2013 BATHING BEACH MONITORING & NOTIFICATION PROGRAM RESULTS

Introduction

For many years the Ohio Department of Health has conducted a bathing beach monitoring and public notification program for the identified public and semi-public beaches located along the Ohio/Lake Erie border. The goal of the program has remained constant, *"To monitor the water quality of the state's bathing beach waters and to notify the public whenever bacteria levels present a potential health risk to bathers."* The program has been funded through a grant provided by the US EPA in accordance with the BEACH Act. Ohio's program has been successful through the collaboration and effort of many different organizations at multiple governmental levels and with organizations with varying interests. The Ohio Department of Health (ODH) has coordinated this effort and remains committed to the successful management of the program.

All identified beaches are monitored at least once a week with the vast majority of beaches monitored three or more times per week. Due to stagnant and/or declining funding dollars over the years the number of samples collected has decreased since 2011.

The BeachGuard web-based reporting system is used to provide the information for the public regarding water quality at these beaches. The system successfully went 'live' in 2011 and can be found on the internet at: www.odh.ohio.gov/healthybeaches.

Monitoring

The normal beach season in Ohio runs from Memorial Day to Labor Day. In 2013, the ODH contracted with four local health districts, Ottawa County, Erie County, Cuyahoga County and Lake County as well as the University of Toledo and Northeast Ohio Regional Sewer District, to conduct the monitoring and notification program. This was the third year that all monitoring and notification activities occurred at the local level since the ODH has managed this program. Sampling frequency along the Lake Erie shoreline largely remained the same as last year with a few exceptions. The beaches in Lorain City were monitored seven days per week to collect data to develop the Virtual Beach predictive model for future use at those beaches. The beaches in Ashtabula & Ottawa Counties were monitored three days per week.

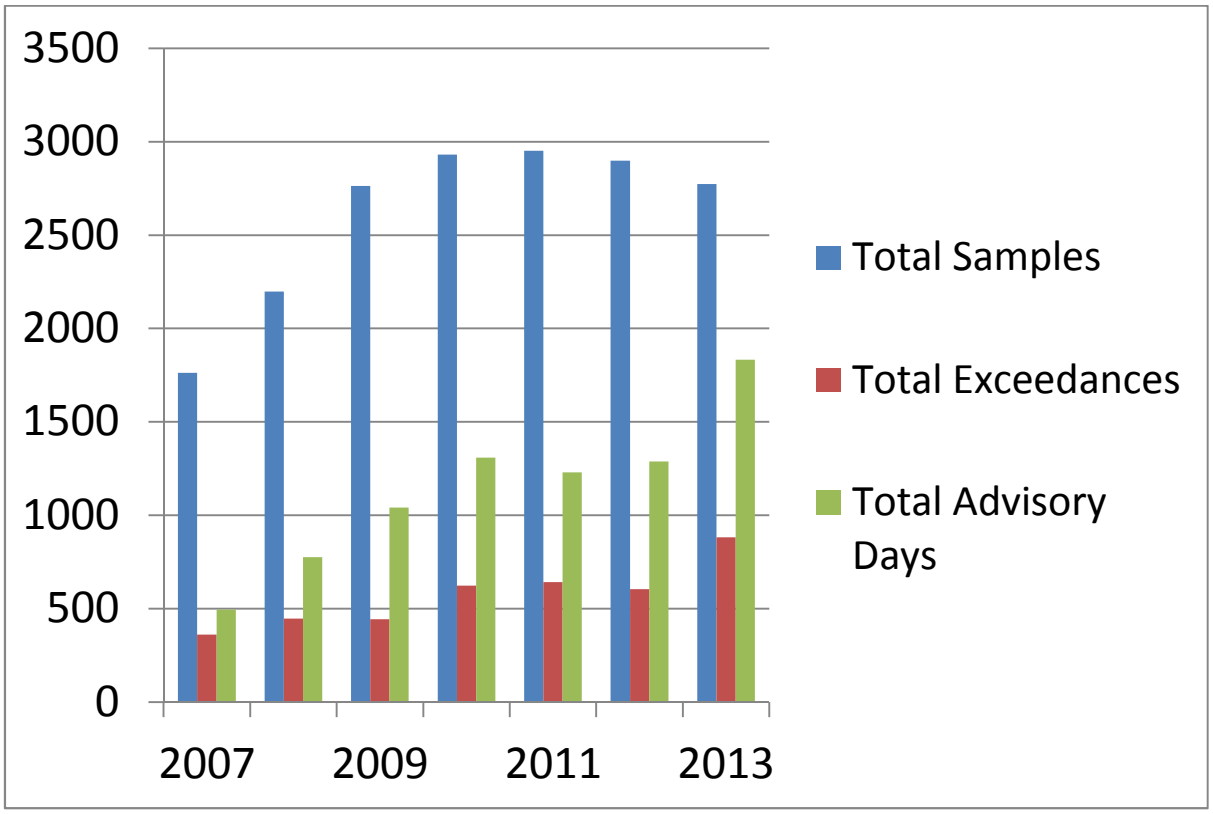
Table 1 indicates the sampling frequencies:

