



# **Wisconsin's Great Lakes Beach Monitoring & Notification Program**

## **2019 Beach Season Summary**



**Office of Great Waters  
Wisconsin Department of Natural Resources  
December 17, 2020**

## **Acknowledgements**

USGS continues to host the Beach Health website that supports program operations. USGS continues to provide tremendous support and service to our program and last year was no exception.

We also recognize leadership of the Wisconsin Coastal Beaches Stakeholders Group.

**Thanks to everyone who helps make Wisconsin's Great Lakes Beach Program a success!**

## **County participants include:**

Ashland County Health Department

Bayfield County Health Department

City of Milwaukee Health Department

Door County Health Department

Douglas County Health Department

Iron County Health Department

Kenosha County Division of Health

Kewaunee County Health Department

Manitowoc County Health Department

North Shore/Shorewood Health Department

Ozaukee County Health Department

City of Racine Public Health Department

Sheboygan County Human Services

South Milwaukee Health Department

## **Additional assistance provided by:**

University of Wisconsin - Oshkosh, Environmental Research and Innovation Center

Sampling and Analytical Support for Door, Kewaunee, Manitowoc, and Iron Counties

Racine Public Health Department

Sampling and Analytical Support for Kenosha and Racine Counties and South Milwaukee Health Departments

Northland College

Sampling and Analytical Support for Ashland County

University of Wisconsin – Superior, Lake Superior Research Institute

Sampling and Analytical Support for Douglas County

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University of Wisconsin - Milwaukee, School of Freshwater Science

University of Wisconsin-Madison, State Laboratory of Hygiene

Wisconsin Dept. of Administration, WI Coastal Management Program

## **2019 Beach Season: Program Highlights**

Wisconsin's Great Lakes Beach Monitoring & Notification Program has operated since 2002 making the summer of 2019 its seventeenth season.

Each year, the beach program collaborates with local stakeholders to evaluate the beach list for accuracy and prioritize beaches for monitoring. The beach list is posted on the DNR website with specific notes of program changes. This includes the following:

- coastal beaches missing from the list
- corrections to beach locations and measurements
- changes in conditions surrounding the beach (e.g. restoration, drainage, water levels)
- water quality and historical data
- number of people using the beach
- locally used name for the beach
- tools such as Nowcast in place to post same-day advisories.
- appropriate monitoring frequency for the beach conditions, usage, and notification procedures
- any changes to beach program contacts.

The beach program coordinator reached out to local partners and health departments in advance of the beach season to identify changes to beach information. Coastal processes change beach dimensions over time, individual beaches may be improved or restored, and beach usage patterns can also change, so local beach managers are given an opportunity to re-evaluate their priority classification and update their information annually. Beach tier, the existence of an operational Nowcast, and impairment status are major considerations in determining the monitoring frequency and thus in determining funding allocations. Based on feedback, coordinate information for four beaches were updated. Iron County coastal beaches, which were damaged during significant storms in 2016 were re-opened mid-season after repairs were completed, and Bayshore Park beach in Brown County was added to the list of monitored beaches.





The fiscal year 2018 BEACH Act grant of \$213,000 from the United States Environmental Protection Agency (USEPA) which supported monitoring and public notification programs in 12 of the 15 coastal counties in 2019. The 2019 beach list identified 188 coastal beaches extending 55.1 beach miles. The BEACH grant funded public notification of water quality conditions at 105 locations and all 24 Tier 1 beaches participated in the program. Basic sanitary survey information, *E. coli* results, and the status of the beach (open, advisory, or closure) were posted to the Wisconsin Beach Health website. Various communities supplemented their allocated funding to intensify monitoring, investigate contaminant sources through sanitary surveys or source identification through DNA testing, and evaluate effectiveness of restorations.

Wisconsin's Great Lakes Beach Monitoring & Notification Program relies on local public health organizations along the coastline for primary outreach and communication. These organizations are the primary point of contact for answering questions and responding to requests for information about beach water quality. However, on-the-ground beach management is often the purview of parks departments, which coordinate closely with local public health organizations. Additionally, beaches are often adjacent to public infrastructure, so developing effective management practices may involve public works or transportation departments. When considering the number of departments with functions that may affect beach management, our stakeholders have come to appreciate the importance of coordinating beyond the usual department boundaries, particularly for implementing best management practices (BMPs), addressing sources of contamination, and implementing beach restorations.



