Not Monitored	Brendle Heights - Hillwood	Brendel Lake
Monitored	Brown's Landing Mobile Home Park	Tipsico Lake
Not Monitored	Burley & Barnsbury Streets	Union Lake
Monitored	Camp Agawam Boy Scout Camp	Tommys Lake
Monitored	Camp Dearborn - Lake #1	Phillips Lake
Monitored	Camp Dearborn - Lake #5	Phillips Lake
Not Monitored	Camp Gordanwood	Ekelund Lake
Monitored	Camp Maas - Rodecker	Phillips Lake
Monitored	Camp Maas- Sobell Beach	Phillips Lake
Not Monitored	Camp Nahelu	Perry Lake
Monitored	Camp Oakland - summer	Handsome Lake
Monitored	Camp Ohiyesa - North	Fish Lake
Monitored	Camp Wathana	Green Lake
Monitored	Cass Lake Woods	Cass Lake
Not Monitored	Cedar Crest Sub.	Cedar Island Lake
Monitored	Christ the King Church Camp	Long Lake
Monitored	Cloister-on-the-Lakes	Fox Lake
Not Monitored	Cranberry Lake Village	Cranberry Lake
Monitored	Crescent Highlands	Crescent Lake
Monitored	Crescent Lake Park	Crescent Lake
Not Monitored	Crystal Echo	Middle Straits Lake
Not Monitored	Crystal Echo (the point)	Middle Straits Lake
Not Monitored	Cunningham Park	Sylvan Lake
Monitored	Davisburg Village Beach (Hart Community Center)	Mill Pond
Monitored	Dodge Park #4	Cass Lake
Not Monitored	Doll's Dock (Skip's Landing)	Lakeville Lake

Appendix A. Michigan List of Inland Beaches - 2005

Monitored	E.V. Mercer City Beach	Walled Lake
Not Monitored	Family Park	Round Lake
Monitored	Ferndale	Sylvan Lake
Monitored	Finnish Day Camp	Sun Lake
Not Monitored	Green Acres / Green Valley Park	Green Lake
Monitored	Greens Park Village Beach	Lake Orion
Monitored	Groveland Oaks Co. Park - Paradise Beach	Stewart Lake
Monitored	Haas Lake Park #1	Haas Lake
Monitored	Haas Lake Park #2	Big Peat Lake
Monitored	Haas Lake Park #3	Haas Lake
Monitored	Hammond Estates	Hammond Lake
Not Monitored	Harris Park	Lotus Lake
Not Monitored	Harvey Lake Estates	Harvey Lake
Not Monitored	Harvey Lake Heights	Harvey Lake
Monitored	Heather Lake Estates	Heather Lake
Monitored	Holly Rec Area - Wildwood Beach	Wildwood Lake
Monitored	Holly Rec. Area - Heron Beach	Heron Lake
Monitored	Holly Township Beach	Bush Lake
Not Monitored	Idlewild Sub.	Bass Lake
Monitored	Independence Oaks Co. Park	Crooked Lake
Monitored	Independence Twp. Village Beach	Deer Lake
Not Monitored	Indianwood	Loon Lake
Not Monitored	Jacksina Sub.	Rowe Lake
Monitored	Keego Harbor city Beach	Cass Lake
Monitored	Keego Harbor Trailer Park	Cass Lake
Monitored	Kensington - Maple beach	Kent Lake
Monitored	Kensington - Martindale Beach	Kent Lake
Monitored	Lake Angelus Lakeview Estates	Morgan Lake
Monitored	Lake Braemar Estates - Tamryn Ct.	Braemar Lake
Not Monitored	Lake Oakland Heights	Oakland Lake
Not Monitored	Lake Oakland Shores	Oakland Lake
Not Monitored	Lake Orion Heights	Orion Lake
Monitored	Lakeshore Park	Walled Lake
Not Monitored	Lakeview	Sylvan Lake
Monitored	Lakeview Recreation	Carpenter Lake
Not Monitored	Lakewood Farms - Crocus St.	Geneva Lake
Not Monitored	Lakewood Farms - Sharon St.	Geneva Lake
Not Monitored	Lakewood Village	Brendel Lake
Not Monitored	Lakewood Village Sub.	Neva Lake
Not Monitored	Lanarh St.	Watkins Lake
Not Monitored	Ledgewood	Sherwood Lake
Not Monitored	Lotus Park	Lotus Lake
Not Monitored	Mary K. Sub.	Tan Lake
Monitored	Meagher Park/Woodland Manor	Davis Lake
Not Monitored	Mission Springs Sub.	Darb Lake
Not Monitored	Mountain View	Lotus Lake
Not Monitored	North Beach	Sears Lake
Not Monitored	North Cove	Walnut Lake
Not Monitored	Oakridge Sub.	Sugden Lake
Not Monitored	Outlet A	Upper Straits Lake

Appendix A. Michigan List of Inland Beaches - 2005

Not Monitored	Pawlaks Campground	Brendel Lake
Not Monitored	Pinecrest Shores	Bogie Lake
Not Monitored	Pioneer Highlands	Sylvan Lake
Not Monitored	Pleasant Lake Highlands	Pleasant Lake
Not Monitored	Pleasant Lake Manor	Pleasant Lake
Not Monitored	Pleasant Lake Woods	Pleasant Lake
Monitored	Pontiac Rec. Area	Pontiac Lake
Monitored	Powers Picnic Sites	Huron River
Monitored	Proud Lake Rec. Area Campground	Proud Lake
Not Monitored	Ravinewood East	Sherwood Lake
Not Monitored	Ravinewood West	Sherwood Lake
Not Monitored	Rolling Acres	White Lake
Not Monitored	Rose Hill Center	Mud Lake
Monitored	Scripter Village Park Twp. Beach	Round Lake
Not Monitored	Scuba Company	Stony Lake
Monitored	Seven Lakes Park	Big Seven Lake
Monitored	Seven Lakes State Park - campground	Sand Lake
Not Monitored	Shady Beach	Upper Straits Lake
Not Monitored	Sherwood Boat Ramp	Sherwood Lake
Not Monitored	Shore Cliffs Estates	Orchard Lake
Not Monitored	Shores at Bay Point	Lower Straits Lake
Not Monitored	Silver Hill Road	Silver Lake
Monitored	Silver Valley Sub.	Carpenter Lake
Not Monitored	South Beach	Sears Lake
Not Monitored	St. Mary's	Orchard Lake
Not Monitored	Stanley Beach	White Lake
Monitored	Stony Beach	Middle Straits Lake
Monitored	Stony Lake Park	Stony Lake
Monitored	Sunny Beach #1 - Eston Rd.	Walters Lake
Monitored	Sunny Beach #2 - Clarkston Rd.	Walters Lake
Monitored	Sunset Club	Orion Lake
Not Monitored	Sunset Sub.	Cedar Island Lake
Monitored	Sylvan-on-the-Lakes	Cass Lake
Monitored	Teeple Lake Rec. Area - Highland State Park	Teeple Lake
Monitored	Thelma Spencer Park	Avon Lake
Monitored	Tripps Sub. Park	Middle Straits Lake
Monitored	Twin Beach Park	Middle Straits Lake
Not Monitored	Union Lake Heights Sub. #1	Union Lake
Not Monitored	Union Lake Heights Sub. #2	Union Lake
Monitored	Upland Hills Farm	Prince Lake
Not Monitored	Walnut Lake Park	Walnut Lake
Not Monitored	Waterford Hill	Van Norman Lake
Monitored	West Acres	Middle Straits Lake
Not Monitored	Westwood Manor	Wing Lake
Not Monitored	Whipple Shores Sub.	Whipple Lake
Not Monitored	White Lake Trailer Park	White Lake
Not Monitored	Whitney St.	Watkins Lake
Monitored	Willow Beach Sub.	Cass Lake
Ogemaw		
Monitored	Rifle River Recreation Area Campground Beach	Grousehaven Lake

Appendix A. Michigan List of Inland Beaches - 2005

Monitored	Rifle River Recreation Area Day Use Area	Grousehaven Lake
Monitored	Rifle River Recreation Area	Devoe Lake
Ontonagon		
Not Monitored	Bergland Township Park	Lake Gogebic
Not Monitored	Ontonagon County Park	Lake Gogebic
Osceola		
Not Monitored	Center Lake Bible Camp	Center Lake
Monitored	Center Lake Park	Center Lake
Not Monitored	City of Evert Campground	Muskegon River
Monitored	Crawford Park	Muskegon River
Monitored	Crittenton Park	Big Lake
Not Monitored	Diamond Lake	Diamond Lake
Not Monitored	DNR Access Diamond Lake	Diamond Lake
Not Monitored	DNR Access Hicks Lake	Hicks Lake
Not Monitored	DNR Access McCoy Lake	McCoy Lake
Not Monitored	DNR Access Todd Lake	Todd Lake
Not Monitored	DNR Access Wells Lake	Wells Lake
Not Monitored	Hersey Rd. Access	Muskegon River
Not Monitored	Kettunen Center	Center Lake
Monitored	Rose Lake County Park	Rose Lake
Not Monitored	Rose Lake Youth Camp	Rose Lake
Monitored	Sunrise Lake Park	Sunrise Lake
Otsego		
Monitored	Otsego County Park	Otsego Lake
Monitored	Otsego State Park	Otsego Lake
Ottawa		
Monitored	Dunton Park	Lake Macatawa
Monitored	Fallen Leaf Park	Fallen Leaf Lake
Monitored	Georgetown Community Park	Georgetown Lake
Monitored	Grose Park	Crockery Lake
Monitored	Holland State Park	Lake Macatawa
Monitored	Lakeside Beach	Spring Lake
Monitored	Maplewood Lake Park	Maplewood Lake
Monitored	Pottawattomie Park	Pottawattomie Bayou
Presque Isle		
Not Monitored	Grand Lake Northwest	Grand Lake
Not Monitored	Grand Lake Public Access	Grand Lake
Not Monitored	Lake May Public Access	Lake May
Not Monitored	Millersburg Park	Ocquoec River
Not Monitored	Ocquoec Falls Park	Ocquoec River
Not Monitored	Onaway State Park	Black Lake
Not Monitored	Shoepac Lake Camp Ground	Shoepac Lake
Not Monitored	Tomahawk Lake Camp Ground	Tomahawk Lake
Roscommon		
Not Monitored	Backus Twp. Park	Backus Pond
Not Monitored	Bambi Lake Camp	Bambi Lake/ Sinkhole Lake

