



**2017 BATHING BEACH
MONITORING & NOTIFICATION PROGRAM REPORT
CU00E052608**

Introduction

The Ohio Department of Health (ODH) continued to implement the bathing beach monitoring and public notification program for 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 of varying interests. The 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. 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. In 2016 the system was enhanced allowing for cyanotoxin sampling and advisory data to be inputted. In 2017 the public facing webpage was redesigned to a mobile optimized webpage with a new map and allowed any person to sign up to receive advisory notifications via text, email or voice. Access to Beach Guard was given to any entity that monitors recreational waters anywhere in the state. As a result there are now more than 150 waterbodies in Ohio listed in Beach Guard and the public can go to the website to determine the water quality for nearly any water body in the state of Ohio. These enhancements were paid for by the state of Ohio and Beach Act funds were not used so local monitoring efforts could be financially supported.

Monitoring

The normal beach season in Ohio runs from Memorial Day to Labor Day. However, monitoring of the water begins the week before Memorial Day. In 2017, the ODH contracted with five local health districts, Lorain County, 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. The Ohio Department of Health was not able to secure a local partner to monitor the four beaches in Ashtabula County in 2017. As a result, staff from ODH collected samples and resampled after an exceedance. A contract with the Northeast Ohio Regional Sewer District was secured for water sample analysis on the samples collected in Ashtabula County. Sampling frequency along the Lake Erie shoreline largely remained the same as last year. The predictive model, Virtual Beach, was implemented at seven beaches in Ohio.

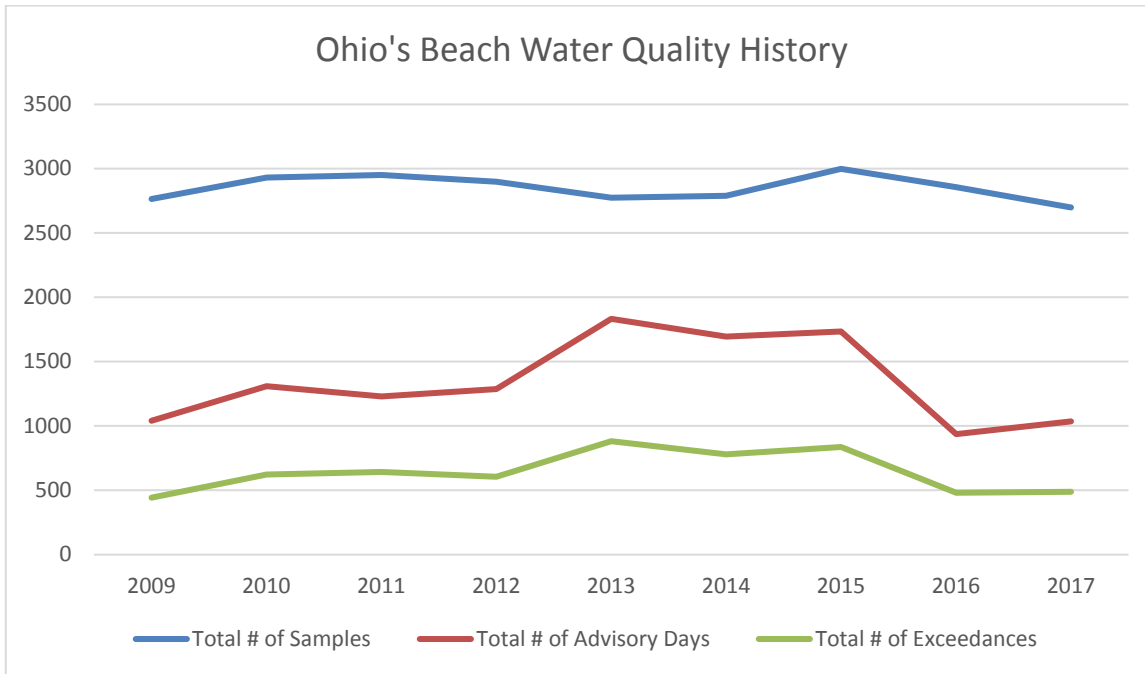
Table 1 indicates the sampling frequencies:

Table 1

7 samples per week	3 beaches
3-4 samples per week	39 beaches
1-2 samples per week	22 beaches

Figure 1 represents the sampling results for Ohio's bathing beaches from 2009 - 2017.

Figure 1



During 2017, 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. In 2017, 2,699 samples were collected continuing the decline from 2015. The number of exceedances in 2017 largely remained unchanged from 2016; however, the number of advisory days rose slightly. As a result the percentage of time Ohio's beaches were under advisory was 16%. There were several beaches for which an advisory was never posted. The most notable of these beaches is Lakeshore Park in Ashtabula County. This beach has historically had poor water quality results. At the time of the writing of this report, ODH is waiting on information to determine what changes were made to make such a dramatic improvement in water quality. There has been a concerted effort to identify pollution sources and eliminate failing and malfunctioning sewage systems across the Lake Erie watershed. More information on local efforts can be found in the attached reports.

