Wisconsin's Great Lakes Beach Monitoring & Notification Program

2020 Beach Season Summary

"Polar Dip," | Joseph Eichers

Office of Great Waters
Wisconsin Department of Natural Resources
December 16, 2021

Acknowledgements

USGS hosted the Beach Health website that supported program operations in 2020.

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	Kewaunee County Health Department
Bayfield County Health Department	Manitowoc County Health Department
City of Milwaukee Health Department	North Shore/Shorewood Health Department
Door County Health Department	Ozaukee County Health Department
Douglas County Health Department	City of Racine Public Health Department
Iron County Health Department	Sheboygan County Human Services
Kenosha County Division of Health	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

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2020 Beach Season: Program Highlights

Wisconsin's Great Lakes Beach Monitoring & Notification Program has operated since 2002 making the summer of 2020 its eighteenth 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:

- Are there coastal beaches missing from the list (e.g. new parks with beach areas)?
- Is the location for the beach and its measurements correct?
- Have conditions surrounding the beach changed (e.g. restoration, drainage, water levels)?
- How is the water quality? Do we have historical data?
- How many people use the beach? What do local people call (name) the beach?
- Are nowcasts or other same-day tools in place to improve the timing for posting advisories?
- Is the monitoring frequency appropriate for the usage, conditions, and public notification tools in place?
- Have beach program contacts changed?

The beach program coordinator reached out to local cooperators and health departments in advance of the beach season to identify needed adjustments. 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 frequency for monitoring and thus in determining funding allocations.

"Pebbles on the Beach," | Jonathan Cody

The fiscal year 2019 BEACH Act grant of $213,000 from the United States Environmental Protection Agency (USEPA) supported monitoring and public notification programs in 12 of the 15 coastal counties in 2020. The 2020 beach list identified 191 coastal beaches extending 55.4 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 (www.wibeaches.us). 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.

The COVID-19 pandemic did present a hurdle for beach monitoring during the 2020 season. One beach, Concordia University, was closed for the duration of the 2020 season because of the pandemic, as was Rock Island State Park Beach in Door County. A few other beaches had monitoring suspended for brief periods because of COVID-19 – related lab closures. Some labs were at slightly limited capacity because of staff being allocated toward COVID-19 testing and public health outreach work. Nevertheless, anecdotally, 2020 was a high year for beach recreation in the state as many residents and visitors spent increased time at Wisconsin beaches compared to earlier years, underscoring the importance of public health monitoring. Additionally, challenges arose because of the record high water levels on Lake Michigan in 2020. Some beaches were inaccessible to public health monitoring staff and recreational users. Despite the challenges of the pandemic, our public health partners rose to the occasion and managed to complete the beach monitoring season with relatively few problems despite the impacts of a global pandemic and record-high water levels.

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 conditions are unsafe for swimming. Examples of conditions when these signs may be used include bacteria levels exceeding 1000 colonies/100 mL, following heavy rainfall or flooding, chemical spills, toxins present, or dangerous (rip) current warnings are 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
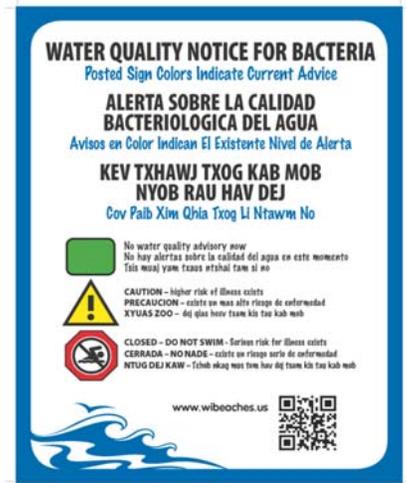
Counties commented that they do not have a large Hmong population visiting their beaches so including that translation was not important to them. The messaging on the three colored signs was simplified to English and Spanish, with the Hmong translation appearing on the blue signage only.

Distribution of the signage is coordinated with Wisconsin State Parks so 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 result indicate that water quality has improved.