Appendix A. Michigan List of Inland Beaches - 2005

Not Monitored	Beaver Creek Road End	Higgins Lake
Not Monitored	Camp Co-Be-Ac	Owens Lake
Monitored	Denton Twp. Public Beach	Houghton Lake
Not Monitored	DNR Public Fishing site	Higgins Lake
Monitored	Gerrish Township Park	Higgins Lake
Not Monitored	H.L. DNR Boat Launch and Park	Houghton Lake
Not Monitored	H.L.State Forest Campground	Houghton Lake
Not Monitored	Higgins Lake Public Fishing Site	Higgins Lake
Monitored	Houghton Lake Heights	Houghton Lake
Not Monitored	Houghton Lake Public Fishing Site	Houghton Lake
Not Monitored	Kelly Beach	Higgins Lake
Not Monitored	Old 27 DNR Access	Houghton Lake
Not Monitored	Phoenix Park	Higgins Lake
Monitored	Richfield Twp. Public Fishing Site	Lake St. Helen
Monitored	S. Higgins Lake State Park	Higgins Lake
Not Monitored	Sam-O-Set Road End	Higgins Lake
Saginaw		
Not Monitored	Haitco Recreation Area	Haitco Lake
Not Monitored	Lake of Dreams Campground	Lake of Dreams
St. Clair		
Monitored	Beechgrove Campground	Beechgrove Lake
Monitored	Fort Trodd Campground North	Fort Trodd Lake
Monitored	Fort Trodd South	Fort Trodd Lake
Monitored	Kimball Township Pond	Kimball Pond
St. Joseph		
Not Monitored	Cade Lake Beach	Cade Lake
Not Monitored	Nottawa Park	Sand Lake
Not Monitored	Palmer Lake Beach	Palmer Lake
Tuscola		
Not Monitored	Murphy Lake	Murphy Lake
Washtenaw		
Monitored	Independence Lake County Park	Independence Lake
Monitored	Pinckney Recreation Area	Half Moon Lake
Monitored	Pinckney Recreation Area	Bruin Lake
Monitored	Pinckney Recreation Area	Silver Lake
Monitored	Waterloo Recreation Area	Sugarloaf Lake
Wayne		
Monitored	Phoenix	Rouge River
Monitored	Van Buren Township Park	Belleville Lake
Monitored	Wilcox Lake	Rouge River
Wexford		
Monitored	City Park	Lake Cadillac
Monitored	Colfax Twsp Park	Lake Meauwataka
Monitored	Kenwood Park	Lake Cadillac
Monitored	Manton Park	Billings Lake
Monitored	Mitchell State Park	Lake Mitchell

Michigan's Great Lakes Beaches -2005

County	Monitoring Status	Beach Name	Waterbody Name
Alcona			
	Not Monitored	Black River Public Access	Lake Huron
	Monitored	Greenbush Township	Lake Huron
	Monitored	Harrisville State Park	Lake Huron
	Not Monitored	Negwegon State Park	Lake Huron
	Monitored	Trask Lake Rd. Beach	Lake Huron
Alger			
	Not Monitored	Au Train Beach	Lake Superior
	Not Monitored	Bay Furnace Recreation Area Beach	Lake Superior
	Not Monitored	Christmas Beach	Lake Superior
	Not Monitored	Grand Marais Harbor Beach	Lake Superior
	Not Monitored	Grand Marais Township Beach	Lake Superior
	Not Monitored	Miners Beach	Lake Superior
	Not Monitored	Munising Beach	Lake Superior
	Not Monitored	Rathfoot Park Beach	Lake Superior
	Not Monitored	Roadside Park	Lake Superior
	Monitored	Sand Point	Lake Superior
	Not Monitored	Twelvemile Beach	Lake Superior
Allegan			
	Monitored	Douglas Beach	Lake Michigan
	Monitored	Oval Beach	Lake Michigan
	Monitored	Pier Cove Beach	Lake Michigan
	Monitored	West Side County Park Beach	Lake Michigan
Alpena			
	Not Monitored	Bay View Park	Lake Huron
	Monitored	Blair Street Park	Lake Huron
	Not Monitored	Elcajon Bay	Lake Huron
	Not Monitored	Issineke Hardwood Point	Lake Huron
	Monitored	Michekewis Beach	Lake Huron
	Monitored	Ossineke Beach	Lake Huron
	Not Monitored	Ossineke Campground	Lake Huron
	Not Monitored	Ossineke South Point	Lake Huron
	Not Monitored	Ossineke State Park	Lake Huron
	Not Monitored	Partridge Point	Lake Huron
	Not Monitored	Rock Port Beach	Lake Huron
	Monitored	Starlite Beach	Lake Huron
	Monitored	Thompson Park	Lake Huron
	Not Monitored	Whitefish Bay	Lake Huron
Antrim			
	Not Monitored	Antrim Creek Natural Area	Lake Michigan
	Monitored	Banks Twp. Park	Lake Michigan
	Monitored	Barnes Park	Lake Michigan
	Not Monitored	Elk Rapids	Lake Michigan
	Not Monitored	Elk Rapids Bathing Beach	Lake Michigan

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Antrim-Continued			
	Monitored	Elk Rapids County Park	Lake Michigan
	Not Monitored	Elk Rapids Park	Lake Michigan
	Not Monitored	Erickson Road	Lake Michigan
	Not Monitored	Lore Road End Beach	Lake Michigan
	Not Monitored	Michigan Trail	Lake Michigan
	Not Monitored	Nature Preserve	Lake Michigan
	Not Monitored	North Bay Shore (Conservancy)	Lake Michigan
	Not Monitored	O'Dell Road	Lake Michigan
	Not Monitored	Road Crossing near Winters Road	Lake Michigan
	Monitored	Veterans Memorial Park	Lake Michigan
Arenac			
	Monitored	Arenac County Park	Saginaw Bay-Lake Huron
	Not Monitored	Augres Township Park Beach	Inner Saginaw Bay-Lake Huron
	Monitored	Bessinger Rd. Beach	Saginaw Bay-Lake Huron
	Not Monitored	Booth Rd Beach	Inner Saginaw Bay-Lake Huron
	Not Monitored	City of Augres Public Access	Inner Saginaw Bay-Lake Huron
	Monitored	Dyer Rd. Beach	Saginaw Bay-Lake Huron
	Monitored	Foster Rd. Beach	Saginaw Bay-Lake Huron
	Not Monitored	Gordon Rd Beach	Inner Saginaw Bay-Lake Huron
	Monitored	Hammel Beach Rd. Access	Saginaw Bay-Lake Huron
	Not Monitored	Pump Station	Saginaw Bay-Lake Huron
	Monitored	Singing Bridge Beach	Saginaw Bay-Lake Huron
	Not Monitored	Terrace Road	Inner Saginaw Bay-Lake Huron
	Monitored	Twining Rd. Beach	Saginaw Bay-Lake Huron
	Monitored	Whites Beach	Saginaw Bay-Lake Huron
Baraga			
	Not Monitored	Arvon Township Park	Huron Bay / Lake Superior
	Not Monitored	Baraga State Park	Keweenaw Bay / Lake Superior
	Not Monitored	First Sand Beach	Keweenaw Bay / Lake Superior
	Not Monitored	Lanse Township Park	Keweenaw Bay / Lake Superior
	Monitored	LAnse Waterfront Park	Keweenaw Bay / Lake Superior
	Not Monitored	Mouth of the Huron River	Lake Superior
	Not Monitored	Second Sands Beach	Keweenaw Bay / Lake Superior
Bay			
	Monitored	Bay City State Recreation Area	Inner Saginaw Bay-Lake Huron
	Monitored	Brissette Beach Township Park	Inner Saginaw Bay-Lake Huron
	Not Monitored	Nayanquing point wildlife area	Inner Saginaw Bay-Lake Huron
	Monitored	Pinconning Park	Inner Saginaw Bay-Lake Huron
	Monitored	South Linwood Beach Township Park	Inner Saginaw Bay-Lake Huron
	Monitored	Wenona Beach	Inner Saginaw Bay-Lake Huron
Benzie			
	Not Monitored	Alberta Village Beach & Bluffs	Lake Michigan
	Not Monitored	Esch Road/Otter Creek	Lake Michigan
	Monitored	Frankfort: Anchor Road Beach	Lake Michigan
	Not Monitored	North Bar	Lake Michigan
	Not Monitored	Platte River Point	Lake Michigan
	Not Monitored	Point Betsie Lighthouse Beach	Lake Michigan

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Benzie-Continued			
	Not Monitored	Zettenberg Preserve	Lake Michigan
Berrien			
	Monitored	Cherry Beach	Lake Michigan
	Monitored	Grand Beach	Lake Michigan
	Monitored	Hagar Township Park	Lake Michigan
	Monitored	Harbert Beach	Lake Michigan
	Monitored	Jean Klock Park	Lake Michigan
	Monitored	Lincoln Township Park	Lake Michigan
	Monitored	Lions Park	Lake Michigan
	Monitored	Michiana Village	Lake Michigan
	Monitored	New Buffalo City	Lake Michigan
	Monitored	Rocky Gap	Lake Michigan
	Monitored	Silver Beach	Lake Michigan
	Monitored	Tiscornia Park	Lake Michigan
	Monitored	Warren Dunes	Lake Michigan
	Monitored	Weko Beach	Lake Michigan
Charlevoix			
	Not Monitored	Beaver Island Public Beach	Lake Michigan
	Not Monitored	Bill Wagner Memorial Campground Beach	Lake Michigan
	Monitored	Depot Beach	Lake Charlevoix- Lake Michigan
	Monitored	East Jordan Tourist Park	Lake Charlevoix- Lake Michigan
	Monitored	Elm Point Beach	Lake Charlevoix- Lake Michigan
	Monitored	Ferry Beach	Lake Charlevoix- Lake Michigan
	Monitored	Fisherman's Island State Park	Lake Michigan
	Not Monitored	Harbor Beach	Lake Michigan
	Not Monitored	Hayes Township Park	Lake Charlevoix- Lake Michigan
	Not Monitored	Iron Ore Bay Beach	Lake Michigan
	Monitored	Lake Michigan Beach	Lake Michigan
	Monitored	Mt. McSauba Beach	Lake Michigan
	Monitored	Norwood Park	Lake Michigan
	Monitored	Peninsula Beach	Lake Charlevoix- Lake Michigan
	Not Monitored	Tannery Park	Lake Charlevoix- Lake Michigan
	Not Monitored	Washington Street Beach	Lake Charlevoix- Lake Michigan
	Monitored	Whiting Park Beach	Lake Charlevoix- Lake Michigan
	Monitored	Young State Park Beach	Lake Charlevoix- Lake Michigan
Cheboygan			
	Monitored	Cheboygan City Park	Lake Huron
	Monitored	Cheboygan State Park Dunken Bay	Lake Huron
	Not Monitored	Ditta Park	Lake Huron
	Not Monitored	Huron Street Beach	Lake Huron
	Not Monitored	Mackinaw City Beach	Lake Michigan
	Monitored	Mackinaw City Lighthouse Park	Lake Huron
	Not Monitored	Mill Creek public access	Lake Huron
	Monitored	Wawatam City Park	Lake Huron
Chippewa			
	Monitored	Bayview Campground	Lake Superior
	Monitored	Big Pines Beach	Lake Superior