Public Notification

When sample results exceeded the standard of 235 cfu or the predictive model forecasted poor water quality, 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 beach monitoring and notification program activities 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 seven proposals were received. The proposals were reviewed and contracts were awarded. The total amount of money awarded to the local projects was \$153,296.00, which represents 71% of the money awarded to ODH by the US EPA.

Contracts were awarded to the Cuyahoga County Board of Health, Erie County General Health District, Lake County General Health District, Lorain County General Health District, Northeast Ohio Regional Sewer District, Ottawa County Health Department and the University of Toledo. The Lake County General Health District monitored two public beaches in Lake County. A composite sample was taken at Mentor Headlands beach. 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. The Ottawa County Health District monitored seven beaches within its area. The Lorain County General Health District monitored four beaches within its area. The ODH was not successful in awarding a contract to a local monitoring agency in Ashtabula County for the four beaches located there. As a result, ODH staff collected samples every Monday. Resamples were taken when the sample results from Monday exceeded the standard advisory threshold.

Name of Contracted Entity	Amount of Award	Number of beaches monitored
Cuyahoga County Health District	\$31,176.00	15
Erie County General Health District	\$36,781.00	25
Lake County General Health District	\$18,205.00	2
Lorain County General Health District	\$23,811.00	6
Northeast Ohio Regional Sewer District	\$ 7,358.00	3
Ottawa County Health Department	\$18,336.00	7
University of Toledo	\$11,307.00	2
Ohio Department of Health		4

Monitoring Data generated by the Ohio Department of Health and our local partners for the 2015 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	Average E. coli per sample taken	# of Advisory Days	# of Advisories	% of the season on advisory
OH810688	Arcadia Beach	20	9	329.05	28	5	27%
OH625113	Battery Park	56	1	20.17	1	1	1%
OH983073	Bay Park Beach	16	2	129.75	6	2	5%
OH510880	Bay View East	56	8	200.89	12	7	11%
OH568760	Bay View West	56	26	654.02	58	11	55%
OH351307	Camp Perry	21	7	213.20	19	5	18%
OH396459	Catawba Island St. Pk.	16	1	60.47	2	1	2%
OH011172	Cedar Point	55	8	135.74	14	7	13%
OH597908	Century Beach	57	10	195.3	16	6	15%
OH934406	Chappel Creek	55	12	227.63	22	8	21%
OH135472	Clarkwood Beach	20	8	294.50	29	6	28%
OH484007	Clifton Beach	28	3	178.39	9	3	9%
OH862936	Columbia Park Beach	18	5	523.28	17	4	16%
OH278535	Community Park Beach	56	8	111.67	10	6	10%
OH400405	Conneaut Twp. Park	15	2	102.60	4	2	4%
OH014323	Cranberry Creek	56	7	82.35	18	5	17%
OH158931	Crystal Rock	55	7	134.51	16	5	15%
OH881916	Darby Creek	54	15	249.33	27	8	26%
OH685679	East Harbor State Park	43	1	33.61	3	1	3%
OH964162	Edgecliff Beach	22	8	417.86	24	6	23%
OH270037	Edgewater Beach*	108	7	63.22	18	10	17%
OH491555	Fairport Harbor*	53	10	147.62	33	15	31%
OH242977	Fichtel Creek	56	5	69.48	9	4	9%
OH682568	Geneva State Park	14	1	50.43	2	1	2%
OH777353	Headlands State Pk.*	106	16	193.58	39	19	37%
OH497945	Hoffman Ditch	56	7	98.96	14	5	13%
OH183537	Huntington Beach*	106	13	119.58	31	18	30%
OH531706	Huron River East*	56	8	167.59	9	5	9%
OH102681	Huron River West	56	17	269.61	36	10	34%
OH133557	Kelleys Island St. Pk.	17	2	98.42	4	2	4%
OH661129	Kiwanis Park	55	3	99.10	6	2	6%
OH882395	Lakeshore Park	13	0	86.31	0	0	0%
OH216093	Lakeside	45	1	35.22	4	1	4%
OH273826	Lakeview Beach	56	21	380.80	43	12	41%
OH414813	Lakewood Beach	56	9	163.72	14	7	13%
OH921073	Lion's Park	55	4	128.90	12	4	11%
OH182884	Maumee Bay St. Pk. (Erie)*	67	20	232.38	36	14	34%
OH318877	Maumee Bay St. Pk. (Inland)	66	22	276.72	38	12	36%