Table 1

7 samples per week	7 beaches
4 samples per week	1 beach
3 samples per week	36 beaches
1-2 samples per week	17 beaches

Figure 1 represents the sampling results for Ohio's bathing beaches from 2007 - 2013.

Figure 1



In 2013, 2,774 samples were collected, the fewest since 2009. Unfortunately, the total number of samples exceeding the threshold was the highest recorded at 882 samples. While the number of samples collected has decreased since 2011, what is more concerning is the sharp increase in the numbers of exceedances and advisory days in 2013. The number of advisory days in 2013 was the most recorded since 2007. Overall, this means that Ohio's beaches were under advisory for nearly one-third of the bathing beach season. A more comprehensive review of the routine monitoring surveys will be conducted to determine what the possible reasons are for this increase but initial information seems to indicate that the excessive rainfall played a major role in the increase in the number of exceedances.

During 2013, water quality analysis in Ohio was based upon the single sample maximum of 235 E. coli colony forming units (cfu) per 100mL. of water sampled. Erie, Ottawa and Lake Counties used the Collilert-18 method for sample analysis which has a maximum detection limit, without dilution, of 2419.6 cfu. Cuyahoga County and the Northeast Ohio Regional Sewer District used the Modified M-tech method to analyze their samples.

Public Notification

When sample results exceeded the standard of 235 cfu, advisory signs were posted to alert the bathing public of the water quality. Under normal circumstances, beaches are not closed solely due

to high bacteria levels. However, the signage helps to educate the public and provides valuable data for making informed decisions about their aquatic recreational activity.

The following pictures are examples of the signage posted at a beach location to alert the public whether the sample results from the previous day were acceptable or if the results exceeded the bacterial standard.

Acceptable Results

Exceeded Standard

The ODH again posted a request for proposals (RFP) to conduct the water sampling and public notification for the beach monitoring and notification program at the local level. In addition to posting the RFP on the internet, the local health jurisdictions that have beaches but have not participated in this program were contacted and encouraged to apply for the contract. A total of six proposals were received. The proposals were reviewed and contracts were awarded. The total amount of money awarded to the local projects was $133,840.00, which represents 60% of the money awarded to ODH by the US EPA.

Contracts were awarded to the Lake County General Health District, Erie County General Health District, Cuyahoga County Board of Health, Ottawa County Health Department, the University of Toledo and the Northeast Ohio Regional Sewer District. The Lake County General Health District monitored three public beaches in Lake County, one beach in Conneaut City, one beach in Ashtabula City and two beaches in Ashtabula County. The Erie County General Health District monitored 25 public beaches within its jurisdiction. The Northeast Ohio Regional Sewer District monitored three beaches in its area. The Cuyahoga County Board of Health monitored 16 beaches within its jurisdiction, most of which are semi-public and private beaches as well as two beaches in Lorain City. The Ottawa County Health District monitored seven beaches within its area.

Name of Contracted Entity	**Amount of Award**	**Number of beaches monitored**
Lake County General Health District	$33,844.00	7
Erie County General Health District	$23,835.00	25
Cuyahoga County Health District	$38,221.00	17
Ottawa County Health Department	$20,455.00	7
University of Toledo	$10,969.00	2
Northeast Ohio Regional Sewer District	$6,516.00	3

Monitoring Data generated by the Ohio Department of Health and our local partners for the 2013 recreation season.

The single sample maximum level was used to evaluate sample results. Results were reported for

evaluation against the standard, determination of whether an advisory was warranted, and notification to the public when necessary.

Table 2 is a summary of the sampling results and advisories for the monitored beaches in the State of Ohio.