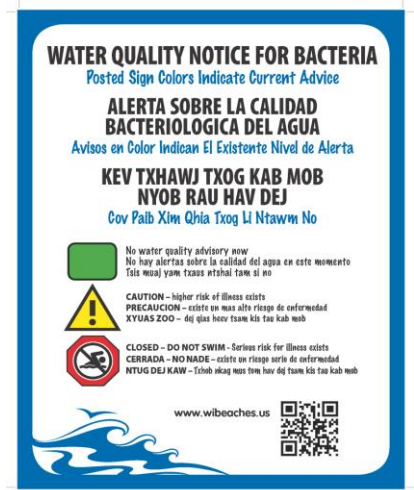
Scott Olsen

## Water Quality Signage

The program uses color-based signs to indicate status of monitored beaches. Green signs are used to indicate that the beach is open and there is no known water quality exceedance. Yellow advisory signs are posted when bacteria levels exceed 235 colonies/100 mL or conditions indicate that an advisory is warranted (e.g. after a rain event). The red beach closure signs are posted when conditions indicate that swimming is unsafe. Examples of conditions when these signs may be used include bacteria levels exceeding 1000 colonies/100 mL, recent heavy rainfall or flooding, chemical spills, toxins present, or dangerous (rip) current warnings in effect.

The three colored signs were designed to be used in combination with the general program advisory sign developed in 2015. Key elements in the sign design included:

- Retaining the color-based system
- Recognizable icons accompanying messaging
- Simple, straight-forward wording that can be used for multiple health hazards.
- Space available on the sign for contact information for the local public health contacts



Counties commented that they do not have a large Hmong population visiting their beaches so including that translation was not important to them. The messaging on the three colored signs was simplified to English and Spanish, with the Hmong translation appearing on the blue sign only.



Distribution of the signage is coordinated with Wisconsin State Parks so that consistent messaging occurs at inland beaches that use the program's monitoring and notification systems. Inland communities are encouraged to implement the program voluntarily. Sign templates are made available to inland communities upon request.

## Monitoring Summary Results

Summary data in this section provides information for each county and statewide (Table 3) followed by data for each monitored beach organized by county and grouped by lake. Statistics for the *E. coli* monitoring results were derived from the Wisconsin's Beach Health database. As a function of Wisconsin's prioritizing monitoring at impaired waters and more intensive monitoring at beaches with higher numbers of exceedances, our monitoring program is inherently biased toward locations with higher risk of exceeding the water quality standard. Beach managers may issue advisories based on local conditions or modeled results and some locations sample more frequently to minimize the length of time an advisory may be in effect. As a result, the frequency with which samples exceed the water quality criteria may not be the same as what beach visitors experience. Advisories or closures remain in effect until the next monitoring or modeling results indicate that water quality has improved.

**Table 3. 2019 Annual Sample Percentages that exceed the advisory level of 235 CFU/100mL**

County	# of Monitored Beaches	Samples Collected	Exceedances (>235)	Closures (>1000)	% Exceedances	% Closures
Ashland	3	107	14	4	13.1	3.7
Bayfield	11	227	6	0	2.6	0.0
Brown	1	11	0	0	0.0	0.0
Door	32	1045	35	10	3.3	1.0
Douglas	6	110	15	4	13.6	3.6
Iron	3	11	0	0	0.0	0.0
Kenosha	7	192	16	3	8.3	1.6
Kewaunee	2	106	3	1	2.8	0.9
Manitowoc	10	317	29	4	9.1	1.3
Milwaukee	11	325	30	4	9.2	1.2
Ozaukee	5	153	3	1	2.0	0.7
Racine	5	500	30	12	6.0	2.4
Sheboygan	7	286	11	1	3.8	0.3
<b>Grand Total</b>	<b>98</b>	<b>3390</b>	<b>192</b>	<b>44</b>	<b>5.7</b>	<b>1.3</b>

Note: In Douglas County, beach conditions at Shafer Beach were based on adjacent sampling at Dutchman Creek. In Kewaunee County, beach conditions at Selner and Pioneer Parks were based on results from the same sample. In Manitowoc County, composite sampling was considered and approved for Point Beach, based on statistical assessment of the water quality data. The number of beaches with monitoring is 100 and the number with public notification is 105.