Beach ID	Beach Name	# of samples taken	Sample Exceedances	Average E. coli per sample taken	# of Advisory Days	# of Advisories	% of the season on advisory
	Miller Beach**	54	8	146.48	16	8	15%
OH507120	Moss Point Beach	16	2	100.56	6	2	6%
OH159626	Noble Beach	17	3	138.53	9	3	9%
OH647956	Old Woman Creek East	56	4	87.49	3	2	3%
OH787470	Old Woman Creek West	56	3	46.00	7	2	7%
OH645425	Parklawn Beach	14	0	39.86	9	2	9%
OH957157	Pickeral Creek	55	6	172.82	14	4	13%
OH463595	Port Clinton (Lakeview)	41	3	145.57	12	3	11%
OH934275	Royal Acres Beach	20	8	296.75	24	12	23%
OH453378	Sawmill Creek	55	7	100.84	13	6	12%
OH840983	Sherod Creek	55	13	191.40	21	9	20%
OH179611	Shoreby Club Beach	15	1	57.67	3	1	3%
OH287343	Showse Park	54	5	81.06	17	5	16%
OH435857	Sims Beach	19	7	283.74	26	5	25%
OH907394	South Bass Island St. Pk.	15	0	41.39	0	0	0%
OH513071	Sugar Creek	56	13	208.17	23	9	22%
OH775880	Utopia Beach	19	5	201.68	15	5	14%
OH084281	Vermilion East	55	13	284.25	21	7	20%
OH944567	Vermilion West*	56	6	136.54	7	6	7%
	Veteran's Beach**	56	16	313.52	30	9	29%
OH736320	Villa Angela State Park*	104	35	461.85	42	16	40%
OH136995	Wagar Beach	15	2	75.07	8	1	8%
OH610732	Walnut Beach	14	1	34.57	2	1	2%
OH422598	Whites Landing	56	14	185.63	25	9	24%

*Predictive model was used to issue advisories.

**Beach that is being monitored by Avon Municipal and not supported by Beach Act funds.

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

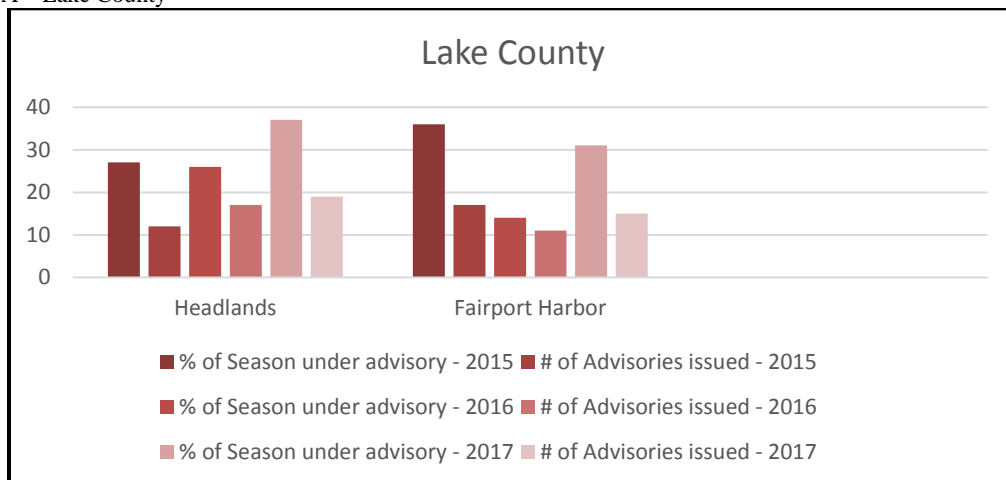


Chart A lists the beaches that were monitored by Lake County during the 2015 bathing beach season. Headlands East and Headlands West are two sampling points for the same beach, Mentor Headlands. This beach is over a mile long and there have been two sampling points to try and more accurately capture the water quality conditions for the entire beach. These samples were composited for analysis. Advisories for both beaches were based on the predictive model.

