



## ILLINOIS

### 26th in Beachwater Quality

14% of samples exceeded national standards in 2010

Polluted urban and suburban runoff is a major threat to water quality at the nation's coastal beaches. Runoff from storms and irrigation carries pollution from parking lots, yards, and streets directly to waterways. In some parts of the country, stormwater routinely causes overflows from sewage systems. Innovative solutions known as green infrastructure enable communities to naturally absorb or use runoff before it causes problems. The U.S. Environmental Protection Agency is modernizing its national rules for sources of runoff pollution and should develop strong, green infrastructure-based requirements.

Illinois has 52 public Great Lakes swimming beaches along approximately 60 miles of Lake Michigan shoreline. The Illinois Department of Public Health (IDPH) administers the state's coastal beach monitoring program.

Using border collies during the beach season to harass gulls every day from dawn to dusk<sup>1</sup> has proved to be an effective means of improving beachwater quality at two gull-impacted beaches in Chicago. The beachwater at 63rd Street Beach (Jackson Park) exceeded standards more than half the time in 2006 and 2007. In 2008, when border collies were used to reduce the number of gulls at the beach, only 6% of water samples exceeded standards. In 2009 there was no gull harassment, and 66% of samples exceeded standards. Gull harassment was reinstated in 2010 and the percent of samples exceeding standards was 22%. Similar success was observed with full-time canine gull harassment at 57th Street Beach in 2008. The water there exceeded standards 20% of the time in 2006, 26% of the time in 2007, 0% of the time in 2008, and 49% of the time in 2009, when dogs were not used. Gull harassment was again in place in 2010 and 13% of samples exceeded standards.

### Monitoring Results

In 2010, Illinois reported 61 coastal beaches and beach segments. Of these, 17 (28%) were monitored daily, 33 (54%) more than once a week, and 3 (5%) once a week. Eight (13%) were not monitored. For this section of the report, NRDC looked at the percent of monitoring samples that exceeded the state's daily maximum bacterial standards (all reported samples were used to calculate the 2010 percent exceedance rates, including duplicate samples and samples taken outside the official beach season, if any). In 2010, 14%\* of all reported beach-monitoring samples exceeded the state's daily maximum bacterial standards. The beaches with the highest percent exceedance rates in 2010 were Winnetka Elder Park Beach (61%) and Winnetka Centennial Dog Beach (49%) in Cook County; North Point Marina North Beach in Lake County (49%); Northwestern University Beach (36%), Evanston South Beach (32%), South Shore (30%), Rainbow Beach (24%), and Calumet South Beach (22%) in Cook County; Great Lakes Naval Nunn Beach (22%) in Lake County; Jackson Park Beach (63rd Street Beach) (21%), Montrose Beach (21%), and 31st Street Beach (21%) in Cook County; and Illinois Beach State Park South Beach (20%) in Lake County.

Cook County had the highest percent exceedance rate in 2010 (14%), followed by Lake County (13%).

**Sampling Practices:** The monitoring season extends from Memorial Day to Labor Day.<sup>2</sup>

Samples are taken in water that is knee to waist deep. It is up to the managing entity for each beach to issue swim bans and advisories, depending upon EPA guidance and its own policies.<sup>2</sup>

### KEY FINDINGS IN ILLINOIS

#### Beachwater Contamination

(% of samples exceeding state standards in 2010)

- Winnetka Elder Park Beach in Cook County (61%)
- Winnetka Centennial Dog Beach in Cook County (49%)
- North Point Marina North Beach in Lake County (49%)

#### Reported Sources of Beachwater Contamination

Statewide (number of closing/advisory days)

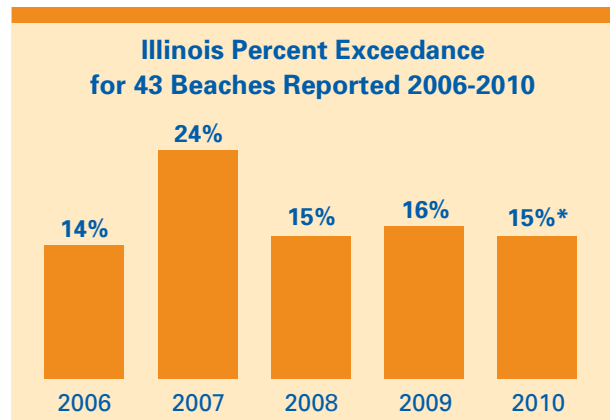
- 337 (66%) unknown sources of contamination
- 107 (21%) agriculture
- 60 (12%) combined sewer overflows
- 4 (1%) stormwater runoff

Most coastal swimming beaches in Illinois are sampled seven days a week, as Illinois believes that daily monitoring is most protective of public health. Areas of shoreline that are not used for swimming because they are rocky or otherwise unsuitable are not monitored.<sup>3</sup> Daily monitoring continues when a swim ban or advisory is issued.

### Swim Bans and Advisories

Total closing/advisory days for 280 events lasting six consecutive weeks or less decreased 12% to 508 days in 2010, from 576 days in 2009. For prior years, there were 534 days in 2008, 793 days in 2007, 591 days in 2006, and 585 days in 2005. In addition, there was 1 extended event (74 days) and no permanent events in 2010. Extended events are those in effect more than six weeks but not more than 13 consecutive weeks; permanent events are in effect for more than 13 consecutive weeks.

For 280 events lasting six consecutive weeks or less, 88% (448) closing/advisory days in 2010 were due to monitoring that revealed elevated bacteria levels and 12% (60) were preemptive (i.e., ordered without waiting for monitoring results) due to known sewage spills.