Beach ID	Beach Name	# of samples taken	Sample Exceedances	% of Sample Exceedances	Average E. coli per sample taken	# of Advisory Days	# of Advisories	% of the season on advisory
OH396459	Catawba Island St. Pk.	11	0	0.00%	18.52	0	0	0.00%
OH351307	Camp Perry	13	2	15.38%	95.95	9	2	8.82%
OH964162	Edgecliff Beach	13	5	38.46%	687.54	26	4	25.49%
OH133557	Kelleys Island St. Pk.	13	3	23.08%	213.88	14	2	13.73%
OH179611	Shoreby Club Beach	14	3	21.43%	266.29	12	3	11.76%
OH907394	South Bass Island St. Pk.	14	2	14.29%	149.34	4	2	3.92%
OH775880	Utopia Beach	14	4	28.57%	275.93	20	3	19.61%
OH810688	Arcadia Beach	15	6	40.00%	453.80	34	2	33.33%
OH983073	Bay Park Beach	16	4	25.00%	290.81	14	2	13.73%
OH862936	Columbia Park Beach	16	3	18.75%	334.75	9	2	8.82%
OH159626	Noble Beach	16	8	50.00%	907.56	32	4	31.37%
OH645425	Parklawn Beach	16	3	18.75%	307.63	9	2	8.82%
OH934275	Royal Acres Beach	16	8	50.00%	673.50	44	5	43.14%
OH507120	Moss Point Beach	17	8	47.06%	806.53	30	5	29.41%
OH136995	Wagar Beach	17	4	23.53%	329.53	14	2	13.73%
OH135472	Clarkwood Beach	18	10	55.56%	1144.83	42	5	41.18%
OH435857	Sims Beach	18	11	61.11%	1052.61	49	5	48.04%
OH484007	Clifton Beach	27	6	22.22%	344.37	24	6	23.53%
OH463595	Port Clinton (Lakeview)	34	12	35.29%	292.51	36	9	35.29%
OH685679	East Harbor State Park	35	1	2.86%	44.10	4	1	3.92%
OH216093	Lakeside	35	1	2.86%	45.05	4	1	3.92%
OH682568	Geneva State Park	41	11	26.83%	199.54	26	8	25.49%
OH400405	Conneaut Twp. Park	42	10	23.81%	286.39	22	7	21.57%
OH882395	Lakeshore Park	42	24	57.14%	846.96	58	10	56.86%
OH610732	Walnut Beach	43	5	11.63%	154.26	13	4	12.75%
OH318877	Maumee Bay St. Pk. (Inland)	48	4	8.33%	95.80	1	1	0.98%
OH182884	Maumee Bay St. Pk. (Erie)	49	17	34.69%	392.99	27	10	26.47%
OH787470	Old Woman Creek West	52	12	23.08%	212.15	35	10	34.31%
OH453378	Sawmill Creek	52	16	30.77%	222.54	31	6	30.39%
OH840983	Sherod Creek	52	21	40.38%	557.10	50	10	49.02%
OH625113	Battery Park	53	2	3.77%	35.96	5	2	4.90%
OH510880	Bay View East	53	19	35.85%	373.29	35	12	34.31%
OH568760	Bay View West	53	35	66.04%	800.27	61	10	59.80%
OH011172	Cedar Point	53	8	15.09%	171.79	14	7	13.73%
OH934406	Chappel Creek	53	20	37.74%	529.47	46	10	45.10%
OH014323	Cranberry Creek	53	14	26.42%	260.28	35	10	34.31%
OH158931	Crystal Rock	53	5	9.43%	138.71	12	6	11.76%
OH881916	Darby Creek	53	23	43.40%	553.91	45	7	44.12%
OH517567	Edson Creek	53	27	50.94%	688.92	55	10	53.92%
OH242977	Fichtel Creek	53	15	28.30%	331.29	33	10	32.35%