Table 3. 2020 Annual Sample Percentages that exceed the advisory level of 235 CFU/100mL and closure level of 1000 CFU/100mL

County	# of Monitored Beaches	Samples Collected	Exceedances (>235)	Closures (>1000)	% Exceedances	% Closures
Ashland	4	119	25	10	21.0	8.4
Bayfield	11	260	14	2	5.4	0.8
Brown	1	16	0	0	0.0	0.0
Door	31	1135	54	13	4.8	1.1
Douglas	6	105	7	0	6.7	0.0
Iron	3	39	0	0	0.0	0.0
Kenosha	5	176	27	10	15.3	5.7
Kewaunee	2	98	5	1	5.1	1.0
Manitowoc	8	244	16	2	6.6	0.8
Milwaukee	10	306	50	12	16.3	3.9
Ozaukee	3	137	12	2	8.8	1.5
Racine	5	184	20	5	10.9	2.7
Sheboygan	7	212	7	0	3.3	0.0
Grand Total	**96**	**3031**	**237**	**57**	**7.8**	**1.9**

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

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

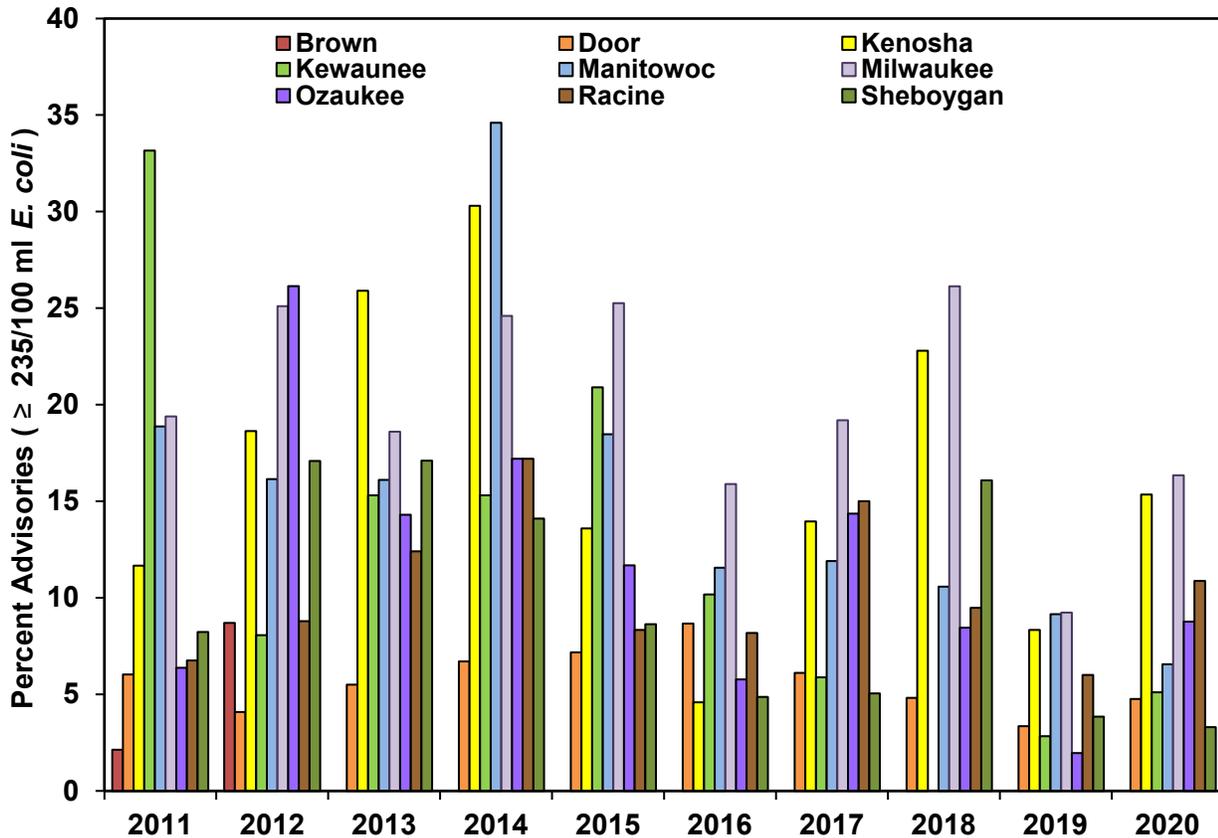Blue highlighted cells indicate fewer beach action days in 2020 compared to 2019

COUNTY	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
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	21.0
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	5.4
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	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	4.8
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	6.7
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	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	15.3
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	5.1
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	6.6
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	16.3
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	8.8
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	10.9
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	3.3
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	7.8

In 2020, along both Lake Michigan and Lake Superior, most counties experienced more advisories in 2020 than in 2019, and for the state, we saw an increase in percentage of exceedances compared with the 2019 beach season.