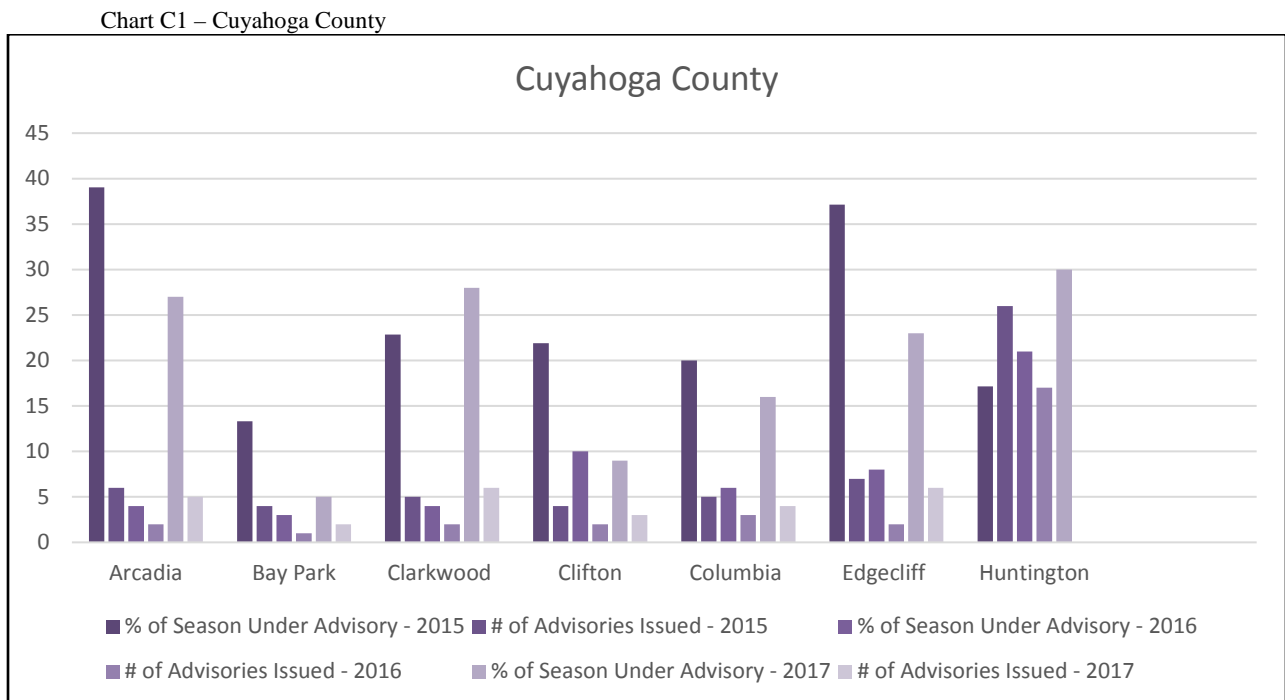
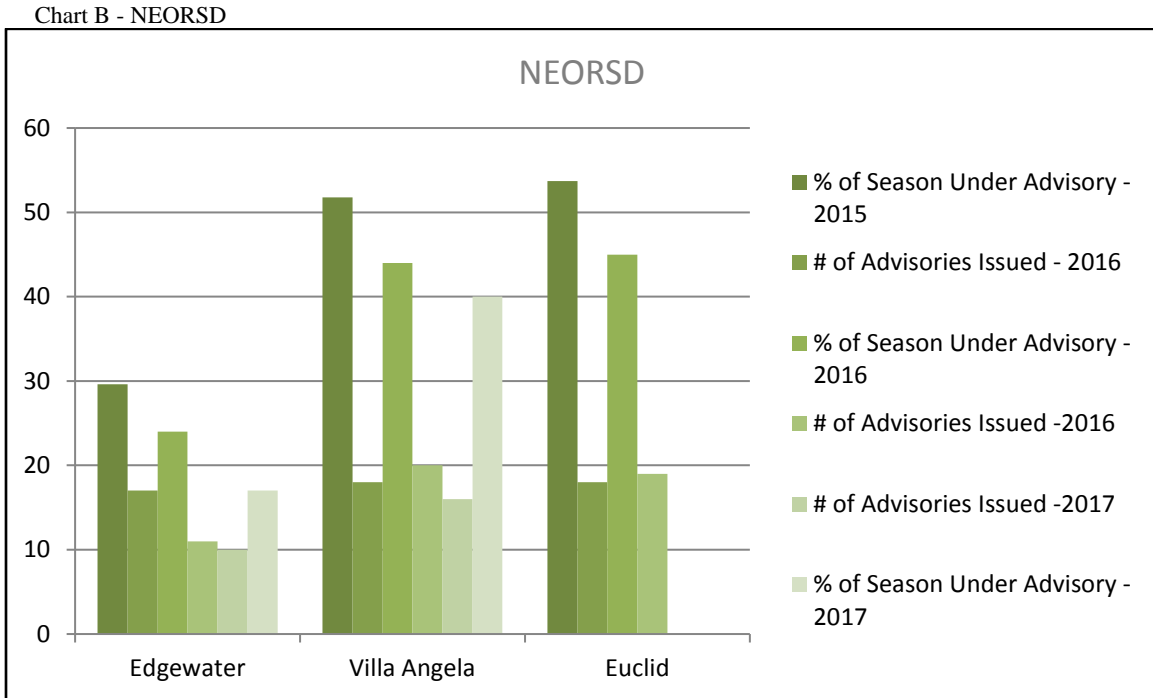