OH497945	Hoffman Ditch	53	12	22.64%	245.54	29	9	28.43%
OH531706	Huron River East	53	12	22.64%	259.53	26	9	25.49%
OH102681	Huron River West	53	18	33.96%	245.32	50	12	49.02%
OH661129	Kiwanis Park	53	16	30.19%	396.59	35	7	34.31%
OH921073	Lion's Park	53	19	35.85%	353.15	44	10	43.14%
OH647956	Old Woman Creek East	53	11	20.75%	172.34	26	10	25.49%
OH957157	Pickeral Creek	53	6	11.32%	107.70	13	5	12.75%
OH287343	Showse Park	53	15	28.30%	294.96	37	7	36.27%
OH513071	Sugar Creek	53	24	45.28%	556.48	62	14	60.78%
OH084281	Vermilion East	53	19	35.85%	471.69	39	12	38.24%
OH944567	Vermilion West	53	22	41.51%	556.65	46	7	45.10%
OH422598	Whites Landing	53	32	60.38%	790.35	66	9	64.71%
OH597908	Century Beach	54	9	16.67%	218.78	19	8	18.63%
OH183537	Huntington Beach	59	15	25.42%	288.75	37	21	36.27%
OH273826	Lakeview Beach	92	67	72.83%	888.02	73	19	71.57%
OH777353	Headlands State Pk. (E)	94	25	26.60%	254.91	29	16	28.43%
OH719776	Headlands State Pk. (W)	94	19	20.21%	237.91	25	12	24.51%
OH491555	Fairport Harbor	96	26	27.08%	234.05	26	17	25.49%
OH244759	Euclid State Park	102	51	50.00%	1055.81	49	49	48.04%
OH270037	Edgewater Beach	104	17	16.35%	172.25	16	16	15.69%
OH736320	Villa Angela State Park	104	55	52.88%	1101.89	52	52	50.98%

The following charts represent the percentage of the season each beach was under advisory and the number of advisories issued per beach. The beaches are grouped by monitoring agency.

Chart A – Lake County

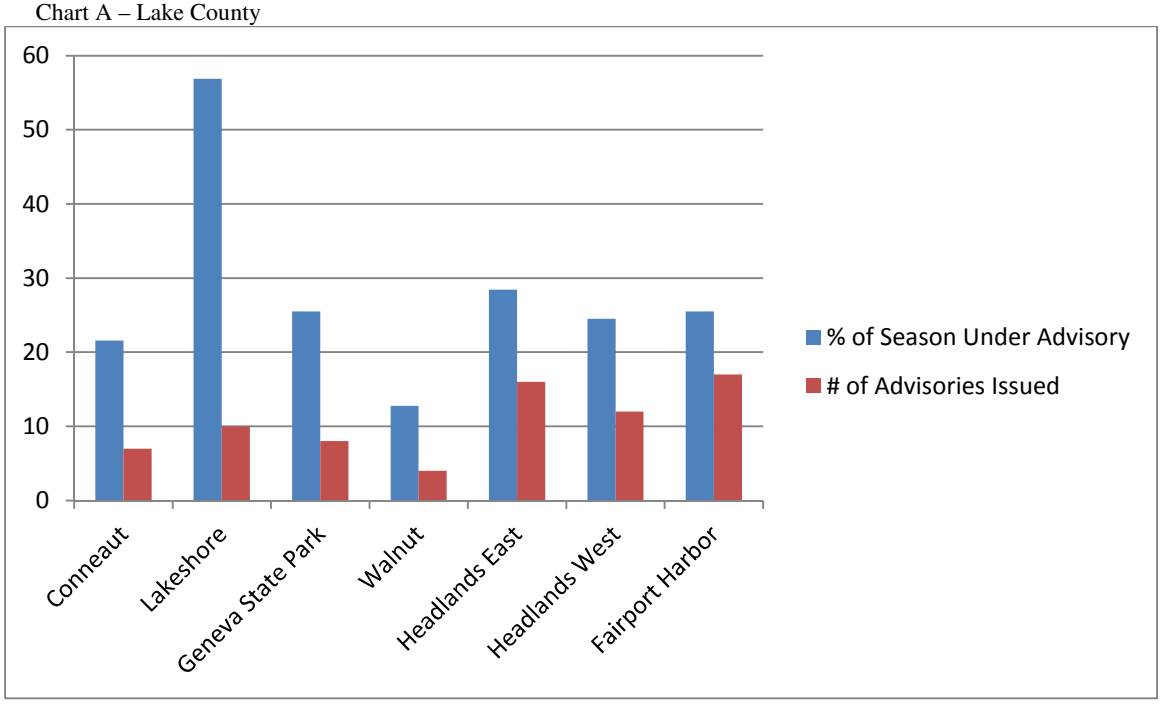


Chart A lists the beaches that were monitored by Lake County during the 2013 bathing beach season. The first four beaches are located in Ashtabula County. Headlands East and Headlands West are two sampling points for the same beach, Mentor Headlands. This beach is over a mile

long and there have been two sampling points to try and more accurately capture the water quality conditions for the entire beach.