Lake Michigan

In general, Lake Michigan beaches had more beach action days in 2020 than in 2019. Marinette and Oconto County beaches are identified in 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.

Lake Michigan Counties
2011-2020

Bar chart titled "Lake Michigan Counties 2011-2020" showing Percent Advisories (≥ 235/100 ml E. coli) on the y-axis (0 to 40) versus years 2011–2020 on the x-axis. Legend: Brown, Door, Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan.

Brown County

Brown County beach tier placement was re-evaluated in 2019 as part of the annual evaluation. Because of its high use, WDNR in collaboration with Brown County Public Health Department added Bayshore County Park to the list of monitored beaches. This was the second year of monitoring at this beach.

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Brown	16	0	0	0	0.0	0.0
Bayshore Park Beach	16	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, regularly testing 32 of 54 coastal beaches on the peninsula as well as Washington and Rock Islands throughout the summer. However, the COVID-19 pandemic did reduce that number to 31 for the 2020 season as Rock Islands were inaccessible due to ferry closures. As with past years, the county used a combination of BEACH Act support and local funding to implement their program. In 2020, Door County beaches had 50 total beach action days, with 14 beaches having no beach action days during the swimming season.

Whitefish Dunes State Park |
Adam Smith

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Door	1135	50	54	13	4.8	1.1
Anclam Park Beach	43	1	5	1	8.1	1.6
Baileys Harbor Ridges Park Beach	60	1	1	0	1.7	0.0
Clay Banks Beach 2	28	0	2	0	7.1	0.0
Egg Harbor Beach	61	3	3	0	4.9	0.0
Ellison Bay Town Park Beach	61	0	0	0	0.0	0.0
Ephraim Beach	62	5	5	1	8.1	1.6
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	65	12	12	3	18.5	4.6

Gislason Beach	16	0	1	2	12.5	0.0
Haines Park Beach	30	2	2	0	6.7	0.0
Hotz Memorial Park (Europe Bay #2)	28	0	0	0	0.0	0.0
Jackson Harbor Ridges - WI	1	0	1	0	100.0	0.0
Lakeside Park Beach	39	0	0	0	0.0	0.0
Lily Bay Boat Launch Beach	15	1	1	0	6.7	0.0
Murphy Park Beach	61	5	5	0	8.2	0.0
Newport Bay Beach	61	1	1	1	1.6	1.6
Nicolet Beach	61	5	5	3	8.2	4.9
Otumba Park Beach	60	1	1	0	1.7	0.0
Percy Johnson Memorial Park Beach	15	1	1	1	6.7	6.7
Portage Park Beach	40	0	0	0	0.0	0.0
Robert E LaSalle Park	6	1	1	0	16.7	0.0
Rock Island State Park Beach*	NA	NA	NA	NA	NA	NA
Sand Bay Beach 1	32	5	5	2	15.6	6.3
Sand Dune Beach	14	0	0	0	0.0	0.0
Sandy Bay Town Park Beach	40	0	0	0	0.0	0.0
School House Beach	15	1	1	0	6.7	0.0
Sister Bay Beach	61	1	1	1	1.6	1.6
Sturgeon Bay Ship Canal Nature Preserve	28	0	0	0	0.0	0.0
Sunset Park Beach Sturgeon Bay	60	4	3	0	5.0	0.0
Whitefish Bay Boat Launch Beach	15	0	0	0	0.0	0.0
Whitefish Dunes Beach	1	0	0	0	0.0	0.0

*Rock Island State Park Beach was not open to the public and unmonitored during the 2020 season because ferry closures as a result of the COVID-19 pandemic made the island inaccessible.

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. Prairie Shores Beach was converted to a natural area in 2020 and monitoring for that beach ended as a result. The beach is still accessible to the public as a recreational area. Lakeshore Park North remains on the beach list but was unmonitored during the 2020 season because high water levels on Lake Michigan limited safe access for both recreation and monitoring.

County/Beach	SamplesCollected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Kenosha	176	28	27	10	15.3	5.7
Alford Park Beach	29	1	1	0	3.4	0.0
Eichelman Beach	41	7	7	1	17.1	2.4
Lakeshore Park North	NA	NA	NA	NA	NA	NA

Pennoyer Park Beach	34	10	9	6	26.5	17.6
Simmons Island Beach	42	7	7	1	16.7	2.4
Southport Park Beach	30	3	3	2	10.0	6.7

Lakeshore Park North was inaccessible for 2020 due to high water levels on Lake Michigan.