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Chippewa-Continued			
	Not Monitored	Big Shoal Cove Beach	Lake Huron
	Monitored	Brimley State Park	Lake Superior
	Not Monitored	Detour Albany Beach	Lake Huron
	Not Monitored	Drummond Island Township Park	Lake Huron
	Monitored	Four Mile Beach	St. Mary's River
	Monitored	Sherman Park	Lake Superior
	Monitored	Sugar Island Township Park	St. Mary's River
Delta			
	Monitored	Escanaba Bathing Beach	Lake Michigan
	Not Monitored	Fayette State Park	Lake Michigan
	Not Monitored	Fuller Park	Lake Michigan
	Monitored	Gladstone Bathing Beach/Van Cleve Park	Lake Michigan
	Not Monitored	Twin Springs Campground and Bathing Beach	Lake Michigan
Emmet			
	Not Monitored	Bliss Twp. Beach	Lake Michigan
	Not Monitored	Church Beach	Lake Michigan
	Monitored	Cross Village Beach	Lake Michigan
	Monitored	Harbor Springs Beach	Lake Michigan
	Monitored	Mackinaw City Beach #1	Lake Michigan
	Monitored	Mackinaw City Beach #2	Lake Michigan
	Monitored	Magnus Park	Lake Michigan
	Monitored	Middle Village Park	Lake Michigan
	Not Monitored	Petoskey Harbor	Lake Michigan
	Monitored	Petoskey State Park	Lake Michigan
	Not Monitored	Readmond Township Beach	Lake Michigan
	Not Monitored	Thorne Swift Preserve	Lake Michigan
	Monitored	Wilderness State Park	Lake Michigan
	Not Monitored	Zoll Street Beach	Lake Michigan
Gogebic			
	Not Monitored	Black River Harbor Beach	Lake Superior
	Not Monitored	Little Girls Point Park	Lake Superior
	Not Monitored	Mouth of the Montreal River	Lake Superior
	Not Monitored	Presque Isle Beach	Lake Superior
Grand Traverse			
	Not Monitored	Acme Roadside Park & Beach MDOT	Grand Traverse Bay-Lake Michigan
	Not Monitored	Acme Roadside Park (DNR)	Grand Traverse Bay-Lake Michigan
	Not Monitored	Bayside Acme Twp Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Bowers Harbor Public Access	Grand Traverse Bay-Lake Michigan
	Monitored	Bryant Park Beach	Grand Traverse Bay-Lake Michigan
	Monitored	Clinch Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Deep Water Point	Grand Traverse Bay -Lake Michigan
	Not Monitored	DNR Launch/Beach Center Rd	Grand Traverse Bay-Lake Michigan
	Monitored	East Bay Beach at Traverse City State Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	East Bay Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	East Bay Township Four Mile Road	Grand Traverse Bay -Lake Michigan
	Not Monitored	Haserot Beach	Grand Traverse Bay-Lake Michigan
	Not Monitored	Kroupa Road Access	Grand Traverse Bay-Lake Michigan

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Grand Traverse-Continued			
	Not Monitored	Marion Island Bay Park	Grand Traverse Bay-Lake Michigan
	Monitored	Milliken	Grand Traverse Bay-Lake Michigan
	Not Monitored	Mouth of Boardman	Grand Traverse Bay-Lake Michigan
	Not Monitored	Old Mission Lighthouse	Grand Traverse Bay-Lake Michigan
	Not Monitored	Old Mission Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Old Mission Rd	Grand Traverse Bay-Lake Michigan
	Not Monitored	Peninsula Vol. Fire Station Point#2	Grand Traverse Bay-Lake Michigan
	Not Monitored	Rose Street Access	Grand Traverse Bay-Lake Michigan
	Not Monitored	Sayler Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Senior Center	Grand Traverse Bay-Lake Michigan
	Not Monitored	Sunset Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Swaney Road	Grand Traverse Bay-Lake Michigan
	Not Monitored	W. Grand Traverse Bay Access Site	Grand Traverse Bay-Lake Michigan
	Monitored	West End Beach	Grand Traverse Bay-Lake Michigan
	Monitored	Yuba Beach	Grand Traverse Bay-Lake Michigan
Houghton			
	Monitored	Agate Beach	Lake Superior
	Not Monitored	Calument Waterworks Beach	Lake Superior
	Monitored	Chassell Beach	Pike Bay of Portage Canal-Lake Superior
	Monitored	Dollar Bay Beach	Portage Canal-Lake Superior
	Monitored	Hancock City Beach	Portage Canal-Lake Superior
	Monitored	Houghton City Beach	Portage Canal-Lake Superior
	Not Monitored	Hubbell Park	Torch Lake of Portage Canal-Lake Superior
	Monitored	Lake Linden Campground Beach	Torch Lake of Portage Canal-Lake Superior
	Monitored	McLain State Park Beach	Lake Superior
	Not Monitored	Mink Farm	Lake Superior
	Not Monitored	White City	Lake Superior
Huron			
	Monitored	Bird Creek County Park	Lake Huron
	Monitored	Caseville County Park	Lake Huron
	Not Monitored	County Road End	Lake Huron
	Not Monitored	Geiger Rd Public Access	Lake Huron
	Not Monitored	Grindstone Public Access	Lake Huron
	Monitored	Harbor Beach City Park	Lake Huron
	Not Monitored	Harbor Beach Marina	Lake Huron
	Not Monitored	Helena Rd End	Lake Huron
	Monitored	Jenks County Park	Lake Huron
	Not Monitored	Kinch Rd End	Lake Huron
	Not Monitored	Larned Road End	Lake Huron
	Monitored	Lighthouse County Park	Lake Huron
	Monitored	McGraw County Park	Lake Huron
	Not Monitored	Mud Creek Public Access	Lake Huron
	Monitored	Oak Beach County Park	Lake Huron
	Monitored	Philip County Park	Lake Huron
	Monitored	Port Crescent State Park - Camping Area	Lake Huron
	Monitored	Port Crescent State Park - Day Use	Lake Huron
	Monitored	Sleeper State Park	Lake Huron

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Huron-Continued			
	Not Monitored	Stafford County Park	Lake Huron
	Monitored	Thompson Park	Lake Huron
	Not Monitored	Wagener County Park	Lake Huron
Iosco			
	Monitored	Alabaster Township	Lake Huron
	Monitored	AuSable Township Park	Lake Huron
	Not Monitored	County Road End.	Tawas Bay-Lake Huron
	Monitored	East Tawas City Park	Tawas Bay-Lake Huron
	Not Monitored	Gateway Park	Tawas Bay-Lake Huron
	Monitored	Lake To Lake Rd.	Lake Huron
	Monitored	MDOT Roadside Park	Lake Huron
	Monitored	Oscoda Township Beach	Lake Huron
	Monitored	Tawas City Park	Tawas Bay-Lake Huron
	Monitored	Tawas Point State Park - Day Use area	Lake Huron
	Monitored	Tawas Point State Park campground	Lake Huron
Keweenaw			
	Not Monitored	Bete de Gris Beach	Bete Gris Bay-Lake Superior
	Not Monitored	Brunette Park	Lake Superior
	Not Monitored	Cat Harbor Beach	Lake Superior
	Monitored	Eagle Harbor Beach	Lake Superior
	Not Monitored	Eagle River Beach	Lake Superior
	Not Monitored	Fort Wilkins State Park	Lake Superior
	Not Monitored	Great Sands Bay Beach	Lake Superior
	Not Monitored	Mouth of the Gratiot River Beach	Lake Superior
	Not Monitored	Point Isabelle Beach	Lake Superior
Leelanau			
	Not Monitored	4th Street Beach Northport	Lake Michigan
	Not Monitored	5th Street Beach Northport	Grand Traverse Bay-Lake Michigan
	Not Monitored	7th Street Beach Northport	Grand Traverse Bay-Lake Michigan
	Not Monitored	Bay Front Park	Lake Michigan
	Not Monitored	Boughy Park & Beach	Grand Traverse Bay-Lake Michigan
	Not Monitored	Cathead Bay, Leelanau State Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Cedar Street Beach	Lake Michigan
	Not Monitored	Christmas Cove	Grand Traverse Bay-Lake Michigan
	Not Monitored	County Road # 669	Lake Michigan
	Not Monitored	County Road 651	Lake Michigan
	Not Monitored	Elmwood/Greiliville Park & Beach	Grand Traverse Bay-Lake Michigan
	Monitored	Empire Municipal Beach	Lake Michigan
	Not Monitored	G. Marsten Dame Marina	Lake Michigan
	Not Monitored	Gils Pier	Lake Michigan
	Not Monitored	Glen Arbor/Manitou Blvd Each	Lake Michigan
	Not Monitored	Graham Green Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Haserot Beach, Rose St	Lake Michigan
	Not Monitored	Lake St. Beach, Glen Arbor	Lake Michigan
	Not Monitored	Leelanau State Park,Lighthouse	Lake Michigan
	Not Monitored	Leland Harbor	Lake Michigan
	Not Monitored	M-DOT Roadside Park & Beach	Grand Traverse Bay-Lake Michigan