Chart B - NEORSD

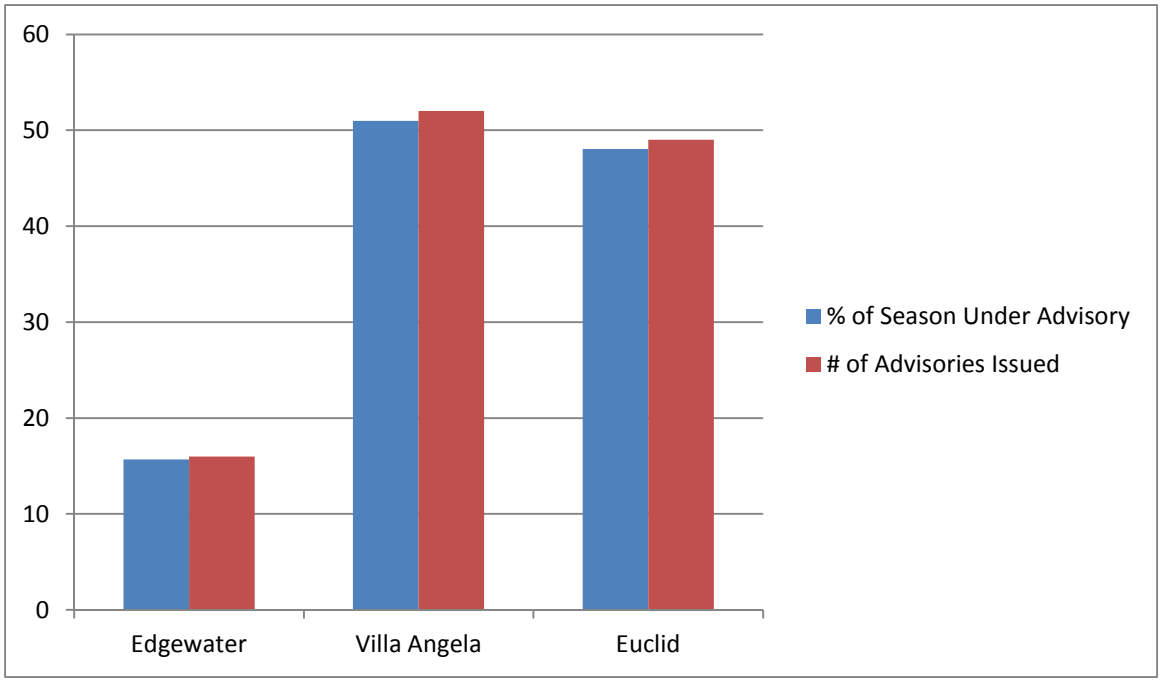


Chart B lists the beaches that were monitored by the North East Ohio Regional Sewer District (NEORSD). The NEORSD uses predictive modeling (Virtual Beach) as well as E.coli sampling.