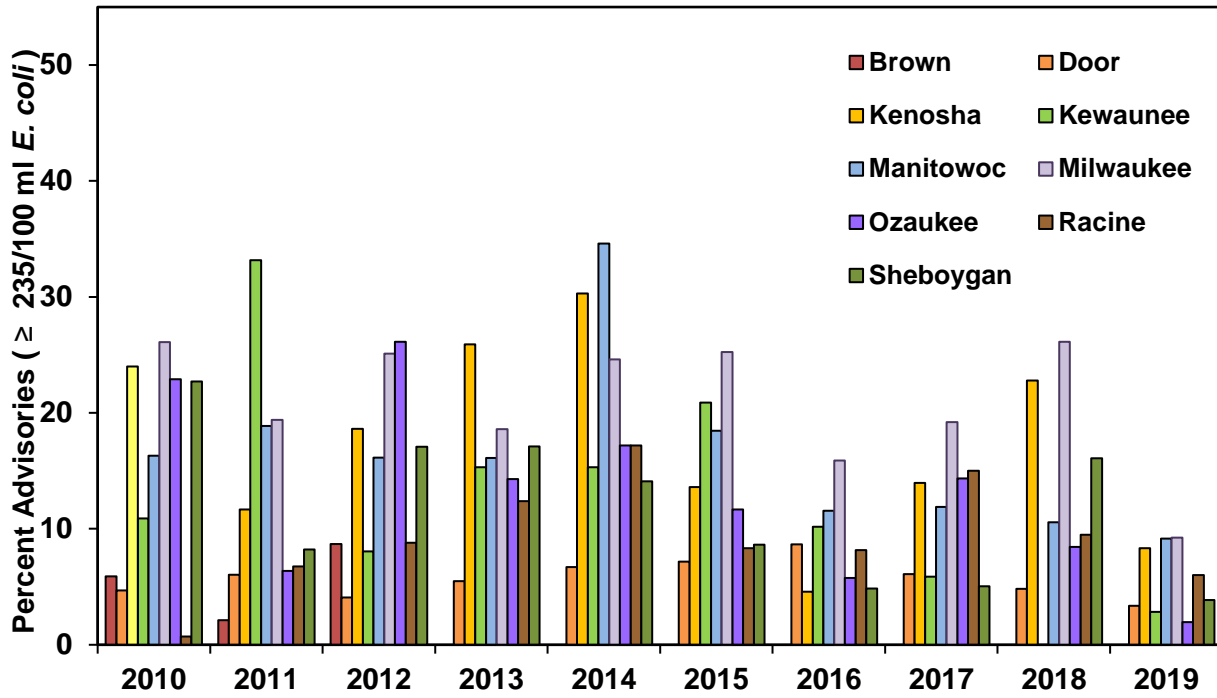
**Table 4. Historic Summary of Percentages that exceed the advisory level of 235 CFU/100mL**

Blue highlighted cells indicate fewer beach action days in 2019 compared to 2018

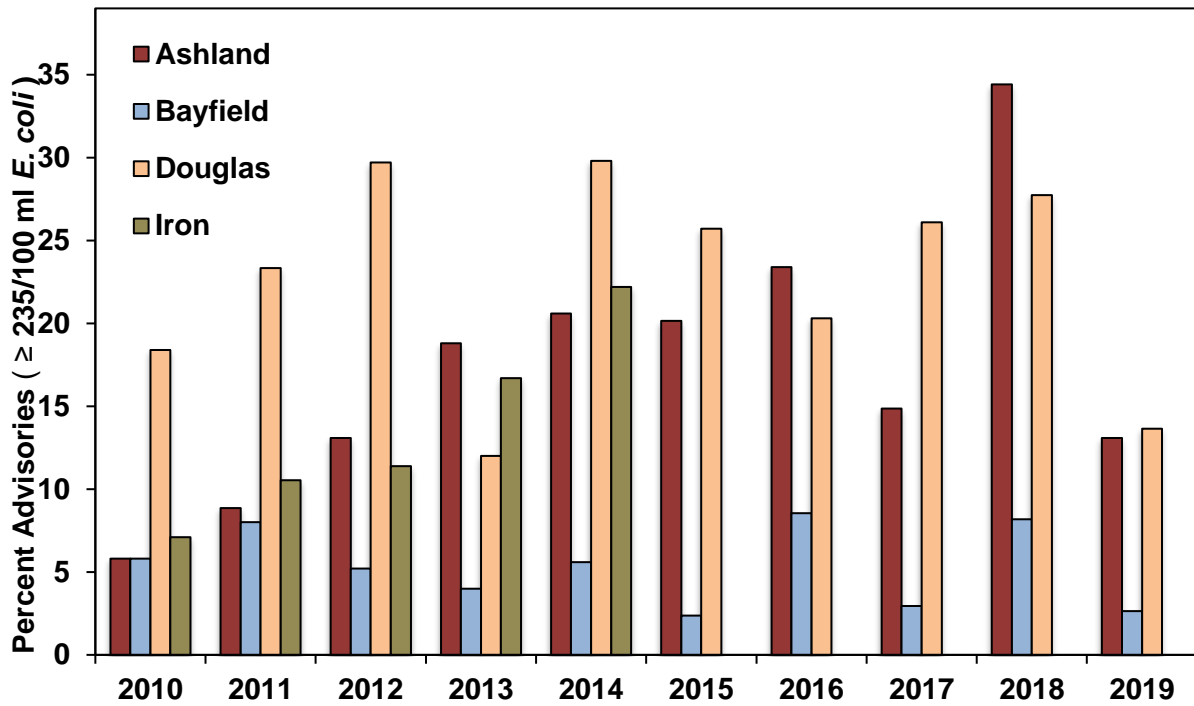
COUNTY	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ashland	3.2	10.2	4.6	3.5	3.8	3.3	4.0	5.8	8.9	13.1	18.8	20.6	20.1	23.4	14.9	34.4	13.1
Bayfield	1.9	2.2	4.3	7.1	7.1	3.1	0.8	5.8	8.0	5.2	4.0	5.6	2.4	8.6	2.9	8.2	2.6
Brown	0.0	2.0	1.8	0.0	4.5	0.0	5.2	5.9	2.1	8.7	0.0	NA	NA	NA	NA	NA	0.0
Door	4.1	8.2	6.9	7.3	4.8	6.3	8.1	4.7	6.0	4.1	5.5	6.7	7.2	8.7	6.1	4.8	3.3
Douglas	9.5	11.8	23.7	12.9	11.3	18.8	1.5	18.4	23.3	29.7	12.0	29.8	25.7	20.3	26.1	27.7	13.6
Iron	1.1	1.5	2.7	3.5	0.0	0.0	0.0	7.1	10.5	11.4	16.7	22.2	0.0	NA	NA	NA	0.0