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Leelanau-Continued			
	Not Monitored	North St Beach	Lake Michigan
	Monitored	Northport Bay	Grand Traverse Bay-Lake Michigan
	Not Monitored	Omena Beach & Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Peterson Park	Lake Michigan
	Not Monitored	Reynolds Street Beach	Lake Michigan
	Not Monitored	Roadside Park & Beach	Grand Traverse Bay-Lake Michigan
	Not Monitored	Smith St Beach Northport	Lake Michigan
	Not Monitored	South Shore Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Suttons Bay Marina Park & Beach South	Grand Traverse Bay-Lake Michigan
	Monitored	Suttons Bay Park	Grand Traverse Bay-Lake Michigan
	Not Monitored	Suttons Bay Public Launch and Beach	Grand Traverse Bay-Lake Michigan
	Not Monitored	Thompson St. Beach	Lake Michigan
Luce			
	Not Monitored	Blind Sucker River No. 1	Lake Superior
	Not Monitored	Blind Sucker River No. 2	Lake Superior
	Not Monitored	Coast Guard Line Road	Lake Superior
	Not Monitored	Crisp Point Light House	Lake Superior
	Not Monitored	Lake Superior Campground Beach	Lake Superior
	Not Monitored	Mouth of the Two Hearted River Campground	Lake Superior
	Not Monitored	Muskallonge Lake State Park Beach	Lake Superior
	Not Monitored	Unnamed Road End #1	Lake Superior
	Not Monitored	Unnamed Road End #2	Lake Superior
	Not Monitored	Unnamed Road End #3	Lake Superior
Mackinac			
	Not Monitored	American Legion Memorial Park	Lake Huron
	Not Monitored	Antoine Rd. End	Lake Huron
	Not Monitored	Coast Guard Pier Boat Launch and City Park	Lake Huron
	Not Monitored	Foley Creek Campground	Lake Huron
	Not Monitored	Harbour Light	Lake Huron
	Not Monitored	Hazelton Rd. End	Lake Huron
	Not Monitored	Hiawatha National Forest- Carp River Access	Lake Huron
	Not Monitored	Horseshoe Bay Wilderness	Lake Huron
	Not Monitored	Kiwanis Beach	Lake Huron
	Not Monitored	MDOT Overlook	Lake Michigan
	Not Monitored	Sand Point	Lake Michigan
	Not Monitored	Straits State Park	Lake Huron
	Not Monitored	US 2 Roadside East of Brevort	Lake Michigan
	Not Monitored	US 2 Roadside/Campground	Lake Michigan
Macomb			
	Monitored	HCMA - Metropolitan Beach Metropark	Lake St. Clair
	Monitored	New Baltimore Park Beach	Lake St. Clair
	Monitored	St. Clair Shores Blossom Heath Beach	Lake St. Clair
	Monitored	St. Clair Shores Memorial Park Beach	Lake St. Clair
Manistee			
	Monitored	Arcadia Park	Lake Michigan
	Monitored	Bar Lake Outlet	Lake Michigan
	Monitored	Fifth Avenue Beach	Lake Michigan

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Manistee-Continued			
	Monitored	First Street Beach	Lake Michigan
	Monitored	Magoon Creek	Lake Michigan
	Monitored	Onekama Township Beach	Lake Michigan
	Monitored	Orchard Beach State Park	Lake Michigan
	Monitored	Pierport Township Beach	Lake Michigan
	Monitored	Sundling Park	Lake Michigan
Marquette			
	Monitored	Marquette South Beach	Lake Superior
	Monitored	McCarty's Cove	Lake Superior
	Monitored	North Beach	Lake Superior
	Monitored	North of Picnic Rocks	Lake Superior
	Monitored	Picnic Rocks	Lake Superior
Mason			
	Monitored	Bass Lake Outlet Beach	Lake Michigan
	Monitored	Buttersville Park Beach	Lake Michigan
	Monitored	Ludington State Park	Lake Michigan
	Monitored	Manistee National Forest Beach	Lake Michigan
	Monitored	South Pier Beach	Lake Michigan
	Monitored	South Summit Beach	Lake Michigan
	Monitored	Sterns Park Beach	Lake Michigan
	Monitored	Summit Township Beach	Lake Michigan
Menominee			
	Monitored	Fox Park	Lake Michigan
	Monitored	Henes Park	Lake Michigan
	Not Monitored	Klienke Park	Lake Michigan
	Monitored	Memorial Beach	Lake Michigan
	Not Monitored	Wells State Park	Lake Michigan
Monroe			
	Monitored	Luna Pier City Beach	Lake Erie
	Monitored	Sterling State Park	Lake Erie
Muskegon			
	Monitored	Bronson/Kruse Park	Lake Michigan
	Monitored	Duck Lake Channel Beach	Lake Michigan
	Monitored	Lake Harbor Park	Lake Michigan
	Monitored	Lighthouse/Sylvan Beach	Lake Michigan
	Monitored	Medbury Park Beach	Lake Michigan
	Monitored	Meinert County Park	Lake Michigan
	Monitored	Muskegon State Park	Lake Michigan
	Monitored	Old Channel Beach	Lake Michigan
	Monitored	Pere Marquette Park	Lake Michigan
	Monitored	Pioneer County Park	Lake Michigan
	Monitored	PJ Hoffmaster State Park - Campground	Lake Michigan
	Monitored	PJ Hoffmaster State Park - Public Beach Area	Lake Michigan
Oceana			
	Monitored	Claybanks Township Park	Lake Michigan
	Monitored	Lighthouse Beach at Silver Lake State Park	Lake Michigan

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Oceana-Continued			
	Monitored	Mears State Park	Lake Michigan
	Monitored	Silver Creek Channel	Silver Lake-Lake Michigan
	Monitored	Stony Lake Channel	Stony Lake-Lake Michigan
	Monitored	Whiskey Creek	Lake Michigan
Ontonagon			
	Not Monitored	Green Park	Lake Superior
	Not Monitored	Gull Point Beach	Lake Superior
	Not Monitored	Mouth of the Big Iron River Beach	Lake Superior
	Monitored	Ontonagon Township Park and Campground	Lake Superior
	Monitored	Porcupine Mountains State Park	Lake Superior
	Not Monitored	Union Bay Beach	Lake Superior
Ottawa			
	Monitored	Grand Haven City Beach	Lake Michigan
	Monitored	Grand Haven State Park	Lake Michigan
	Monitored	Holland State Park	Lake Michigan
	Monitored	Kirk Park	Lake Michigan
	Monitored	Kouw Park	Lake Michigan
	Monitored	North Beach Park	Lake Michigan
	Monitored	Rosy Mound Recreation Area	Lake Michigan
	Monitored	Tunnel Park	Lake Michigan
	Monitored	Windsnest Park	Lake Michigan
Presque Isle			
	Not Monitored	40 Mile Pt Park	Lake Huron
	Not Monitored	Ball Diamond Park	Lake Huron
	Not Monitored	Bell Bay	Lake Huron
	Not Monitored	Grace Access Site	Lake Huron
	Not Monitored	Hammond Bay Access Site	Lake Huron
	Not Monitored	Hammond Bay Harbor	Lake Huron
	Monitored	Hoeft State Park	Lake Huron
	Not Monitored	Hoeft State Park	Lake Huron
	Not Monitored	Lakeside Park Beach	Lake Huron
	Monitored	Lakeside Park(Rogers City)	Lake Huron
	Not Monitored	Lakeview Park Beach	Lake Huron
	Not Monitored	New Lighthouse Park	Lake Huron
	Not Monitored	Presque Ilse Harbor Beach	Lake Huron
	Not Monitored	Presque Isle Harbor	Lake Huron
	Not Monitored	Seagull Point Park	Lake Huron
	Not Monitored	Thompson's Harbor	Lake Huron
	Not Monitored	US 23 Hammond Bay	Lake Huron
	Not Monitored	US 23 Roger City	Lake Huron
Sanilac			
	Not Monitored	Birch Beach	Lake Huron
	Not Monitored	Birch Beach Middle #2	Lake Huron
	Not Monitored	Birch Beach North #3	Lake Huron
	Not Monitored	Delaware Park	Lake Huron
	Monitored	Forester County Park	Lake Huron
	Not Monitored	Forestville Beach	Lake Huron

Appendix B. Michigan List of Beaches for Great Lakes - 2005

County	Monitoring Status	Beach Name	Waterbody Name
Sanilac-Continued			
	Monitored	Lexington Beach	Lake Huron
	Monitored	Lexington County Park	Lake Huron
	Monitored	Port Sanilac Park	Lake Huron
Schoolcraft			
	Not Monitored	Doyle Township Park	Lake Michigan
	Not Monitored	Lakeview Park	Lake Michigan
	Not Monitored	Manistique Township Park	Lake Michigan
	Not Monitored	Roadside Park Beach	Lake Michigan
	Not Monitored	Rogers Beach	Lake Michigan
St. Clair			
	Monitored	Burtchville Township Park	Lake Huron
	Monitored	Chrysler Park Beach	St. Clair River
	Monitored	Conger-Lighthouse Beach	Lake Huron
	Monitored	Holland Road Beach	Lake Huron
	Monitored	Jeddo Road Beach	Lake Huron
	Monitored	Keewadhin Road Beach	Lake Huron
	Monitored	Krafft Road Beach	Lake Huron
	Monitored	Lakeport State Campground	Lake Huron
	Monitored	Lakeport State Park	Lake Huron
	Monitored	Lakeside Beach	Lake Huron
	Monitored	Marine City Beach	St. Clair River
	Monitored	Marine City Diving Area	St. Clair River
	Monitored	Metcalf Road Beach	Lake Huron
	Monitored	Washington Street Park	Lake Huron
Van Buren			
	Not Monitored	Covert Township Park Beach	Lake Michigan
	Monitored	South Haven North Beach	Lake Michigan
	Monitored	South Haven South Beach	Lake Michigan
	Not Monitored	Van Buren State Park Beach	Lake Michigan
Wayne			
	Not Monitored	Belle Isle Beach	Detroit River
	Monitored	Pier Park	Lake St Clair

Appendix C. CMI-CWF Grants for Great Lake and Inland Beaches (2000 and 2001) and Inland Beaches (2003, 2004, 2005).

Table 1. 2000 CMI-CWF Grants.

2000 CMI-CWF Grantees	Requested Budget Amount	Granted Amount	Total Monitored Beaches
Berrien County Health Department	\$49,012	\$24,450	11
Central Michigan District Health Department	\$94,115	\$46,363	66
Chippewa County Health Department	\$15,882	\$15,882	8
City of Marquette	\$19,071	\$19,071	7
Grand Traverse Bay Watershed Initiative	\$34,768	\$34,768	17
Huron County Health Department	\$18,407	\$18,407	11
Kent County Health Department	\$5,820	\$5,820	9
Macomb County Health Department	\$57,649	\$28,239	6
TOTAL	\$294,724	\$193,000	135

Table 2. 2001 CMI-CWF Grants.

2001 CMI-CWF Grantees	Requested Budget Amount	Granted Amount	Total Monitored Beaches
District Health Department #4	\$16,782	\$16,782	44
Kalamazoo County Human Services Department	\$35,000	\$35,000	21
Muskegon County Health Department	\$9,073	\$9,073	14
Northwest Michigan Community Health Agency	\$14,079	\$14,079	22
St. Clair County Health Department	\$25,000	\$25,000	26
TOTAL	\$99,934	\$99,934	127

Table 3. 2003 CMI-CWF Grants.