Chart C – Cuyahoga County

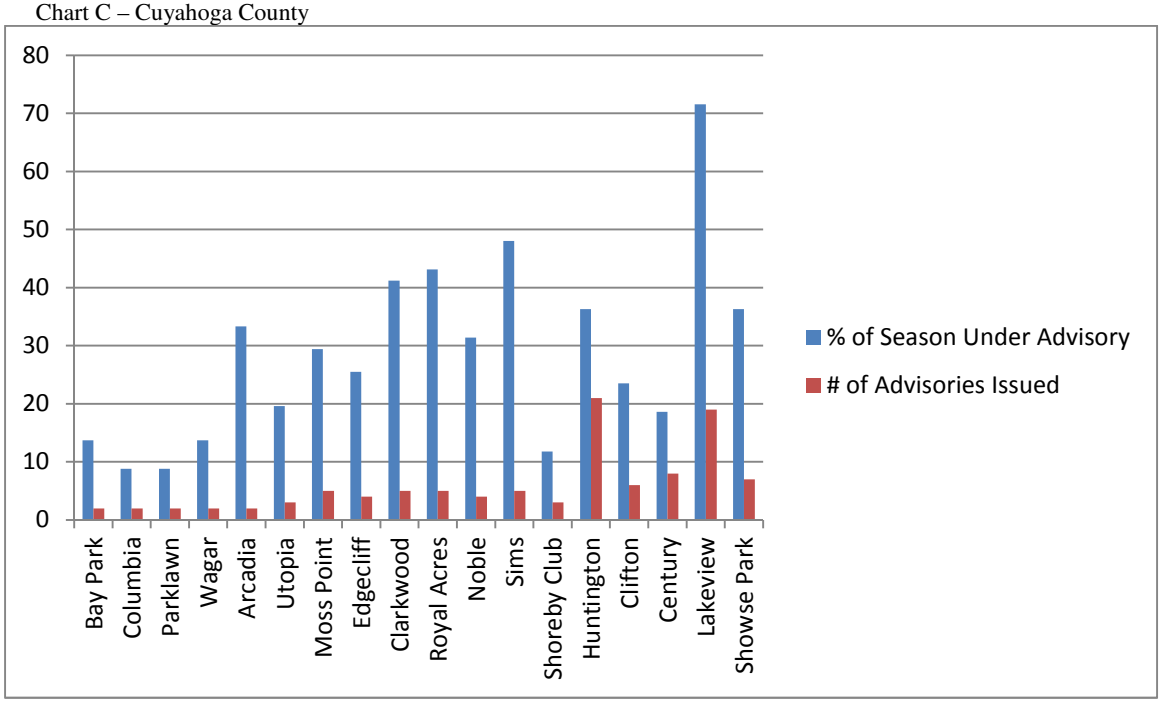


Chart C lists the beaches monitored by the Cuyahoga County Board of Health. Century, Lakeview

and Showse Park beaches are located in Lorain County but were monitored by Cuyahoga County in 2013.