"Sunrise Flight" | Michael Knapstein

Kewaunee County

Kewaunee County monitored 2 of 5 coastal beaches in 2020. Pioneer Park, separated by one city lot from Selner Park, was added to the beach list in 2017. 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 this beach. Sampling and analyses are contracted with the University of Wisconsin – Oshkosh, and were conducted at approximately 4 times per week for both beaches in 2019

County/Beach	SamplesCollected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Kewaunee	98	5	5	1	5.1	1.0
Crescent Beach	49	4	4	1	8.2	2.0
Selner Park/Pioneer	49	1	1	0	2.0	0.0

Manitowoc County

Monitoring for Manitowoc County continues to be performed by University of Wisconsin – Oshkosh to monitor 11 of 16 beaches. However, only 10 beaches were monitored in 2020 because high water levels on Lake Michigan prevented safe access to monitor Fischer Park beaches.

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Manitowoc	296	18	18	2	6.1	0.6
Blue Rail Marina Beach	50	4	4	1	8.0	2.0
Fischer Park Beaches	NA	NA	NA	NA	NA	NA
Hika Park Bay	15	2	2	1	13.3	6.7
Memorial Drive Mariners at Waldo	25	0	0	0	0.0	0.0
Memorial Drive Parkway	25	0	0	0	0.0	0.0
Memorial Drive Thiede	25	0	0	0	0.0	0.0
Neshotah Beach	28	2	2	0	7.1	0.0
Point Beach State Forest - Concession Stand Beach*	26	1	1	0	3.8	0.0
Point Beach State Forest - Lakeshore Picnic Area Beach*	26	1	1	0	3.8	0.0
Point Beach State Forest - Lighthouse Picnic Area Beach*	26	1	1	0	3.8	0.0
Red Arrow Park Beach Manitowoc	50	7	7	0	14.0	0.0

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

** Monitoring at Fischer Park Beaches was suspended for 2020 because of high water levels on Lake Michigan

"View Below Cana" | Cassandra Zimmerman

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 (UWM) to monitor Bradford, McKinley and South Shore beaches. These beaches experienced more advisories in 2020 as compared to 2019. The County has continued to evaluate and implement additional options for addressing the number of advisories.

McKinley beach has dealt with rip current issues at the beach, and the County is working to address recreational safety at that location.

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.

"Angry Bird" | Mark Straub

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Milwaukee	306	120	50	12	16.3	3.9
Atwater Park Beach	25	5	1	1	4.0	4.0
Bay View Park Beach	18	11	4	0	22.2	0.0
Bender Beach	33	8	5	1	15.2	3.0
Bradford Beach	39	11	1	1	2.6	2.6
Grant Park Beach	34	16	4	0	11.8	0.0
Klode Park Beach	26	2	0	0	0.0	0.0
McKinley Beach	39	14	5	2	12.8	5.1
South Shore Beach	40	32	28	5	70.0	12.5
Tietjen Beach/ Doctor's Park	26	6	1	1	3.8	3.8
Watercraft Beach	26	15	1	1	3.8	3.8

Ozaukee County

The Ozaukee-Washington Health Department (OWHD) monitors the 5 beaches listed in the table below. Concordia University was closed during the 2020 season because of the COVID-19 pandemic. Upper Lake Park beach also remained closed during the 2020 season because high water levels made access to and sampling of the beach unsafe. There was a significant increase in the number of exceedances in 2020 compared to 2019, with most of this increase associated with Harrington State Park North beach.

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Ozaukee	137	28	12	2	8.8	1.5
Concordia University	NA	NA	NA	NA	NA	NA
Harrington State Park - North	60	22	8	2	13.3	3.3
Harrington State Park - South	47	6	4	0	8.5	0.0
South Beach	30	0	0	0	0.0	0.0
Upper Lake Park (aka North Beach)	NA	NA	NA	NA	NA	NA

Concordia University beach was closed because of the COVID-19 pandemic and Upper Lake Park beach was inaccessible and unmonitored because of high Lake Michigan water levels.