2003 CMI-CWF Grantees	Requested Budget Amount	Granted Amount	Total Monitored Beaches
Barry-Eaton District Health Department	\$14,812.51	\$14,812.51	7
Branch, Hillsdale, St. Joseph Community Health Agency	\$48,690.41	\$10,000	51
Central Michigan District Health Department	\$48,546	\$18,375	45
Chippewa County Health Department	\$12,833.41	\$12,833.41	4
District Health Department #4	\$22,090.69	\$10,000	13
Genesee County Health Department	\$28,849	\$10,000	21
Macomb County Health Department	\$6,543	\$6,543	2
Muskegon County Health Department	\$25,023	\$10,000	15
Oakland County Health Division	\$17,462.68	\$14,725.49	76
Ottawa County Health Department	\$7,403	\$5,544	10
TOTAL	\$232,253.70	\$112,833.41	244

Appendix C. CMI-CWF Grants for Great Lake and Inland Beaches (2000 and 2001) and Inland Beaches (2003, 2004, 2005).

Table 4. 2004 CMI-CWF Grants.

2004 CMI-CWF Grantees	Requested Budget Amount	Granted Amount	Total Monitored Beaches
Central Michigan District Health Department	\$55,966.20	\$38,117.57	54
Chippewa County Health Department	\$5,759.02	\$5,759.02	2
District Health Department #4	\$9,800.01	\$9,800.01	24
Grand Traverse (Watershed Center)	\$7,736.34	\$7,736.34	3
Muskegon County Health Department	\$1,369.00	\$1,369.00	13
Northwest Michigan Community Health Agency	\$8,440.00	\$8,440.00	5
Wayne County Health Department	\$15,235.50	\$15,235.50	8
Western Upper Peninsula District Health Department	\$9,114.56	\$9,114.56	6
Wexford County Drain Commission	\$4,428.00	\$4,428	5
TOTAL	\$117,848.63	\$100,00.00	120

Table 5. 2005 CMI-CWF Grants.

2005 CMI-CWF Grantees	Requested Budget Amount	Granted Amount	Total Monitored Beaches
Barry-Eaton District Health Department	\$17,333.41	\$10,000.00	9
Central Michigan District Health Department	\$66,981.60	\$20,771.04	73
District Health Department #2	\$34,130.40	\$6,500.00	16
District Health Department #4	\$31,660.92	\$8,000.00	19
Genesee County Health Department	\$29,774.00	\$10,000.00	11
Kalamazoo County health Department	\$49,812.20	\$20,000.00	8
Muskegon County health Department	\$10,895.00	\$5,000.00	15
Northwest Michigan Community Health Agency	\$9,740.00	\$5,000.00	13
Ottawa	\$13,595.00	\$5,000.00	8
Western Upper Peninsula District	\$7,796.42	\$5,000.00	6
Wexford	\$4,728.96	\$4,728.96	5
TOTAL	\$317,336.58	\$100,000.00	199

Appendix D. BEACH Act Grants for Great Lakes Beaches.

Table 1. 2003 BEACH Act Grants.

2003 BEACH Act Grantees	Requested Budget Amount	Granted Amount	Total Monitored Beaches
Bay County Health Department	\$16,410	\$12,000	6
Berrien County Health Department	\$17,732	\$16,368	13
Central Michigan District Health Department	\$10,152	\$12,152	8
Chippewa County Health Department	\$19,564.38	\$14,590.56	9
City of Marquette	\$11,371.40	\$8,551.20	5
District Health Department #2	\$19,899.75	\$16,000	8
District Health Department #4	\$35,656.46	\$23,000	13
District Health Department #10	\$41,721	\$24,928.11	20
Grand Traverse Bay Watershed	\$23,695	\$23,695	12
Huron County Health Department	\$41,061	\$23,000	13
Macomb County Health Department	\$23,525	\$10,000	4
Muskegon District Health Department	\$11,371	\$11,371	10
Northwest Michigan Community Health Agency	\$24,930.93	\$15,730.93	23
Sanilac County Health Department	\$15,817	\$13,817	7
St. Clair County Health Department	\$24,094.50	\$23,000	13
Western Upper Peninsula District Health Department	\$27,632.79	\$21,000	18
TOTAL	\$367,634.21	\$269,203.80	182

Table 2. 2004 BEACH Act Grants.

2004 BEACH Act Grantees	Requested Budget Amount	Granted Amount	Total Monitored Beaches
Bay County Health Department	\$11,082.38	\$11,082.38	6
Berrien County Health Department	\$36,212	\$23,104	19
Central Michigan District Health Department	\$13,899	\$13,899	8
Chippewa County Health Department	\$31,250.17	\$10,944	9
City of Marquette	\$13,848.56	\$6,080	5
District Health Department #2	\$28,042.10	\$10,944	9
District Health Department #4	\$21,293.29	\$15,808	13
District Health Department #10	\$24,999.50	\$24,999.50	23
Huron County Health Department	\$26,210.20	\$10,944	12
Macomb County Health Department	\$24,490	\$4,864	4
Muskegon County Health Department	\$15,000	\$15,000	12
Northwest Michigan Community Health Agency	\$15,649.65	\$15,649.65	26
Ottawa County Health Department	\$10,246.33	\$10,246.33	9
Public Health, Delta and Menominee Counties	\$12,937.18	\$12,937.18	13
Sanilac County Health Department	\$15,146.74	\$8,512	7
St. Clair County Health Department	\$24,641.24	\$17,024	14
The Watershed Center Grand Traverse Bay	\$22,035	\$15,808	13
Wayne County Health Department	\$10,182	\$3,651	3
Western Upper Peninsula District Health Department	\$21,634.92	\$13,376	11

Appendix D. BEACH Act Grants for Great Lakes Beaches.

TOTAL	\$378,800.26	\$244,873.04	216
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Table 3. 2005 BEACH Act Grants

2005 BEACH Act Grantees	Requested Budget Amount	Granted Amount	Total Monitored Beaches
Allegan County Health Department	\$9,572.00	\$10,881.00	4
Bay County Health Department	\$11,683.50	\$7,500.00	6
Berrien County Health Department	\$16,975.75	\$16,975.75	13
Central Michigan District Health Department	\$14,994.68	\$10,000.00	8
Chippewa County Health Department	\$19,855.53	\$11,000.00	9
District health Department #2	\$50,942.66	\$18,000.00	5
District Health Department #4	\$47,507.93	\$20,000.00	23
District Health Department #10	\$24,999.85	\$24,999.85	20
Grand Traverse (Watershed Center)	\$16,151.17	\$11,000.00	13
Huron County Health Department	\$18,259.39	\$14,290.00	12
Macomb County health Department	\$19,293.88	\$7,000.00	4
Marquette (City of Marquette)	\$14,700.00	\$7,275.96	2
Monroe County Health Department	\$12,416.52	\$6,000.00	12
Muskegon County health Department	\$14,295.00	\$14,295.00	26
Northwest Michigan Community Health Agency	\$19,541.84	\$19,541.84	9
Ottawa County Health Department	\$16,442.00	\$16,442.00	4
Public Health, Delta and Memominee Counties	\$15,084.23	\$10,000.00	7
St. Clair County Health Department	\$23,745.60	\$23,745.60	14
Sanilac County Health Department	\$12,515.53	\$9,000.00	9
Wayne County Health Department	\$6,210.00	\$6,210.00	3
Western UP District Health Department	\$17,736.86	\$14,000.00	11
TOTAL	\$402,923.92	\$278,157.00	214

Appendix E. Exceedances of WQS (300 *E. coli* per 100 ml daily geometric mean) for inland and Great Lakes beaches during 2005.

County Name	Water Body Name	Location Name	Exceedance Date	<i>E. coli</i> / 100 ml
Allegan	Gun Lake	Gun Lake County Park	6/13/2005	489.12
Alpena	Lake Huron	Michekewis Beach	9/26/2005	1479.5
	Lake Huron	Ossineke Beach	9/26/2005	435.26
	Lake Huron	Starlite Beach	7/6/2005	412.5
	Lake Huron	Starlite Beach	7/8/2005	412.5
	Lake Huron	Starlite Beach	7/26/2005	547.6
	Lake Huron	Starlite Beach	8/9/2005	531.66
	Lake Huron	Starlite Beach	8/10/2005	847.5
	Lake Huron	Starlite Beach	9/26/2005	1433.8
	Lake Huron	Starlite Beach	9/28/2005	2121.3
Antrim	Lake Bellaire	Richardi Park	7/26/2005	675.16
	Lake Bellaire	Richardi Park	8/2/2005	314.58
	Lake Bellaire	Richardi Park	8/4/2005	2265.5
Arenac	Saginaw Bay	Arenac County Park	7/26/2005	974.34
	Saginaw Bay	Foster Rd. Beach	6/14/2005	402.54
	Saginaw Bay	Hammel Beach Rd. Access	7/26/2005	354.63
	Saginaw Bay	Singing Bridge Beach	6/8/2005	338.48
	Saginaw Bay	Singing Bridge Beach	7/19/2005	614.87
	Saginaw Bay	Singing Bridge Beach	8/30/2005	305.46
	Saginaw Bay	Twining Rd. Beach	8/30/2005	314.27
	Saginaw Bay	Whites Beach	6/8/2005	370.54
	Saginaw Bay	Whites Beach	6/14/2005	650.68
	Saginaw Bay	Whites Beach	7/26/2005	571.25
	Saginaw Bay	Whites Beach	8/9/2005	1353.2
Bay	Kawkawlin River	Boat Launch on Kawkawlin River	6/6/2005	365
	Kawkawlin River	Boat Launch on Kawkawlin River	6/13/2005	547
	Kawkawlin River	Boat Launch on Kawkawlin River	7/5/2005	1151
	Saginaw Bay	Bay City State Recreation Area	7/6/2005	437
	Saginaw Bay	Brissette Township Beach	7/6/2005	429
	Saginaw Bay	South Linwood Beach	6/6/2005	408
	Saginaw Bay	Wenona Beach	6/6/2005	408
	Saginaw River	Vet's Park North Bay City	6/13/2005	327

Appendix E. Exceedances of WQS (300 *E. coli* per 100 ml daily geometric mean) for inland and Great Lakes beaches during 2005.