Chart D – Erie County

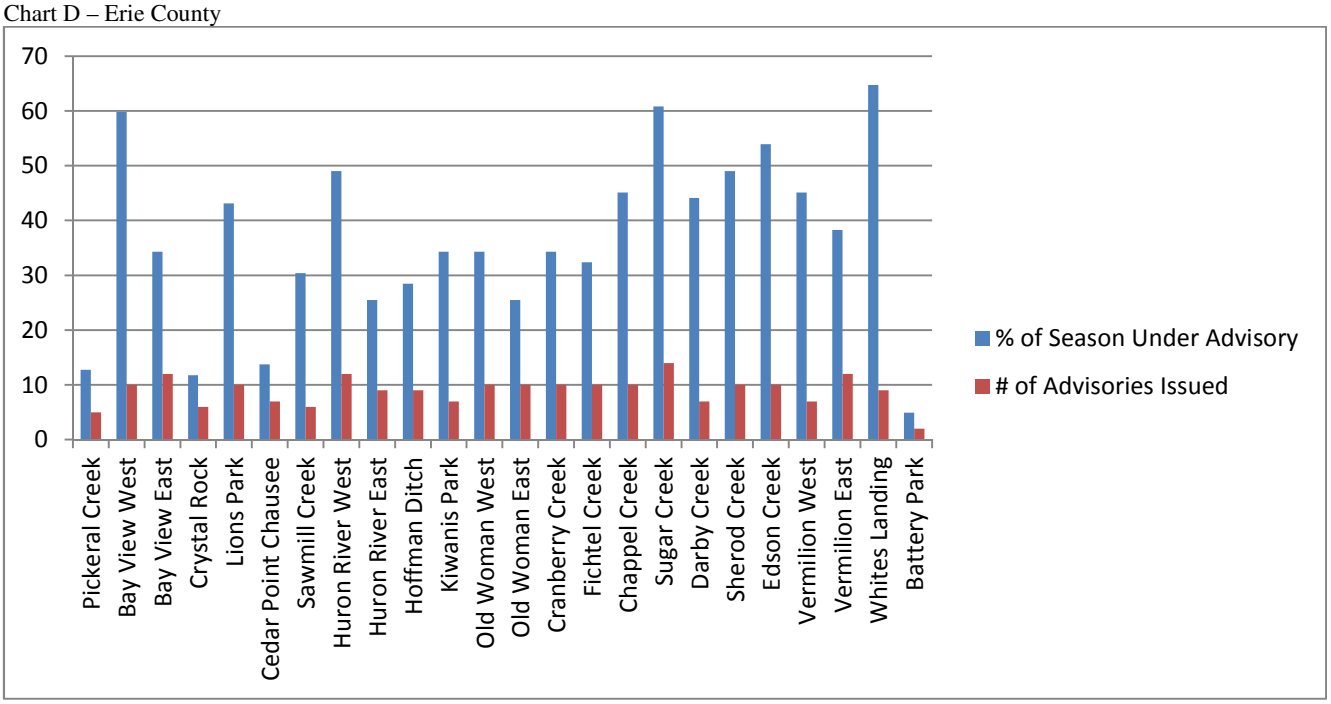
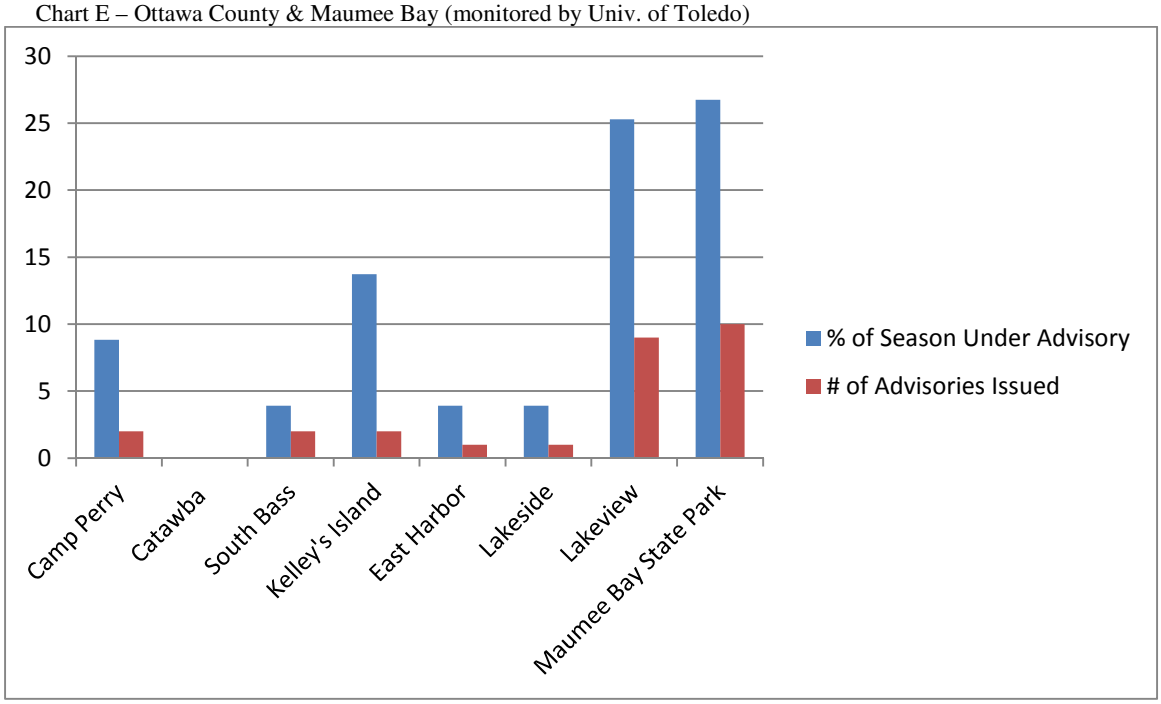


Chart D lists the beaches that were monitored by the Erie County General Health District.

Chart E – Ottawa County & Maumee Bay (monitored by Univ. of Toledo)



Ottawa County conducted the monitoring program for the beaches listed in Chart E with the exception of Maumee Bay State Park, which was monitored by the University of Toledo.

Predictive Models

The use of predictive modeling has expanded in Ohio from two beaches in 2008 to five in 2013 and an additional two to three beaches are expected to go live in 2014. Predictive modeling is now being used or developed for at least one beach in every local monitoring jurisdiction. With the reduction in funding it is very important to support the efforts of the predictive modeling so as to protect the public health from poor water quality. More information on the predictive models capability of predicting water quality results can be found in the attached reports.

Additional activities in 2013

As with the past three seasons, the Ohio Department of Health (ODH) continues to work closely with the Ohio Environmental Protection Agency (OEPA) to submit the Ohio monitoring and notification data through the OEPA State node. The agencies are continuing to work on efficient submission of the data to the US EPA; however, there were some challenges again in 2013 in determining whether the data was successfully submitted. The ODH and OEPA worked with our federal partners to establish proper notification of data submission. The 2013 data has been submitted but verification as to successful submission was not available at the time this report was written.