Chart C2 – Cuyahoga County

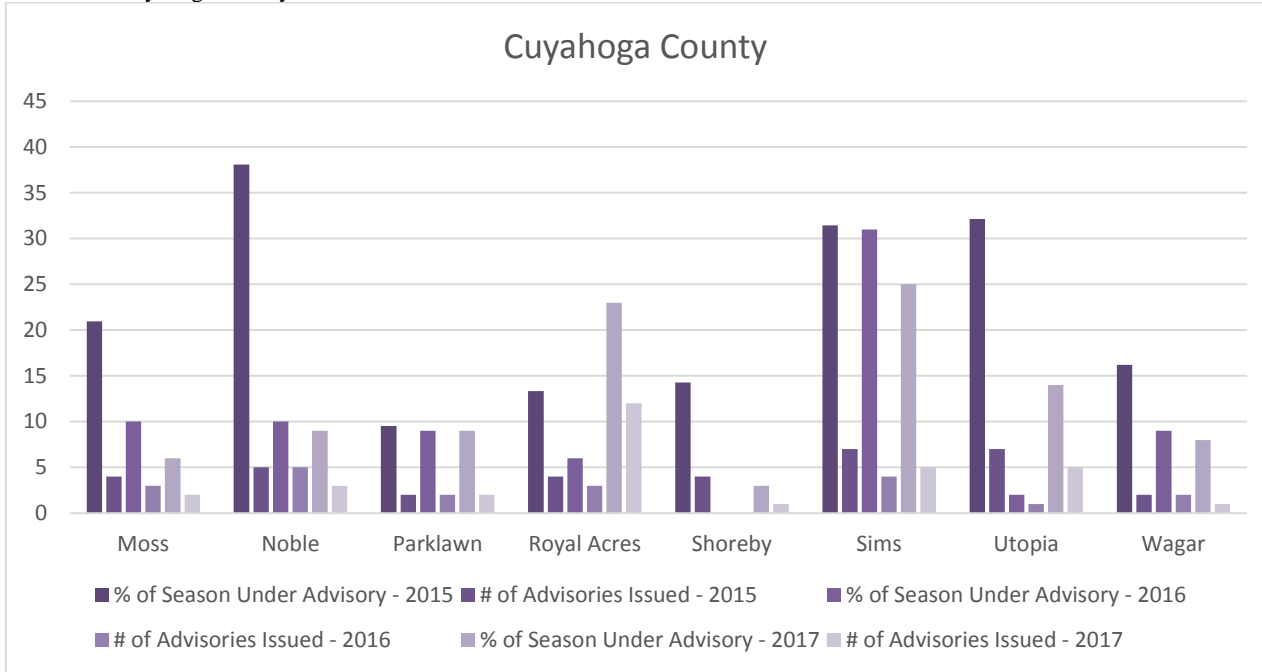


Chart D1 – Erie County

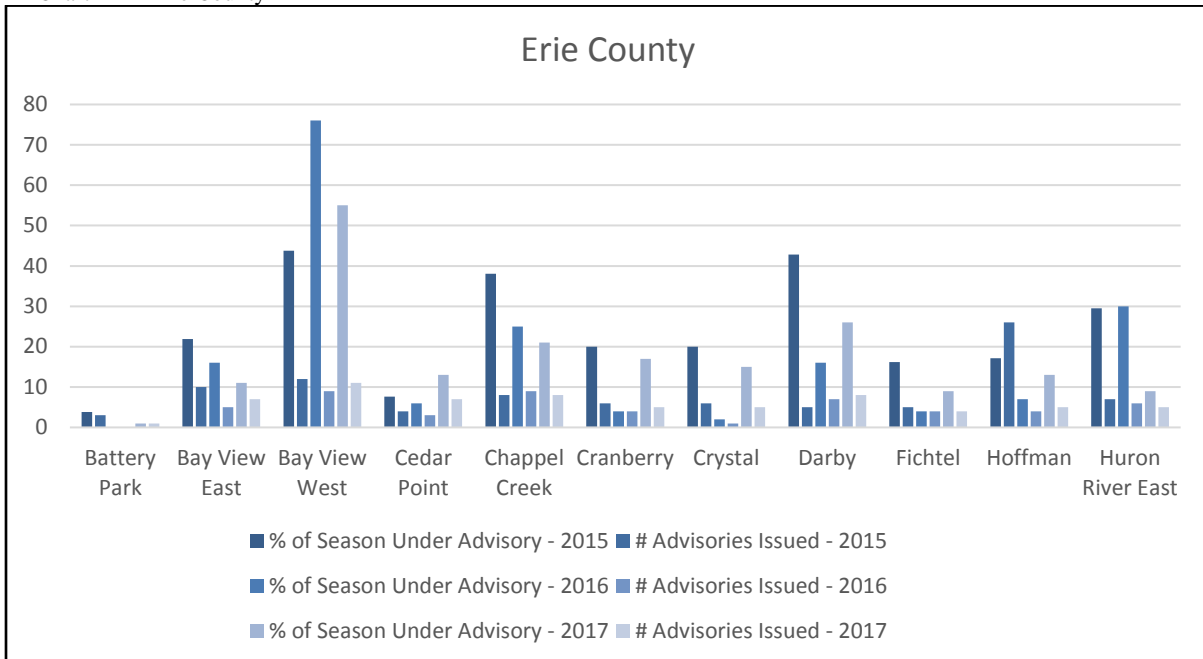


Chart D2 – Erie County