County Name	Waterbody Name	Location Name	Testing Date	Value
Charlevoix				
	Lake Charlevoix	East Jordan Tourist Park	8/30/2005	468.36
	Lake Michigan	Norwood Park	7/19/2005	897.86
	Lake Michigan	Norwood Park	8/9/2005	578.39
Cheboygan				
	Burt Lake	Devoe Beach	9/27/2005	339.73
Chippewa				
	Lake Superior	Bayview Campground	6/28/2005	327.6
	Lake Superior	Big Pines Beach	6/28/2005	327.6
Emmet				
	Lake Michigan	Cross Village Beach	7/18/2005	919.97
Grand Traverse				
	Grand Traverse Bay - East Arm	East Bay Beach at Traverse City State Park	8/22/2005	921.96
	Grand Traverse Bay - East Arm	Milliken Beach	6/1/2005	723.01
	Grand Traverse Bay - East Arm	Milliken Beach	7/18/2005	1474.6
	Grand Traverse Bay - East Arm	Milliken Beach	7/25/2005	684.01
	Grand Traverse Bay – West Arm	Bryant Park Beach	7/5/2005	331.18
	Grand Traverse Bay – West Arm	Clinch Park	7/18/2005	1871.3
	Grand Traverse Bay – West Arm	West End Beach	7/5/2005	403.63
Huron				
	Lake Huron	Harbor Beach City Park	7/26/2005	396.97
	Lake Huron	Port Crescent State Park	7/26/2005	480.95
Ingham				
	Lake Lansing	Lake Lansing Park South	7/29/2005	309.83
Isabella				
	Coldwater Lake	Coldwater Park	8/11/2005	325.27
Leelanau				
	Grand Traverse Bay – West Arm	Suttons Bay Park	7/5/2005	469.5
	Grand Traverse Bay – West Arm	Suttons Bay Park	7/7/2005	717.8
	Lake Michigan	Empire Municipal Beach	8/22/2005	488.16
Livingston				
	Chenago Lake	Camp Talahi	6/14/2005	2973
	Haynor Lake	Pine Hills Camp	6/22/2005	481
Macomb				
	Lake St. Clair	HCMA - Metropolitan Beach Metropark	6/8/2005	460.33
	Lake St. Clair	HCMA - Metropolitan Beach Metropark	6/13/2005	391.01
	Lake St. Clair	HCMA - Metropolitan Beach Metropark	6/14/2005	2419
	Lake St. Clair	HCMA - Metropolitan Beach Metropark	6/15/2005	1002.3
	Lake St. Clair	HCMA - Metropolitan Beach Metropark	6/20/2005	842.55
	Lake St. Clair	HCMA - Metropolitan Beach Metropark	8/24/2005	565.58

Appendix E. Exceedances of WQS (300 *E. coli* per 100 ml daily geometric mean) for inland and Great Lakes beaches during 2005.

County Name	Waterbody Name	Location Name	Testing Date	Value
Macomb-Continued	Lake St. Clair	HCMA - Metropolitan Beach Metropark	8/25/2005	360.16
	Lake St. Clair	New Baltimore Park Beach	8/22/2005	338.51
	Lake St. Clair	New Baltimore Park Beach	8/29/2005	478.62
	Lake St. Clair	SCS Blossom Heath Beach	6/8/2005	434.97
	Lake St. Clair	SCS Blossom Heath Beach	6/13/2005	1368.5
	Lake St. Clair	SCS Blossom Heath Beach	6/29/2005	328.51
	Lake St. Clair	SCS Blossom Heath Beach	7/2/2005	332.82
	Lake St. Clair	SCS Blossom Heath Beach	7/5/2005	1120.4
	Lake St. Clair	SCS Blossom Heath Beach	7/27/2005	359.33
	Lake St. Clair	St. Clair Shores Memorial Park Beach	6/20/2005	752.64
	Lake St. Clair	St. Clair Shores Memorial Park Beach	6/22/2005	579.77
	Lake St. Clair	St. Clair Shores Memorial Park Beach	7/18/2005	314.9
	Lake St. Clair	St. Clair Shores Memorial Park Beach	7/25/2005	311.45
	Stoney Creek Lake	Stoney Creek Metropark-Bay point Beach	9/26/2005	1744.8
	Stoney Creek Lake	Stoney Creek Metropark-Eastwood Beach	6/13/2005	1841.5
Manistee				
	Lake Michigan	First Street Beach	7/18/2005	833
	Lake Michigan	Magoon Creek	7/18/2005	443
	Lake Michigan	Sundling Park	7/18/2005	441
	Lake Michigan	Sundling Park	7/25/2005	770
Mason				
	Lake Michigan	Manistee National Forest	7/18/2005	373
Menominee				
	Lake Michigan	Henes Park	7/26/2005	2419.6
	Lake Michigan	Henes Park	8/10/2005	1841.6
	Lake Michigan	Henes Park	8/11/2005	712.45
	Lake Michigan	Memorial Beach	7/26/2005	806.99
Montmorency				
	Clear Lake	Clear Lake State Park	9/26/2005	395.23
	Clear Lake	Clear Lake State Park	9/28/2005	480.69
Muskegon				
	Lake Michigan	PJ Hoffmaster State Park	8/3/2005	334
Oakland				
	Adams Lake	Addison Oaks Co. Park	7/28/2005	568
	Big Seven Lake	Seven Lakes Park	7/27/2005	311
	Cass Lake	Keego Harbor city Beach	7/13/2005	361
	Davis Lake	Meagher Park/Woodland Manor	6/13/2005	2419
	Fish Lake	Camp Ohiyesa - North	6/9/2005	743
	Huron River	Powers Picnic Sites	6/13/2005	387

Appendix E. Exceedances of WQS (300 *E. coli* per 100 ml daily geometric mean) for inland and Great Lakes beaches during 2005.

County Name	Waterbody Name	Location Name	Testing Date	Value
Oakland-Continued	Morgan Lake	Lake Angelus Lakeview Estates	7/13/2005	334
	Morgan Lake	Lake Angelus Lakeview Estates	7/14/2005	746
	Phillips Lake	Camp Dearborn - Lake #1	6/14/2005	407
	Phillips Lake	Camp Dearborn - Lake #1	7/27/2005	1198
	Tommy's Lake	Camp Agawam Boy Scout	7/27/2005	809
	Walled Lake	E.V. Mercer City Beach	7/18/2005	562
	Walters Lake	Sunny Beach #2	7/27/2005	2419
Ottawa				
	Fallen Leaf Lake	Fallen Leaf Park	8/16/2005	325.35
	Lake Macatawa	Dunton Park	8/8/2005	854.39
	Lake Macatawa	Dunton Park	8/23/2005	1089.6
	Lake Michigan	Grand Haven State Park	7/18/2005	311.66
	Lake Michigan	Rosy Mound Recreation Area	6/21/2005	371.25
	Lake Michigan	Rosy Mound Recreation Area	7/18/2005	708.31
Sanilac				
	Lake Huron	Forester County Park	6/14/2005	537
	Lake Huron	Forester County Park	6/16/2005	983
	Lake Huron	Lexington County Park	6/14/2005	1002
St. Clair				
	Lake Huron	Jeddo Road Beach	5/24/2005	305
	Lake Huron	Keewadhin Road Beach	6/13/2005	613
	Lake Huron	Keewadhin Road Beach	8/30/2005	657
	Lake Huron	Krafft Road Beach	6/13/2005	2087
	Lake Huron	Washington Street Park	5/24/2005	317
Washtenaw				
	Bruin Lake	Pinckney Recreation Area	6/28/2005	1082
	Bruin Lake	Pinckney Recreation Area	6/30/2005	334
	Independence Lake	Independence Lake County	8/8/2005	375
Wayne				
	Belleville Lake	Van Buren Township Park	6/10/2005	305
	Belleville Lake	Van Buren Township Park	8/5/2005	309
	Lake St. Clair	Pier Park	4/26/2005	769.5
	Lake St. Clair	Pier Park	6/3/2005	379.2
	Rouge River	Phoenix Lake	6/9/2005	415.8
	Rouge River	Phoenix Lake	6/17/2005	459.31
	Rouge River	Phoenix Lake	7/6/2005	528.5
	Rouge River	Wilcox Lake	6/7/2005	711.71
	Rouge River	Wilcox Lake	6/10/2005	520.5
	Rouge River	Wilcox Lake	6/16/2005	303.5
	Rouge River	Wilcox Lake	6/23/2005	436.43

Appendix E. Exceedances of WQS (300 *E. coli* per 100 ml daily geometric mean) for inland and Great Lakes beaches during 2005.

County Name	Waterbody Name	Location Name	Testing Date	Value
Wayne-Continued	Rouge River	Wilcox Lake	6/29/2005	2700.4
	Rouge River	Wilcox Lake	7/6/2005	1588.3
Wexford				
	Billings Lake	Manton Park	8/9/2005	304.3