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 typically uses a weight of evidence approach at North and Zoo beaches that include sanitary surveys, E coli testing, qPCR and Nowcasting. However, lab equipment and staff time was reallocated to public health and testing measures because of the COVID-19 pandemic, resulting in only standard E. coli testing being used at North and Zoo beaches during the 2020 season rather than qPCR. Sam Myers Park off-shore swimming area was opened in 2018, and advisory information was posted for the third year at this location.

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Racine	184	21	20	5	10.9	2.7
Myers Park Beach	18	3	3	0	16.7	0.0
North Beach	67	8	7	2	10.4	3.0
Parkway Beach	15	0	0	0	0.0	0.0
Wind Point Lighthouse Beach	15	0	0	0	0.0	0.0
Zoo Beach	69	10	10	3	14.5	4.3

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.

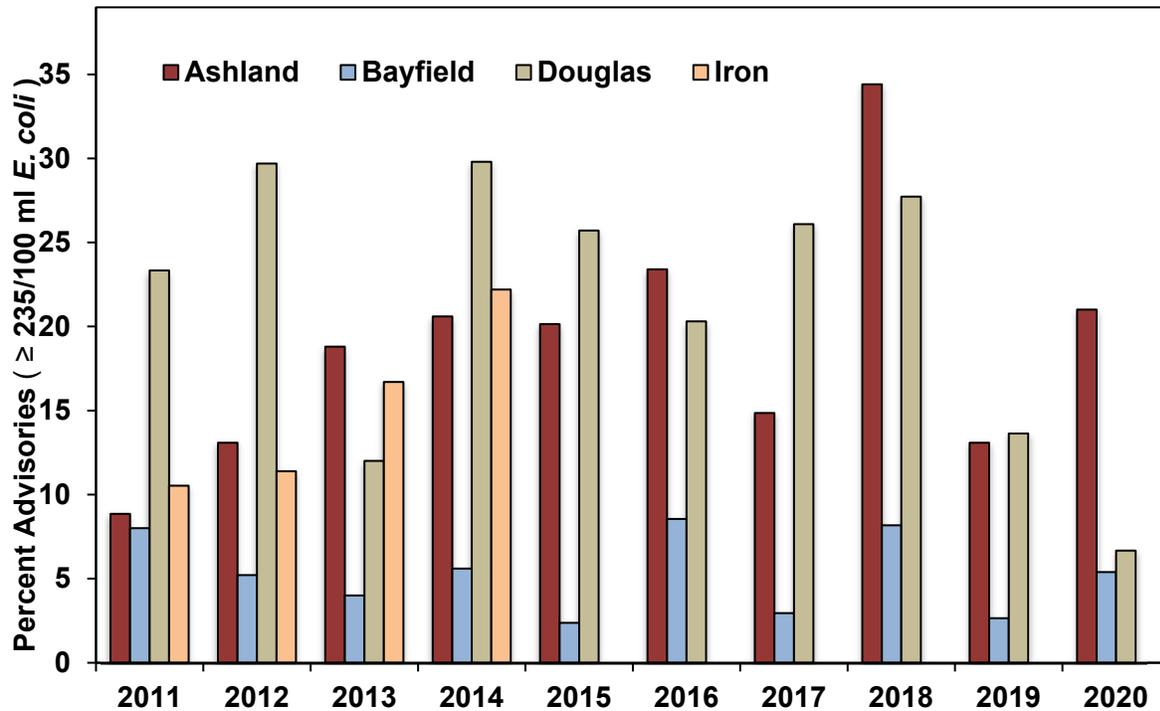| County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Sheboygan	212	20	7	0	3.3	0.0
Amsterdam Beach	17	4	2	0	11.8	0.0
Blue Harbor Beach	30	0	0	0	0.0	0.0
Deland Park Beach	30	0	0	0	0.0	0.0
General King Park Beach	30	0	0	0	0.0	0.0
Kite Surfing Area - Clara Ave	16	14	3	0	18.8	0.0
Kohler Andrae State Park North/Nature Center Beach	44	1	1	0	2.3	0.0
Kohler Andrae State Park Picnic Beach North and South	45	1	1	0	2.2	0.0

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"Harrington Beach" | Victoria Almgren

Lake Superior

While storms continue to be an issue in Lake Superior, Iron County beach repairs were completed and opened mid-season during 2020. Overall, beaches on the Lake Superior coast saw an increase in the number of beach action days when compared with 2019. Maps for all Lake Superior beaches can be found on the [WDNR beaches webpage](#).