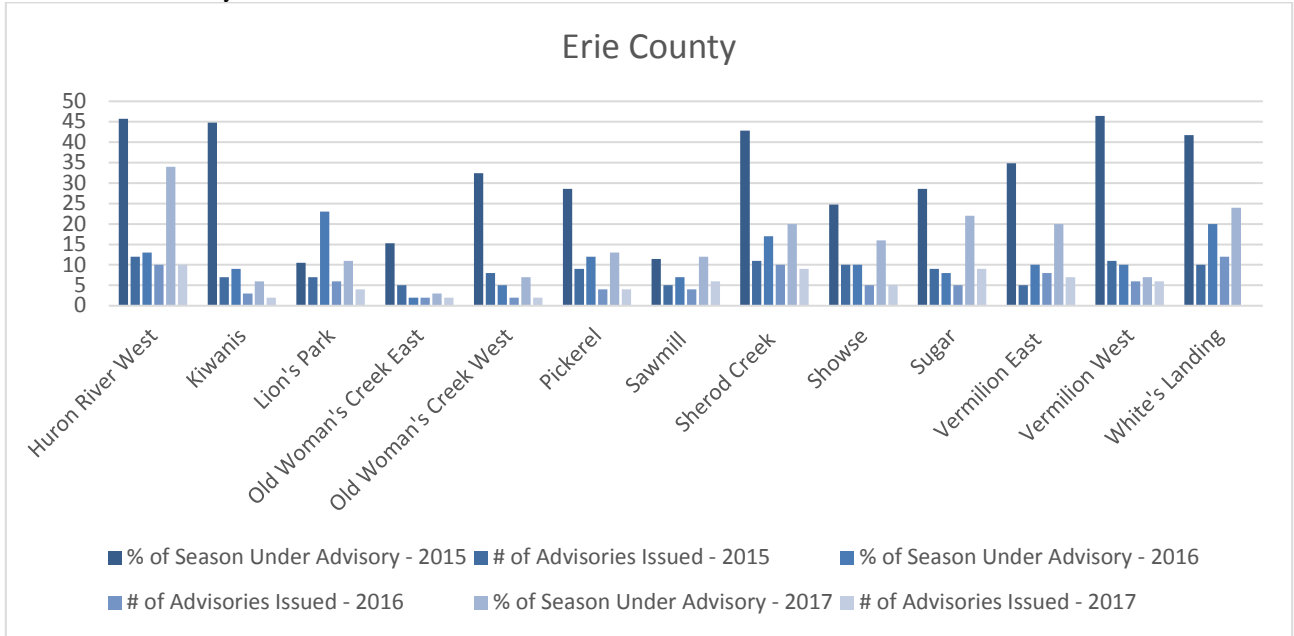
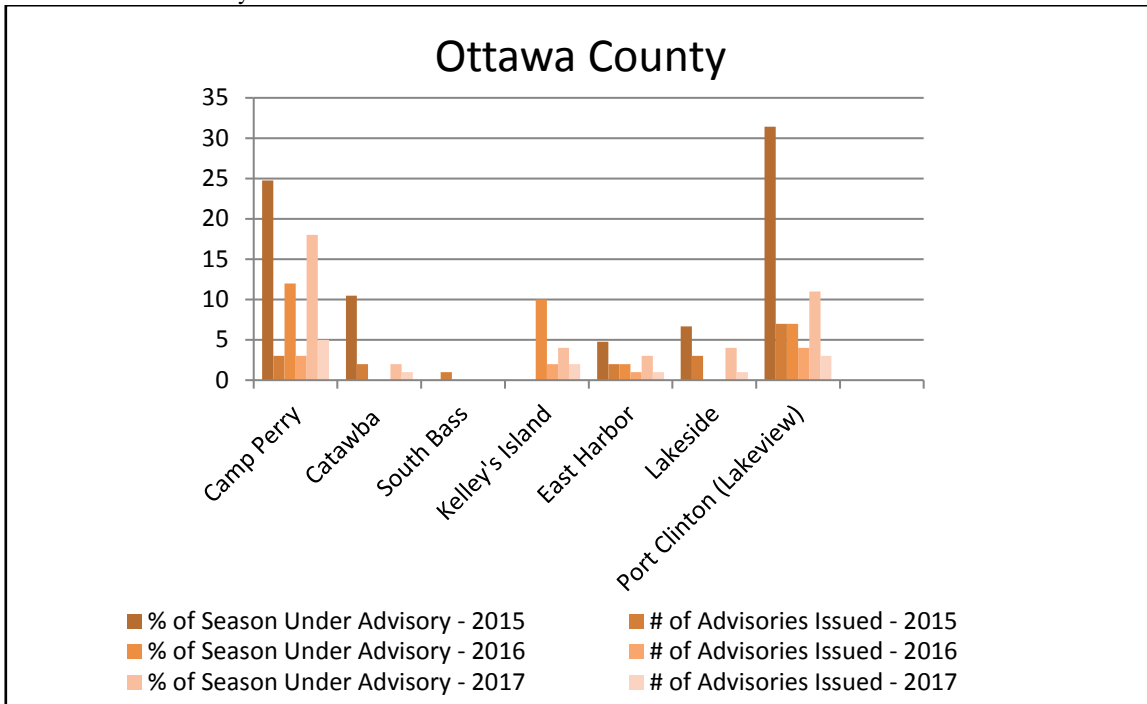


Chart E – Ottawa County



Ottawa County conducted the monitoring program for the beaches listed in Chart E.