Appendix F. 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



FIGURE 1: MICHIGAN GREAT LAKES PUBLIC BEACHES

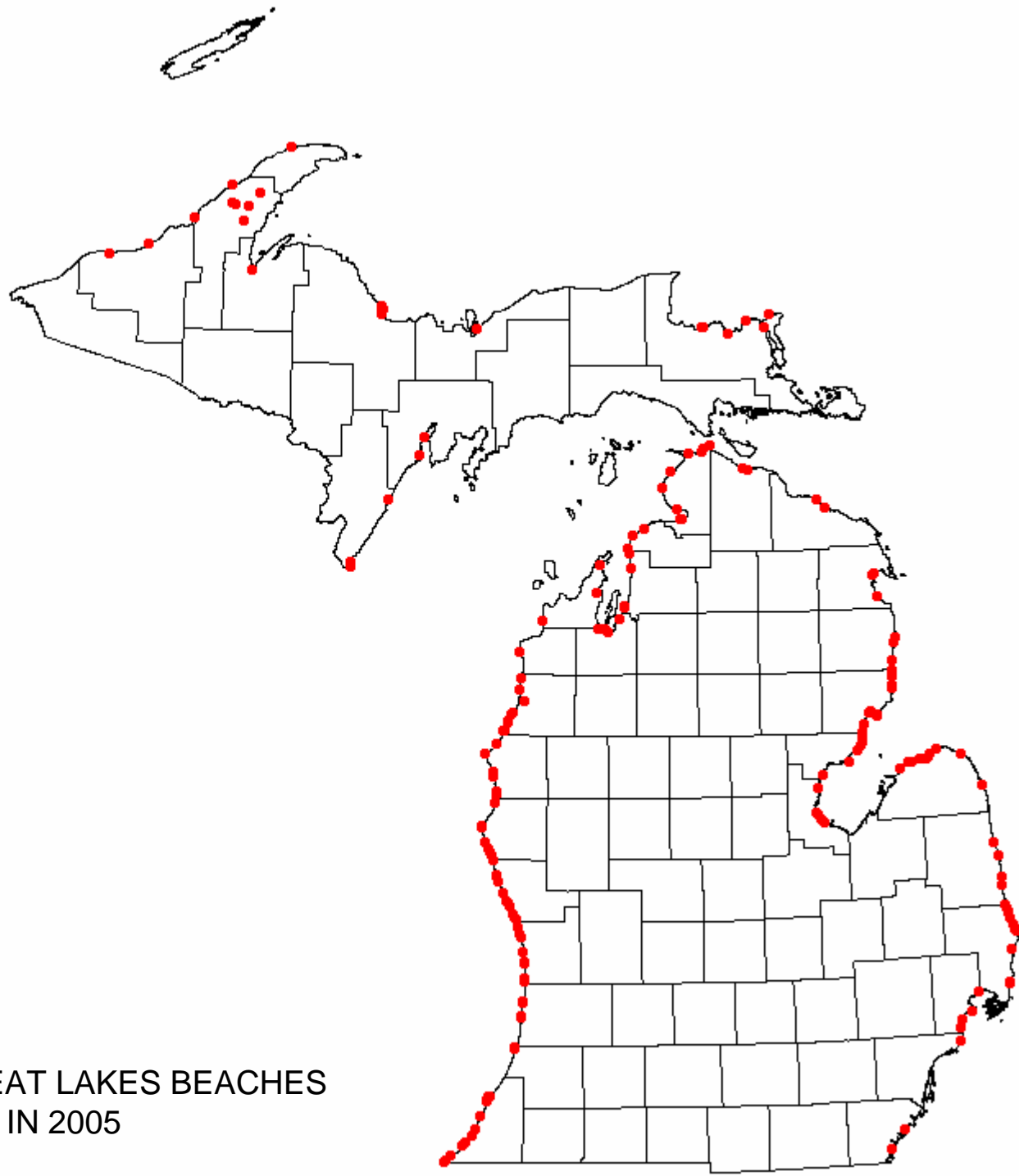


FIGURE 2: MICHIGAN GREAT LAKES BEACHES
MONITORED IN 2005

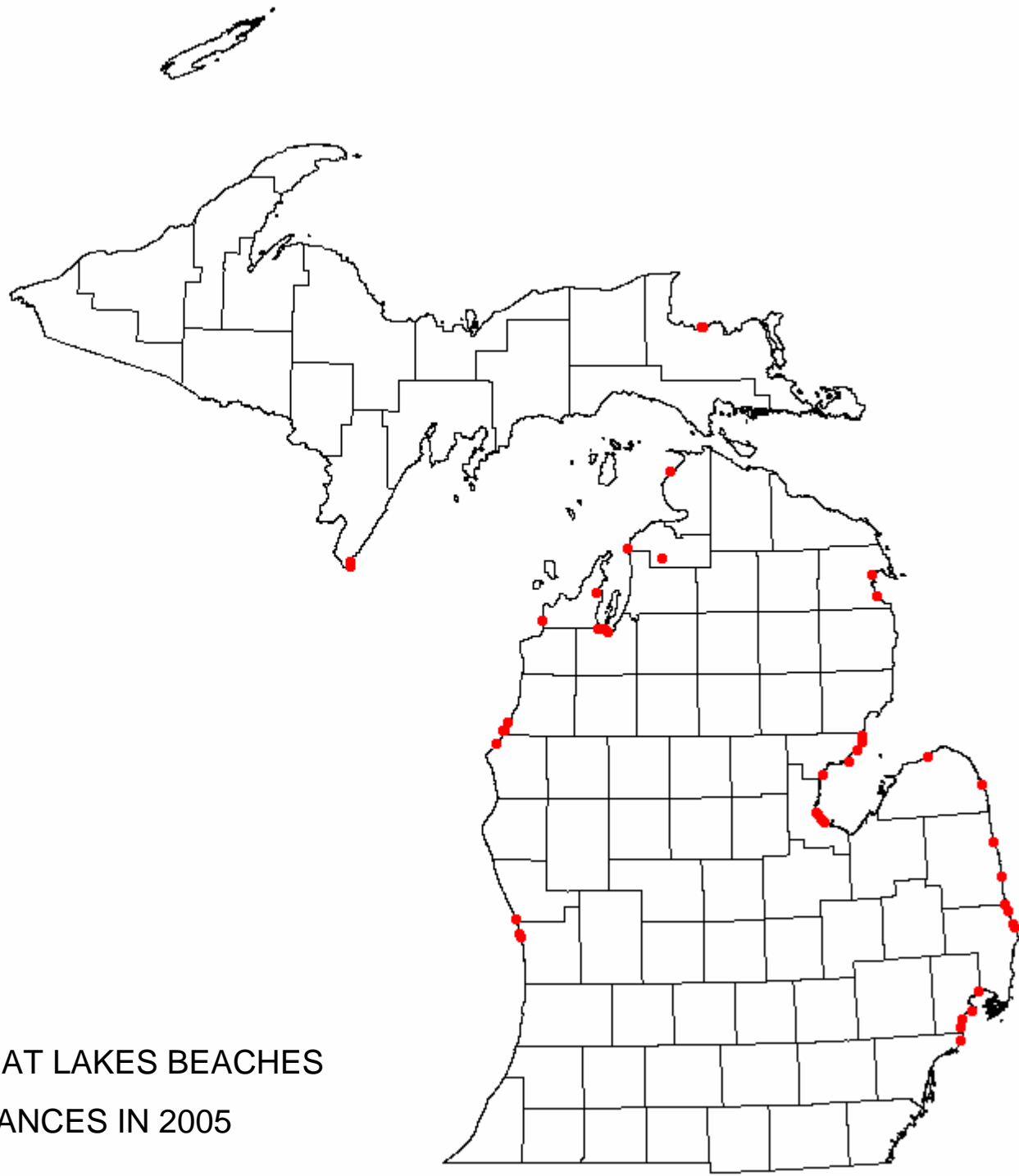


FIGURE 3: MICHIGAN GREAT LAKES BEACHES
WITH WQS EXCEEDANCES IN 2005

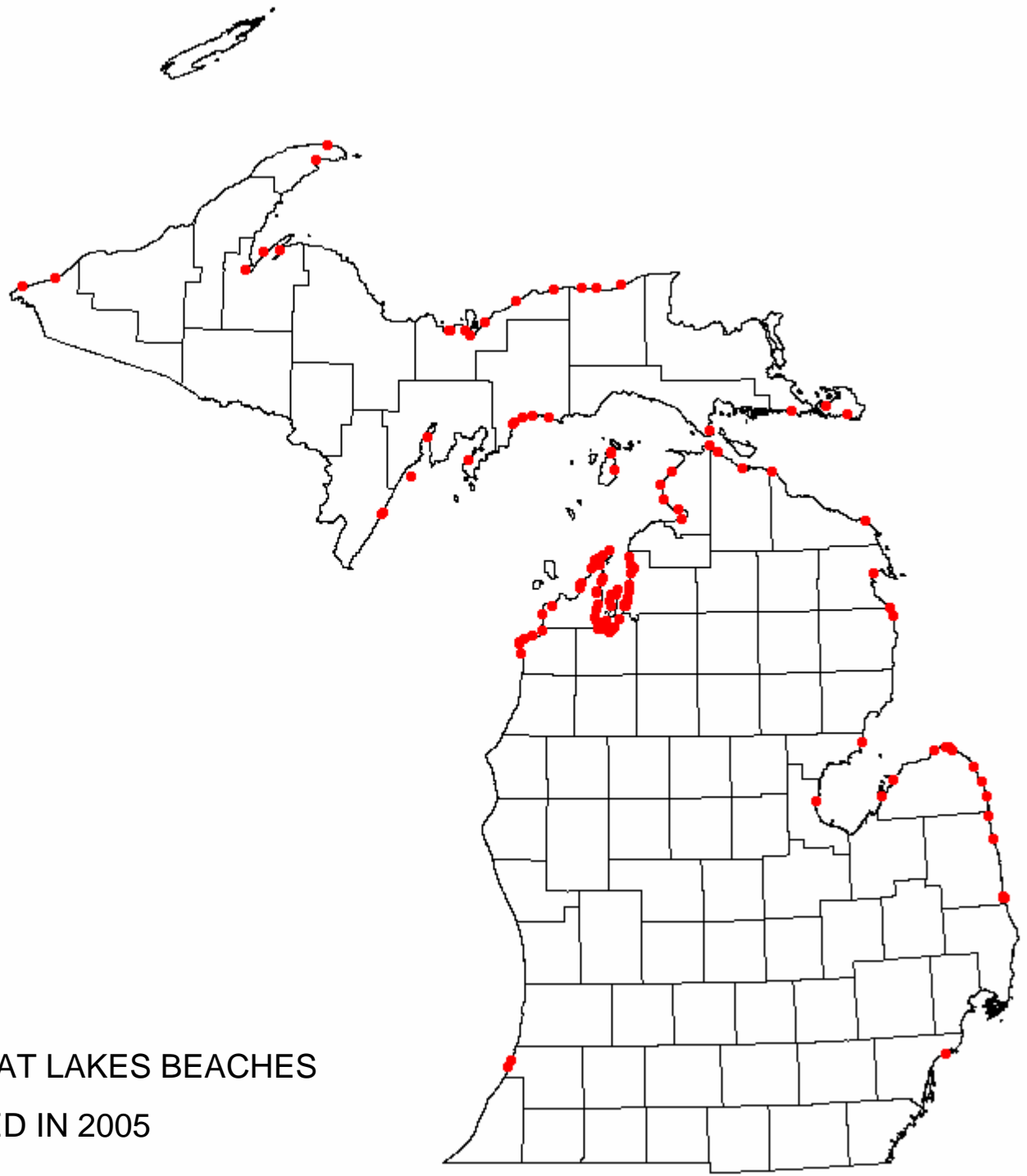