Kenosha	21.0	36.3	31.9	29.9	32.2	31.7	23.5	24.0	11.7	18.6	25.9	30.3	13.6	4.6	14.0	22.8	8.3
Kewaunee	26.0	33.9	26.9	33.9	49.7	11.1	9.1	10.9	33.2	8.1	15.3	15.3	20.9	10.2	5.9	0.0	2.8
Manitowoc	49.6	40.1	20.4	54.4	31.7	31.3	5.3	16.3	18.9	16.1	16.1	34.6	18.5	11.6	11.9	9.8	9.1
Milwaukee	24.3	38.7	30.3	20.0	23.7	22.4	12.7	26.1	19.4	25.1	18.6	24.6	25.3	15.9	19.2	26.1	9.2
Ozaukee	15.9	28.9	12.9	17.1	27.6	24.0	4.8	22.9	6.4	26.1	14.3	17.2	11.7	5.8	14.4	8.5	2.0
Racine	16.5	17.6	7.4	6.9	6.7	6.7	6.4	0.7	6.8	8.8	12.4	17.2	8.3	8.2	15.0	9.5	6.0
Sheboygan	23.8	30.2	24.8	43.9	28.5	18.1	13.6	22.7	8.2	17.1	17.1	14.1	8.6	4.9	5.1	16.1	3.8
Coastal Average	14.6	22.2	15.7	17.5	17.1	14.4	7.3	12.4	11.8	14.4	11.0	18.1	12.6	10.0	10.3	12.2	5.7