Lake Superior Counties 2011-2020

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 up significantly for Ashland County beaches compared to the 2019 season, with 6th Ave W, Kreher Park, and Maslowski beaches all seeing double digit increase in the number of beach action days.

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Ashland	119	99	25	10	21.0	8.4
6th Ave W Beach	30	29	7	2	23.3	6.7
Bayview Park Beach	15	2	0	0	0.0	0.0
Kreher Park Beach	30	47	13	7	43.3	23.3
Maslowski Beaches	44	21	5	1	11.4	2.3

"Sun Sand and Fantasy" | Ruth Markworth Harker

Bayfield County

Bayfield County received BEACH Act funding for 11 of 16 BEACH Act beaches. Exceedances, closures, and total beach action days all increased for Bayfield County compared with 2019. There was a large increase in beach action days at Herbster Beach, which had zero exceedances in the 2019 beach season, but 15 beach action days in 2020.

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceedances	% Closures
Bayfield	260	26	14	2	5.4	0.8
Broad Street Beach	15	0	0	0	0.0	0.0
Herbster Beach	32	15	7	1	21.9	3.1
Little Sand Bay Beach	15	0	0	0	0.0	0.0
Port Wing Beach East	16	0	0	0	0.0	0.0
Port Wing Beach West	17	3	2	0	11.8	0.0
Sioux River Beach North	29	0	0	0	0.0	0.0
Sioux River Beach South	31	6	3	1	9.7	3.2
Siskiwit Bay Beach East	30	0	0	0	0.0	0.0
Siskiwit Bay Beach West	30	0	0	0	0.0	0.0
Thompson West End Park	30	2	2	0	6.7	0.0
Washington Avenue	15	0	0	0	0.0	0.0

Douglas County

Work along Wisconsin Point (the Point) to consolidate access points to the shoreline and redesigning the Lot 1 parking area to provide better infiltration of stormwater was completed in 2019, and the newly redesigned point had its first beach season in 2020 In the first full season, beaches on the point saw a significant decrease in beach action days, going from 33 to 6 beach action days between 2019 and 2020. 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.

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceed	% Closures
Douglas	105	8	7	0	6.7	0.0
Barker's Island Inner Beach	30	2	2	0	6.7	0.0
Wisconsin Point Dutchman Creek (#3)	15	1	1	0	6.7	0.0
Wisconsin Point Lighthouse (# 5)	14	0	0	0	0.0	0.0
Wisconsin Point Lot 1 (#1)	16	2	2	0	12.5	0.0
Wisconsin Point Lot 9 (formerly Lot 12)	15	1	1	0	6.7	0.0
Wisconsin Point SE of Breakwater (#4)	14	1	0	0	0.0	0.0
Wisconsin Point Shafer Beach (#2)*	0	1	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.

Iron County

Beaches in Iron County opened part way through 2019 after storm damage that occurred during 2016, resulting in rebuilding of the beaches. In this first full year post-restoration, there were no exceedances or closures.

County/Beach	Samples Collected	Beach Action Days	Samples Exceed (>235)	Closures (>1000)	% Exceed	% Closures
Iron	39	0	0	0	0.0	0.0
Oronto Bay Beach	13	0	0	0	0.0	0.0
Saxon Harbor Beach East	13	0	0	0	0.0	0.0
Saxon Harbor Beach West	13	0	0	0	0.0	0.0

Wisconsin Beach Workgroup

During 2020, the Wisconsin Coastal Beaches Workgroup (WCBW) steering committee met quarterly. There were no in-person meetings held in 2020 because of the COVID-19 pandemic. However, leadership in the working group was able to facilitate two successful online webinars – one on COVID-19 impacts to beach management and another on managing water level impacts at Wisconsin beaches. Recordings of the webinars can be found on the Wisconsin Coastal Beaches Workgroup website.

"Footloose and Fancy Free" | Chris Kuhlow

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, or 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 5. Allocation of Beach Act Funds for the 2020 Season

Participating Locations/Counties	Contracted $
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 (Iron, Kewaunee, and Manitowoc Counties)	$18,000
Milwaukee, City of	$10,500
Northshore/Shorewood (Milwaukee County)	$4,000
Ozaukee County	$15,000
City of Racine, (Racine, Kenosha and South Milwaukee)	$28,000
Sheboygan County	$12,500
Total	**$174,000**

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, 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 are no longer reliability 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 to due 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.

"Thinking About Going in the Big Pond" | Amy Callis