Chart F – University of Toledo

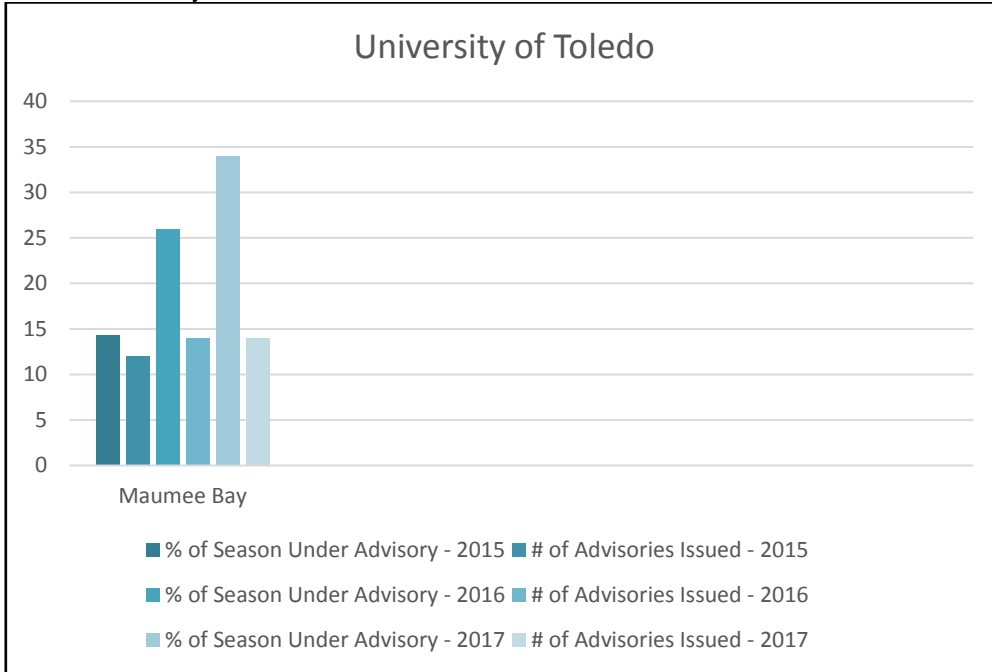


Chart G – Lorain County

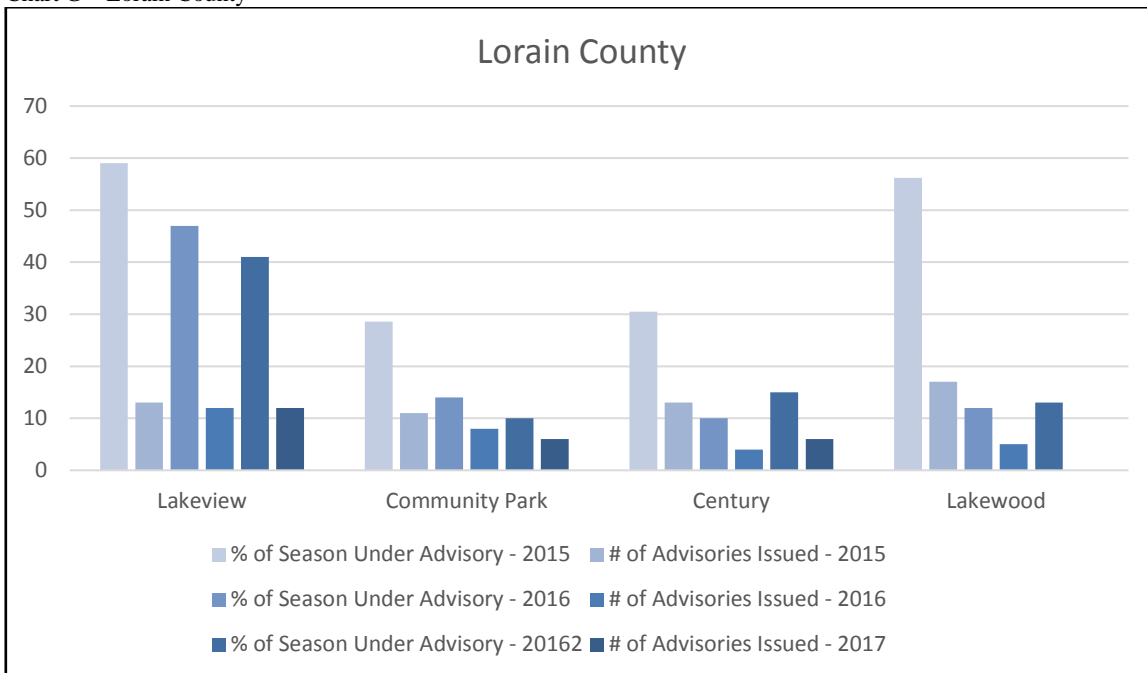
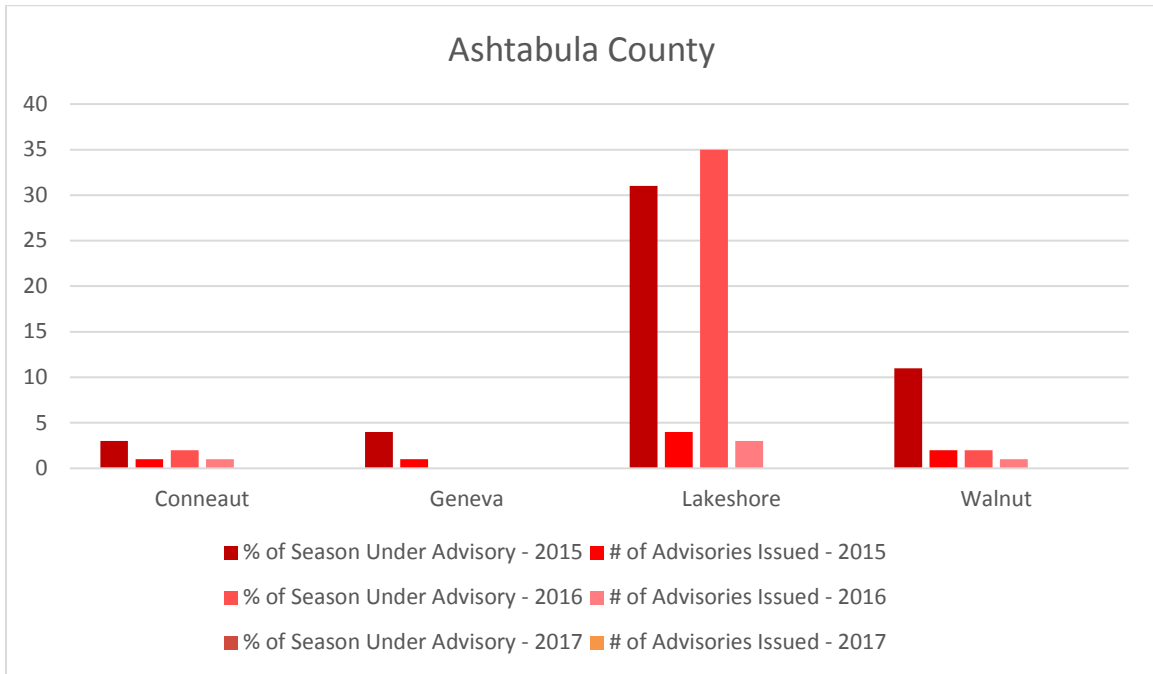