In 2019, along both Lake Michigan and Lake Superior, most counties experienced fewer advisories than in 2018, and for the state, we saw a significant reduction in percentage of exceedances compared with the 2018 beach season.

## Lake Michigan Counties 2010-2019



## Lake Superior Counties 2010-2019





## Lake Michigan

In general, Lake Michigan beaches had fewer beach action days in 2019 than in 2018. Marinette and Oconto County beaches are classified as Tier 4 with no monitoring, and do not receive BEACH Act funding. Maps for all Lake Michigan beaches can be found on the [WDNR beaches webpage](#).

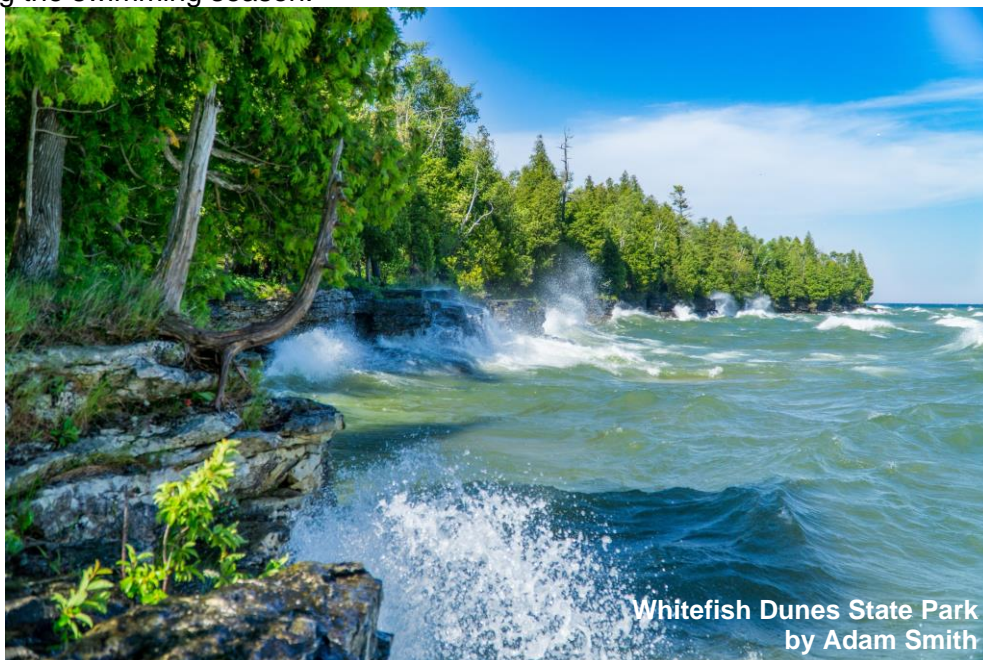
### **Brown County**

Brown County beach tier placement was re-evaluated as part of the annual evaluation. Bayshore County Park is heavily used by all types of recreational users and the boat launch is one of the busiest in the county. The park includes a campground, and on typical summer days, the beach is full. Review of historic monitoring data (2010 – 2013) suggests that water quality is generally good with only three advisories in four years, one in 2011 and two in 2012. Because of its high use, WDNR, in collaboration with Brown County Public Health Department, added Bayshore County Park to the list of monitored beaches.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Brown	11	0	0	0	0.0	0.0
Bayshore Park Beach	11	0	0	0	0.0	0.0

### **Door County**

Door County, with 12 Tier 1 beaches, has the highest number of coastal beaches in the State, making it one of the most popular summer tourist destinations in Wisconsin. Door County places an emphasis on regular monitoring, testing 32 of 54 coastal beaches on the peninsula as well as Washington and Rock Islands throughout the summer. As with past years, the county used a combination of BEACH Act support and local funding to implement their program. This is particularly notable given the transportation costs associated with monitoring the island beaches. Attempts to develop predictive models for beaches in Door County have not been successful, not an unexpected outcome given the relatively low exceedance frequency at these beaches. In 2019, Door County beaches only had 36 total beach action days, with 22 beaches having no beach action days during the swimming season.



County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Door	1045	36	35	10	3.3	1.0
Anclam Park Beach	29	0	0	0	0.0	0.0
Baileys Harbor Ridges Park Beach	57	0	0	0	0.0	0.0
Clay Banks Beach 2	28	0	0	0	0.0	0.0
Egg Harbor Beach	56	2	2	0	3.5	0.0
Ellison Bay Town Park Beach	57	0	0	0	0.0	0.0
Ephraim Beach	58	8	7	1	12.5	1.8
Europe Bay Beach 1	28	0	0	0	0.0	0.0
Europe Bay Beach 3	28	0	0	0	0.0	0.0
Fish Creek Beach	58	13	13	5	61.9	23.8
Gislason Beach	14	0	0	0	0.0	0.0
Haines Park Beach	29	1	1	0	4.0	0.0
Hotz Memorial Park (Europe Bay #2)	27	0	0	0	0.0	0.0
Jackson Harbor Ridges - WI	14	0	0	0	0.0	0.0
Lakeside Park Beach	28	0	0	0	0.0	0.0
Lily Bay Boat Launch Beach	14	0	0	0	0.0	0.0
Murphy Park Beach	56	5	5	3	9.1	5.5
Newport Bay Beach	56	0	0	0	0.0	0.0
Nicolet Beach	59	3	3	1	5.4	1.8
Otumba Park Beach	56	1	1	0	1.9	0.0
Percy Johnson Memorial Park Beach	14	1	1	0	6.7	0.0
Portage Park Beach	29	0	0	0	0.0	0.0
Robert E LaSalle Park	14	0	0	0	0.0	0.0
Rock Island State Park Beach	14	0	0	0	0.0	0.0
Sand Bay Beach 1	30	0	0	0	0.0	0.0
Sand Dune Beach	14	0	0	0	0.0	0.0
Sandy Bay Town Park Beach	28	0	0	0	0.0	0.0
School House Beach	14	0	0	0	0.0	0.0
Sister Bay Beach	57	1	1	0	2.0	0.0
Sturgeon Bay Ship Canal Nature Preserve	28	0	0	0	0.0	0.0
Sunset Park Beach Sturgeon Bay	57	1	1	0	1.9	0.0
Whitefish Bay Boat Launch Beach	14	0	0	0	0.0	0.0
Whitefish Dunes Beach	57	0	0	0	0.0	0.0

### **Kenosha County**

BEACH Act monitoring for Kenosha County beaches was done through an assistance agreement with the City of Racine. This arrangement enabled the program to provide funding to support summer staff required to do the sample collection. Eichelman was contracted at 3 samples/week. The remaining beaches were contracted for sampling twice per week.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Kenosha	192	18	16	3	8.3	1.6
Alford Park Beach	26	0	0	0	0.0	0.0
Eichelman Beach	43	6	6	1	14.0	2.3
Lakeshore Park North	31	9	7	1	22.6	3.2
Pennoyer Park Beach	26	0	0	0	0.0	0.0
Prairie Shores (Lakeshore Drive)	40	3	3	1	7.5	2.5
Simmons Island Beach	26	0	0	0	0.0	0.0
Southport Park Beach	26	0	0	0	0.0	0.0



