



YEAR 2007 BATHING BEACH MONITORING PROGRAM RESULTS

Ohio operates a monitoring and notification program of selected public beaches located along the Ohio/Lake Erie border. The goal of the program is to monitor the bacteria content of the state's bathing beach waters and to notify the public whenever bacteria levels present a potential health risk to bathers. The program involves the efforts and cooperation of multiple state and local health agencies and organizations. The Ohio Department of Health (ODH) coordinates the state effort and is responsible for monitoring several beach locations along the border.

The normal beach season in Ohio runs approximately 13 weeks, from Memorial Day to Labor Day. For the 2007 swimming season, ODH staff collected water samples from most beaches at a frequency of 4 days per week. The waters at two island beaches on Lake Erie were sampled once per week during the period because results have shown that their bacteria levels have never presented a potential health hazard. During 2007, water quality analysis in Ohio was based upon the single sample maximum established by the US EPA of 235 E. coli colony forming units (cfu) per 100mL. of water sampled. All water samples collected by ODH staff were analyzed at private microbiological laboratories for E. coli bacteria content. When sample results exceeded the standard, advisory signs were posted to alert the bathing public of the condition of the water. Under normal circumstances, beaches are not closed solely due to high bacteria levels. But the signage helps to educate the public and give them valuable data for making informed decisions about their aquatic recreational activity.

Additionally, the results of tests for each monitored beach were made available to the public at the Ohio Department of Health's website (www.odh.ohio.gov), on the Earth 911 website (www.earth911.com) and on the department's toll-free telephone information line: 1-866-OHIO-BCH (644-6224). In cooperation with the Cuyahoga County Health District, sample results were also published weekly in the "Cleveland Plain Dealer". Reports of beach conditions in Lake County were also published by the "News Herald" throughout the summer.

The following table depicts the results of this year's program for Lake Erie beaches, which operated from late May 2007 through the end of August 2007.

Monitoring Data generated by the Ohio Department of Health

Sample frequency: 4 days per week (island beaches - weekly)

<u>Beach Name</u>	<u>County</u>	<u># of Sample Days</u>	<u># of Times Sample Exceeded the Standard</u>	<u># of Days Advisory Signs Were Posted</u>	<u>Average E.coli level for the Period</u>
Maumee Bay	Lucas	46	12	21	223.5
Crane Creek	Ottawa	46	5	21	89.1
Camp Perry	Ottawa	46	22	46	548.1
Port Clinton	Ottawa	47	6	8	129.1

Catawba Island	Ottawa	46	4	4	79.5
S. Bass Island	Ottawa	11	1	1	32.7
East Harbor	Ottawa	46	5	8	120.9
Lakeside	Ottawa	46	4	10	82.0
Kelleys Island	Erie	10	0	0	22.4
Lakeview	Lorain	45	5	10	116.6
Century Beach	Lorain	45	2	2	58.7
Geneva	Ashtabula	46	1	4	60.6
Walnut Beach	Ashtabula	46	3	6	86.9
Lakeshore	Ashtabula	44	5	18	130.4
Conneaut	Ashtabula	46	3	6	35.7
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Totals for lake beaches monitored by ODH		616	78	165	

Inland Beach Monitoring

Ohio Revised Code sections 1541.032 and 3701.18 require the Chief of the Division of Parks and Recreation to sample and test all public bathing beaches under the division's control and to post advisory signs whenever notified by the Director of Health that the bacteria levels in the waters tested present a possible health risk to swimmers. Sixty-seven (67) inland state park beaches were tested this year for *E. coli* bacteria between May 8 and August 31, 2007. A recommendation to post advisory signs was issued twenty-seven (27) times throughout the testing period.

Additional Monitoring/Notification Programs for 2007

Under a Personal Service Contract with ODH, the Lake County General Health District, a local health district in northeastern Ohio, conducted a monitoring and notification program of the 3 beaches on Lake Erie within its jurisdiction. It also utilized the single sample maximum to evaluate sample results. Results were reported to ODH for evaluation against the standard, determination of whether an advisory was warranted, notification to the public if necessary and eventual transmission to the US EPA for its e-beaches database.

Contracts were also awarded to the Erie County General Health District who monitored 21 public beaches within its jurisdiction, the Cuyahoga County Board of Health who monitored 12 beaches within its jurisdiction and the Northeast Ohio Regional Sewer District who monitored 3 beaches in its area.