FIGURE 4: MICHIGAN GREAT LAKES BEACHES
NOT MONITORED IN 2005

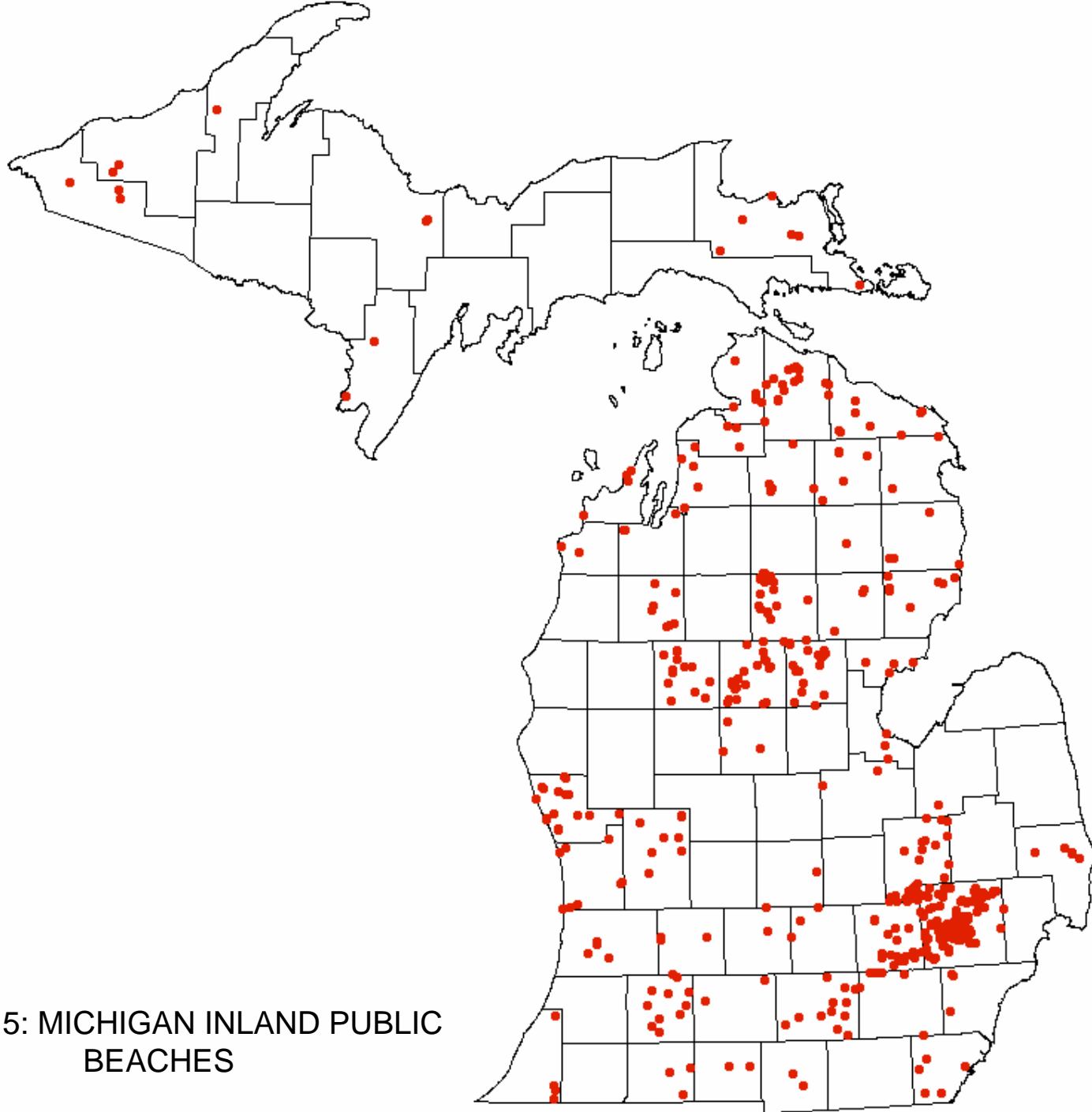


FIGURE 5: MICHIGAN INLAND PUBLIC BEACHES

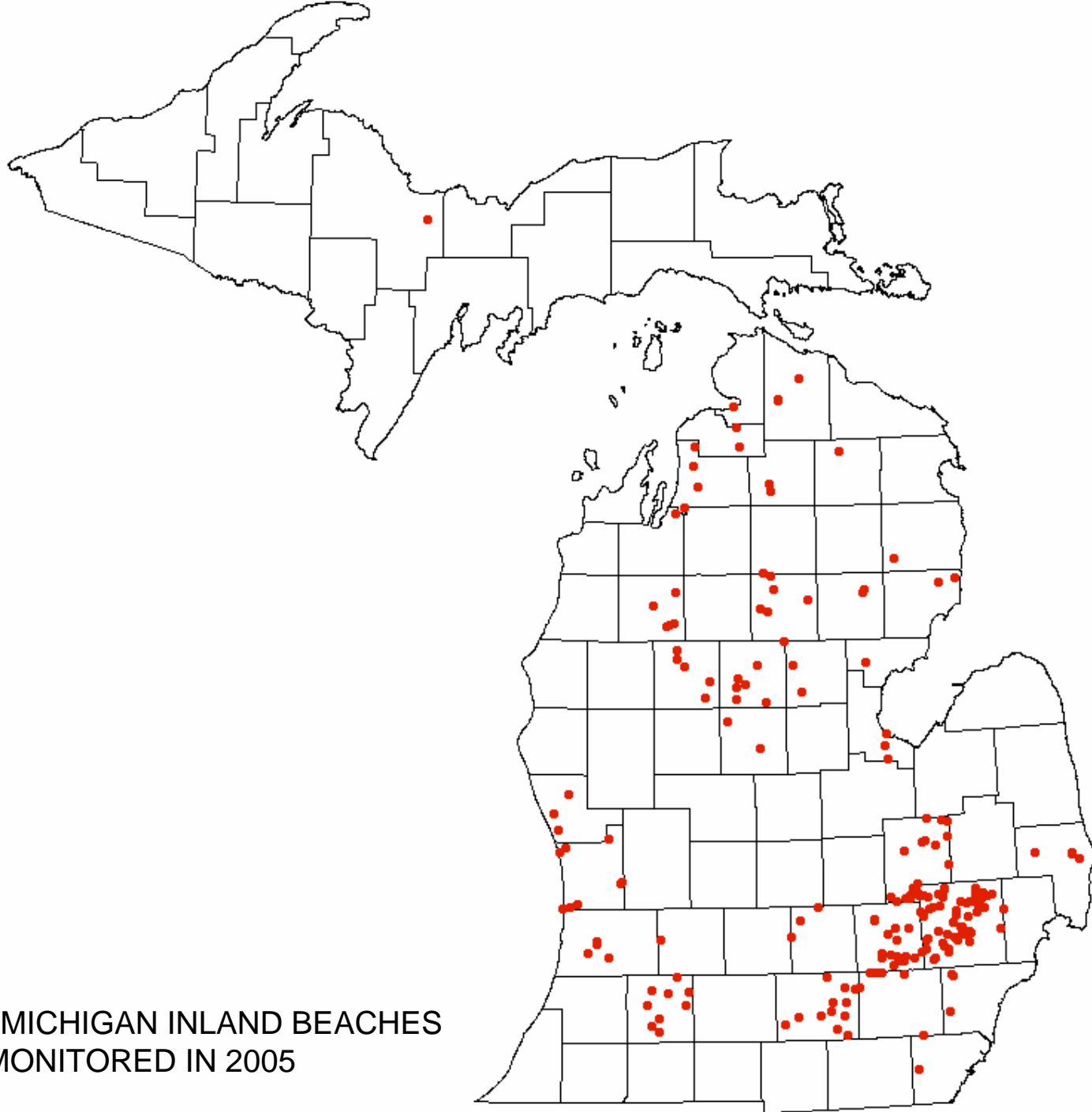


FIGURE 6: MICHIGAN INLAND BEACHES
MONITORED IN 2005

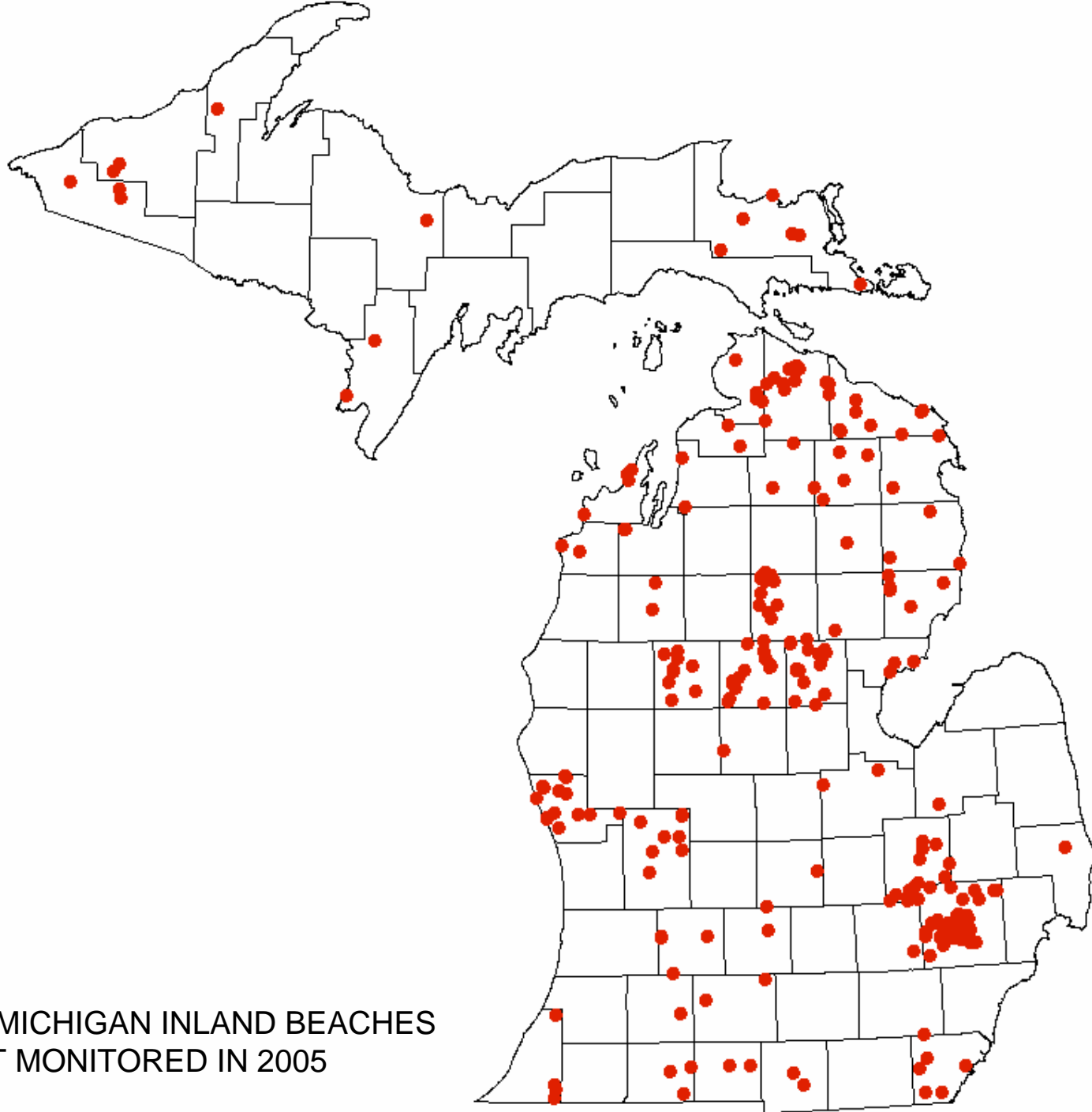


FIGURE 8: MICHIGAN INLAND BEACHES
NOT MONITORED IN 2005