Shelby Chmielewski

**Kewaunee County**

Kewaunee County monitored 2 of 5 coastal beaches in 2019. Pioneer Park, separated by one city lot from Selner Park, was added to the beach list in 2017, but Kewaunee County Public Health Department indicated that more people visit and swim at Selner Park. Considering its proximity, Kewaunee chose to use the monitoring results from Selner Park to post advisories at Pioneer Park. Sampling and analyses are contracted with the University of Wisconsin – Oshkosh, and were conducted approximately 4 times per week for both beaches in 2019

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Kewaunee	106	3	3	1	2.8	0.9
Crescent Beach	52	2	2	0	3.8	0.0
Selner Park/Pioneer	54	1	1	1	1.9	1.9

**Manitowoc County**

Monitoring for Manitowoc County continues to be performed by University of Wisconsin – Oshkosh to monitor 11 of 16 beaches. Overall, the number of beach days was slightly lower for 2019 than in 2018.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Manitowoc	317	35	29	4	9.1	1.3
Blue Rail Marina Beach	43	7	7	0	16.3	0.0
Fischer Park Beaches	15	8	2	0	13.3	0.0
Hika Park Bay	16	2	2	1	12.5	6.3
Memorial Drive Mariners at Waldo	30	2	2	1	6.7	3.3
Memorial Drive Parkway	29	1	1	1	3.4	3.4
Memorial Drive Thiede	29	1	1	0	3.4	0.0
Neshotah Beach	29	4	4	0	13.8	0.0
Point Beach State Forest - Concession Stand Beach*	29	1	1	0	3.6	0.0
Point Beach State Forest - Lakeshore Picnic Area Beach*	29	1	1	0	3.7	0.0
Point Beach State Forest - Lighthouse Picnic Area Beach*	29	1	1	0	3.4	0.0
Red Arrow Park Beach Manitowoc	44	7	7	1	16.7	2.4

\* Composite sampling considered and approved for Point Beach based on statistical assessment of the water quality data.



**Milwaukee County**

Multiple government jurisdictions have responsibility for monitoring and making public health decisions for 13 Milwaukee County Great Lakes beaches. The City of Milwaukee continued its partnership with the University of Wisconsin – Milwaukee (UW-M) to monitor Bradford, McKinley and South Shore beaches. These beaches experienced fewer advisories in 2019 compared to 2018. Milwaukee County Parks has implemented a series of best management practices at these beaches that include grooming and gull deterrence. At South Shore, the County also implemented a construction project to control run-off from the parking area that includes rain gardens and a fish cleaning station. The County has continued to evaluate and implement additional options for addressing the number of advisories.

Northshore Health Department is responsible for monitoring northern beaches (Atwater, Klode, and Doctor’s Park).

Bay View, Bender, and Grant Park beaches in the South Milwaukee jurisdiction were monitored through an arrangement with Racine Public Health.



Mark Straub

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Milwaukee	325	80	30	4	9.2	1.2
Atwater Park Beach	28	4	1	0	3.6	0.0
Bay View Park Beach	15	0	0	0	0.0	0.0
Bender Beach	31	3	3	1	9.7	3.2
Bradford Beach	37	8	0	0	0.0	0.0
Grant Park Beach	28	2	2	0	7.1	0.0
Klode Park Beach	28	3	1	0	3.6	0.0
McKinley Beach	60	12	3	0	5.0	0.0
South Shore Beach	58	33	18	3	31.0	5.2
Tietjen Beach/ Doctor's Park	28	7	2	0	7.1	0.0
Watercraft Beach	12	8	0	0	0.0	0.0





***Ozaukee County***

The Ozaukee-Washington Health Department monitors the 5 beaches listed in the table below. Concordia University and Upper Lake Park beach had delayed openings at the beginning of the season due to high water levels making access to and sampling of the beach unsafe.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Ozaukee	153	5	3	1	2.0	0.7
Concordia University	18	0	0	0	0.0	0.0
Harrington State Park - North	47	2	2	1	4.3	2.1
Harrington State Park - South	46	1	1	0	2.2	0.0
South Beach	25	1	0	0	0.0	0.0
Upper Lake Park (aka North Beach)	17	0	0	0	0.0	0.0

**Racine County**

The City of Racine places a high priority on monitoring its beaches and uses rapid methods and multiple tools to determine water quality conditions. Racine uses a weight of evidence approach at North and Zoo beaches that include sanitary surveys, *E. coli* testing, qPCR and Nowcasting. Sam Myers Park off-shore swimming area was opened in 2018, and advisory information was posted for the second year at this location.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Racine	500	18	30	12	6.0	2.4
Myers Park Beach	21	3	5	2	23.8	9.5
North Beach	261	5	12	4	4.6	1.5
Parkway Beach	16	3	3	0	18.8	0.0
Wind Point Lighthouse Beach	13	1	1	0	7.7	0.0
Zoo Beach	189	6	9	6	4.8	3.2