Monitoring Data generated by the Lake County General Health District

Sample frequency: daily

<u>Beach Name</u>	<u>County</u>	<u># of Sample Days</u>	<u># of Times Sample Exceeded the Standard</u>	<u># of Days Advisory Signs Were Posted</u>	<u>Average E.coli level for the Period</u>
Headlands West	Lake	102	8	8	86.9
Headlands East	Lake	102	10	10	92.5
Fairport Harbor	Lake	102	18	18	153.3
Totals for Lake beaches monitored by LCGHD		306	36	36	

Monitoring Data generated by the Erie County General Health District

Sample frequency: Approx. every 5 days

<u>Beach Name</u>	<u>County</u>	<u># of Sample Days</u>	<u># of Times Sample Exceeded the Standard</u>	<u># of Days Advisory signs Were Posted</u>
Pickeral Creek	Erie	29	4	9
Bay View West	Erie	29	15	52
Bay View East	Erie	28	1	3
Lion's Park	Erie	29	0	0
Cedar Point	Erie	29	3	12
Sawmill Creek	Erie	29	4	13
Huron River West	Erie	29	6	20
Huron River East	Erie	31	6	15
Hoffman Ditch	Erie	29	1	1
Old Woman Creek West	Erie	29	4	12
Old Woman Creek East	Erie	29	2	11
Cranberry Creek	Erie	29	12	41
Fichtel Creek	Erie	29	6	21

Chappel Creek	Erie	29	6	18
Sugar Creek	Erie	29	6	15
Darby Creek	Erie	29	9	27
Sherod Creek	Erie	29	11	19
Edison Creek	Erie	29	13	46
Vermillion West	Erie	29	9	27
Vermillion East	Erie	29	11	39
Showse Park	Erie	29	4	9
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Totals for Lake beaches monitored by ECGHD		610	133	410

Monitoring Data generated by the Northeast Ohio Regional Sewer District

Sample frequency: 5 days per week (avg.)

<u>Beach Name</u>	<u>County</u>	<u># of Sample Days</u>	<u># of Times Sample Exceeded the Standard</u>	<u># of Days Advisory Signs Were Posted</u>	<u>Average E.coli level for the Period</u>
Edgewater	Cuyahoga	78	23	34	288.7
Euclid	Cuyahoga	76	46	63	1792.7
Villa Angela	Cuyahoga	77	46	63	1836.7
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Totals for Lake beaches monitored by NEORS		231	115	160	

NOWCASTING

During the summer of 2007, the Cuyahoga County Board of Health continued a pilot project at Huntington Beach, located on Lake Erie in Bay Village, Ohio. The project, known as a Nowcasting System for Predicting Beach Advisories, evaluates multiple environmental factors such as rainfall, turbidity, wave height, etc. to determine a predicted E. coli concentration and a probability that the E. coli water quality standard will be exceeded. The Nowcast system provides the public with same-day, near real-time water quality data seven days per week.

As this was a pilot project, it was agreed that water samples would be collected and analyzed for E. coli in the normal fashion in addition to the sample protocol for the Nowcast system. It was also agreed that the Nowcasting predictions would solely be used as the determinant for posting water quality advisories at Huntington Beach. A Water advisory was issued at any time the probability of exceeding the water quality standard for E. coli was at 30% or greater. 2007 data shows that the Nowcast system accurately predicted water quality conditions 85% of the time. This is a 5% increase in accuracy from the 2006 beach season.

A detailed explanation of the project as well as results of sampling and predictions was available to the public throughout the summer at www.ohionowcast.info.

Additional accomplishments in 2007

In addition to monitoring water quality at 3 beaches along Lake Erie (Edgewater, Villa Angela and Euclid beaches), the Northeast Ohio Regional Sewer District (NEORS) continued to collaborate with staff of the US Geological Survey (USGS) and the Cleveland Department of Public Health to evaluate rapid analytical techniques in water quality analysis.

The Cleveland Department of Public Health continued with the development of educational materials for the beach-going public and participated in various outreach activities held along the Lake Erie border. Again this year, the department was a major participant in “National Clean Beaches Week” activities held at beaches within their area, notably, Villa Angela, Euclid Beach and Edgewater Beach. Staff distributed beach-related flyers and information to libraries and recreation centers in the greater Cleveland area. Staff also conducted a survey to determine whether there were any newly developed private or semi-private beaches in the area.

The Ashtabula Township Park Commission again received funding through an ODH contract to collaborate with the USGS in the continuing study for testing and refining a predictive model to predict E. coli concentrations at Lakeshore Park, a public beach in Ashtabula, Ohio. The model, based on multiple linear regression (MLR) developed with 2004-2006 data, was used to examine and compare the strength and associations between E. coli concentrations and algal density variables – chlorophyll *a* concentrations and categorical algal coverage.