Chart H - Ashtabula



Predictive Models

Predictive models were used at seven Lake Erie beaches in 2017. Those beaches were: Huntington, Edgewater, Euclid, Villa Angela, Fairport Harbor, Maumee and Headlands. Advisories for Huron River East and Vermilion West were based on the traditional culture method as the accuracy for the models at those beaches was not quite high enough for the local monitoring agency to comfortably use for public notification. The model for Huron River East was accurate 86% of the season. The local health district will be encouraged to base advisories in 2018 on the model and use traditional sampling as support. Predictive modeling is now being used or in development for at least one beach in every local monitoring jurisdiction. The United States Geological Survey provides tremendous assistance to the local beach managers in setting up accurate models for each beach season. 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 2017

As with past 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. The Erie County General Health District is working closely with the community of Bay View Village to install a public sanitary sewer system. This project continues to progress with over half the residents now connected to the public sanitary system. The water quality for Bay View West saw dramatic improvement and the advisories for this beach dropped by 29% from 2016. It is anticipated that the remainder of the community will be connected to the public sanitary sewer system before the 2018 season begins.

The launch of the new public facing side of the bathing beach monitoring website occurred in July. The system now allows for the public to receive text, voice and/or email notifications for any or all beaches in Ohio. This was a ‘soft’ launch and there were 188 users that signed up to receive notifications. For the 2018 season more effort will be made to promote this new method of advisory notification and it is anticipated that more users will take advantage of the system. The total cost for these enhancements was \$82,158.68 and was funded by the state of Ohio.

We are also working on developing a request for solicitation to update the ‘back-end’ of the Beach Guard system and further enhance the system to allow for a web-based or cloud-based system, direct connection for laboratories to submit sample results (to eliminate the need for manual data entry), add the time of day an advisory is issued and removed as well as a direct connection to Ohio’s node for data submission to US EPA. These changes are not anticipated to be in place for the 2018 season but a contract will be awarded and work commenced on the update during the 2018 season.

SUMMARY

The Bathing Beach Monitoring Program in Ohio serves millions of people that live and visit the state each year. As indicated by the graphs in the report the water quality at the bathing beaches has steadily improved since 2015 and the percentage of time Ohio’s beaches are under advisory has declined over the same time period. Improvements have been made to both private and public sanitary sewage systems as a result of the cooperation of the local health districts, the state of Ohio and the US EPA. The Ohio Department of Health appreciates the opportunity to work with US EPA to monitor the bathing beaches along Lake Erie and improve the notification efforts to the public.