**Sheboygan County**

Sheboygan County monitors 7 of 14 coastal beaches including two at Kohler-Andrae State Park. The park implemented a redesign plan to address erosion and stormwater from the parking lot at the North Picnic beach. Shoreline dunes have been re-established and vegetation was planted in the raingarden. Storms that occurred during the construction period demonstrated that the raingarden functions as designed.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Sheboygan	286	11	11	1	3.8	0.35
Amsterdam Beach	16	4	2	1	12.5	6.3
Blue Harbor Beach	30	2	2	0	6.7	0.0
Deland Park Beach	29	1	1	0	3.4	0.0
General King Park Beach	28	1	1	0	3.6	0.0
Kite Surfing Area - Clara Ave	15	1	1	0	6.7	0.0
Kohler Andrae State Park North/Nature Center Beach	84	1	2	0	2.4	0.0
Kohler Andrae State Park Picnic Beach North and South	84	1	2	0	2.4	0.0

## Lake Superior

Overall, beaches on the Lake Superior coast saw a reduction in the number of beach action days when compared with 2018. Iron County beach repairs were completed and opened mid-season during 2019. Maps for all Lake Superior beaches can be found on the [WDNR beaches webpage](#).



Michael Knapstein

### Ashland County

Monitoring for 4 of 8 coastal beaches in Ashland County is contracted with Northland College. The Ashland Parks director is an active participant in the Wisconsin Coastal Beach Working Group and has worked to develop effective public messaging for their beaches. Beach action days were down significantly for Ashland County beaches compared to the 2018 season.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Ashland	107	45	14	4	13.1	3.7
6th Ave W Beach	28	15	5	1	17.9	3.6
Bayview Park Beach	23	0	0	0	0.0	0.0
Kreher Park Beach	28	15	5	1	17.9	3.6
Maslowski Beaches	28	15	4	2	14.3	7.1





**Bayfield County**

Bayfield County received BEACH Act funding for 11 of 16 BEACH Act beaches. Beaches in Bayfield County saw significant declines in the number of beach action days, from 76 to 9 compared to the 2018 beach season.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Bayfield	226	9	6	0	2.6	0
Broad Street Beach	13	0	0	0	0	0
Herbster Beach	26	0	0	0	0	0
Little Sand Bay Beach	13	0	0	0	0	0
Port Wing Beach East	13	0	0	0	0	0
Port Wing Beach West	13	0	0	0	0	0
Sioux River Beach North	25	0	0	0	0	0
Sioux River Beach South	26	0	0	0	0	0
Siskiwit Bay Beach East	24	0	0	0	0	0
Siskiwit Bay Beach West	26	0	0	0	0	0
Thompson West End Park	34	9	6	0	17.6	0.0
Washington Avenue	13	0	0	0	0.0	0.0

**Douglas County**

Work along Wisconsin Point (the Point) continues with a City of Superior project to consolidate access points to the shoreline and to redesign the Lot 1 parking area to provide better infiltration of stormwater. Once this redesign is complete, the beach listings and the measurements for the individual beach stretches will be adjusted. Access to Shafer Beach and Wisconsin Point 3 (Dutchman Creek) was restricted at the first part of the season due to the piping plover nesting season. This area continues to experience a high number of birds, attracted at least in part by the active landfill fairly near the beach. Due to budget constraints and similar water quality conditions at the two locations, Shafer Beach advisories were based on Wisconsin Point 3 (Dutchman Creek) water quality measurements with the same advisory status at both locations.

Source assessment of bacterial contamination at Barker’s Island was completed in 2017, and human markers were identified from both stormwater and tributary influences. Based on these



results, the City of Superior obtained a Great Lakes Restoration Initiative (GLRI) grant to redesign the beach area to mitigate as many of the sources as possible. Design criteria included managing stormwater and bird populations. Construction began in 2018 and was completed during the 2019 season.

County/Beach	Sampled Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceed	% Closures
Douglas	110	41	15	4	13.6	3.6
Barker's Island Inner Beach	31	8	5	0	16.1	0.0
Wisconsin Point Dutchman Creek (#3)	17	11	4	2	23.5	11.8
Wisconsin Point Lighthouse (# 5)	14	0	0	0	0.0	0.0
Wisconsin Point Lot 1 (#1)	17	3	3	1	17.6	5.9
Wisconsin Point Lot 9 (formerly Lot 12)	17	0	3	1	17.6	5.9
Wisconsin Point SE of Breakwater (#4)	14	8	0	0	0.0	0.0
Wisconsin Point Shafer Beach (#2)*	0	11	NA	NA	NA	NA

\*Shafer Beach advisories are based on Dutchman Creek samples. Beach action days for this location are included in the table and Douglas County totals, but exceedances and closures are not.



## Wisconsin Beach Workgroup

During 2019, the Wisconsin Coastal Beaches Workgroup (WCBW) steering committee met quarterly. There were two in-person meetings held in 2019 – one in May in Racine, WI and another in October in Ashland, WI. Both meetings included presentations from beach managers and researchers as well as site visits to local beach restoration projects. Information on the working group and notes from meetings can be found at <https://www.seagrant.wisc.edu/our-work/focus-areas/coastal-communities/wisconsin-coastal-beaches-workgroup/>. Additionally, leadership of the working group transitioned, with two new co-chairs being named: Sara Hudson, Ashland County Parks and Recreation Director, and Madeline Magee, Wisconsin DNR Monitoring Coordinator and Beach Program Manager.



## **Funding Priorities and Budget**

Note: Financial paperwork associated with the grant close out documentation identifies actual expenditures charged to this grant.

Funding for monitoring considered the beach priority (Tier), ability to leverage other funding, partnership arrangements, locations with operational Nowcasts, travel considerations and status on the 303(d) impaired waters list. The highest priority for funding was given to maintaining the USGS website, a central tool for notifying the public about beach conditions and to manage data reported to USEPA as required by the grant. Annual costs for operational and maintenance of these functions is \$43,590. State funds supplement the BEACH Act funding to cover operational costs and provide access to the site for inland counties who participate voluntarily. Due to operational changes at USGS, the beach website and database will transition from USGS to a WDNR-developed application between the 2020 and 2021 beach season. While there will be a significant cost to transition, this new platform should reduce maintenance costs for the beach program, allocating additional funding toward monitoring starting in the 2022 beach season.

Contracts for implementing the program bundled monitoring dollars somewhat regionally to optimize available resources. Many counties supplement the funding available through the grant to increase the number of beaches monitored or sample beyond the minimum frequency specified by contract.

**Table 1.** Allocation of Beach Act Funds for the 2019 Season

<b>Participating Locations/Counties</b>	<b>Contracted \$</b>
Ashland County (Northland College)	\$6,500
Bayfield County	\$8,000
Brown County	\$1,000
Door County	\$61,000
UW – LSRI (Douglas County)*	\$9,500
UW – Oshkosh (Kewaunee and Manitowoc Counties)	\$17,500
Milwaukee, City of	\$11,000
Northshore/Shorewood (Milwaukee County)	\$4,000
Ozaukee County	\$16,000
City of Racine, (Racine, Kenosha and South Milwaukee)	\$28,500
Sheboygan County	\$13,000
<b>Total</b>	<b>\$176,000</b>

## **Lessons Learned and Improvement Opportunities**

Multiple organizations (e.g. parks, public works, public health, transportation) are involved in beach management or have operations that affect water quality at the beach. Their operations and budgets may not be connected on the local level which can make coordination challenging. This may require extra coordination and communication. Through Wisconsin statutes, public health departments have the authority to issue advisories and closures based on conditions at the beaches. Beach program operations and communications must consider those authorities and relationships.

The beach program provides a uniform mechanism to evaluate water quality and report data. Should funding be withdrawn entirely, counties have little incentive to report their data to EPA. Our inland communities and county public health departments provide a real-world example of the implications of voluntary participation in a monitoring and notification program. Some communities have robust beach monitoring programs; however, they may not use the Beach Health website as part of their notification process. Existing funding is stretched extremely thin, with most grant dollars distributed through contracts for local implementation. Many communities have limited resources to supplement program activities.

The supplemental funding that supported Nowcasting and local skills development ended in 2017. This has significant implications for the future of this effort in Wisconsin. Although a few communities have developed expertise to calibrate models, many do not have the resources needed to maintain their models. As an example, Sheboygan County has implemented two-tiered models effectively; however, their beach monitoring is contracted with an environmental consulting firm that would need to build capacity to perform model recalibration work and the community would be charged on a per hour basis. Without support for maintaining existing models, this county may need to abandon the models when they no longer reliably predict beach conditions. In considering the feasibility of contracting with a skilled public health organization for model development and recalibration, cost estimates ranged between \$1500 and \$2000. If EPA provided this expertise or allocated funding to this purpose, this cost-effective tool would be more sustainable. Additionally, USGS decommissioned the EnDDaT system in 2019. In previous years, EPA and state funding were used to develop this system and integrate it into Nowcast models. Without support for this system, many of the Nowcast models were unable to function properly in 2019 and those that were, needed significant work to recalibrate and redevelop models with alternate data. This represents a significant step backward for Nowcasting in Wisconsin's beach program, and greatly impacts the ability of local beach managers to forecast conditions for the protection of public health.

Awareness of dangerous currents along the Great Lakes is increasing. Communities are interested in addressing this issue and beach managers are particularly interested in how the public notifications and communications dovetail with those issued for recreational water quality. There is a strong need to provide coordinated messaging, so the public understands what conditions are at the beach and manages personal risk effectively.