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**Professional gull chasers at work at 63rd Street Beach (Jackson Park) in Chicago. (Chicago Park District)**

swim ban. The Chicago Park District posts an advisory at its beaches when sample results are between 235 cfu/100 ml and 1,000 cfu/100 ml, and posts a ban when sample results exceed 1,000 cfu/100ml.<sup>4</sup>

Beach managers may preemptively close beaches or issue swim bans because of rain or other factors.

Several coastal beach managers use predictive models (SwimCast) to make swim ban and advisory decisions. At a minimum, predictions are generally made at 9 a.m. and 1 p.m. and whenever hydrometeorological conditions change. For each beach where the SwimCast system exists, similar but slightly different predictive models are utilized. These

**Standards and Procedures:** Depending on the managing authority for coastal beaches, an advisory or a swim ban may be issued. The water quality standard in Illinois is an *E. coli* single-sample maximum of 235 cfu/100 ml. The BEACH Act's freshwater beach *E. coli* standard for the geometric mean of five samples taken over a 30-day period of 126 cfu/100 ml is not applied when making swim ban and advisory decisions.

If a sample exceeds the single-sample standard, action is taken in all jurisdictions.<sup>3</sup> The Wilmette Health Department and the Winnetka Park District, both in Cook County, take two samples a day. If one sample exceeds the standard, they resample before issuing a swim ban, but if both exceed they issue a

\* Why don't the 2010 percent exceedance values in this summary match? Only samples from a common set of beaches monitored each year from 2006–2010 are included in the bar chart. Because some beaches were not monitored in each of those years, the percent exceedance for this subset of beaches (15%) did not have the same value as the percent exceedance for all of the beaches monitored in 2010 (14%).

models predict beachwater conditions on a real-time basis, in contrast to standard culture methods for quantifying bacteria. When culture methods are used as the basis for issuing closings and advisories, health warnings are not issued until at least 24 hours after samples are taken due to the time required to process and read samples. In a sense, using culture methods to issue beach closings and advisories is akin to using the previous day's bacteria density to predict today's. Studies have shown that SwimCast provides a more accurate assessment of current beachwater quality than yesterday's bacterial density.<sup>3</sup>

SwimCast models produce a 99% confidence interval, a range of bacterial concentrations within which the actual concentration is expected—with 99% confidence—to lie. For beach managers in Lake County that use the SwimCast predictive model, the determination of swim bans and risk advisories is the same at all locations: 1) When the lower bound of the 99% confidence interval prediction is above 235 cfu/100 ml, a swim ban occurs and the beach is posted with a red flag. This is the highest-risk condition. 2) When the average prediction and upper bound of the 99% confidence interval prediction are above 235 cfu/100 ml but the lower bound is below 235 cfu/100 ml, this is considered to be a moderate- to high-risk condition, and an advisory is posted at the beach. 3) When the upper bound of the 99% confidence interval prediction is above 235 cfu/100 ml but the average prediction and the lower bound are below 235 cfu/100 ml, a moderate-risk condition is posted at the beach. 4) When the upper bound of the 99% confidence interval prediction is below 235 cfu/100 ml, this is considered to be a low-risk condition, and a green flag is posted.

<b>Illinois 2010 Monitoring Results and Closing or Advisory Days</b>					
<b>Beach</b>	<b>Tier</b>	<b>Assigned Monitoring Frequency</b>	<b>Total Samples</b>	<b>% of Samples Exceeding State Standards</b>	<b>Closing or Advisory Days</b>
<b>Cook County</b>					
12th Street	1	5/wk	71	13%	12
31st Street	1	5/wk	72	21%	18
57th Street	1	5/wk	71	13%	14
Albion	1	5/wk	69	7%	10
Calumet South	1	5/wk	72	22%	22
Chase Ave Park and Beach	3	none	0	NA	0
Evanston Church Dog Beach	3	2 daily	155	6%	0
Evanston Clark	1	2 daily	157	12%	4
Evanston Greenwood	1	2 daily	157	10%	3
Evanston Lee	1	2 daily	155	14%	12
Evanston Lighthouse	1	2 daily	155	10%	1
Evanston South	1	2 daily	155	32%	22
Foster Avenue	1	5/wk	70	10%	13
Glencoe Park	1	daily	119	8%	0
Howard Street Park	1	5/wk	70	9%	10
Jackson Park (63rd Street)	1	5/wk	70	21%	23
Jarvis Avenue Park	1	5/wk	70	10%	10
Juneway Terrace Park	1	5/wk	69	4%	6
Kathy Osterman	1	5/wk	70	19%	17
Kenilworth	1	daily	94	7%	7
Loyola	1	5/wk	71	7%	8
Montrose	1	5/wk	70	21%	21

Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of Samples Exceeding State Standards	Closing or Advisory Days
<b>Cook County</b>					
North Avenue	1	5/wk	71	3%	5
North Shore Avenue	1	5/wk	0	NA	0
Northwestern University	1	daily	44	36%	9
Oak Street	1	5/wk	72	11%	14
Oakwood	1	5/wk	72	3%	5
Ohio Street	1	5/wk	69	7%	8
Pratt Boulevard Beach and Park	1	5/wk	0	NA	0
Rainbow	1	5/wk	71	24%	24
Rogers Avenue Park	1	5/wk	69	4%	6
Sherwin Avenue Park And Beach	3	none	0	NA	0
South Shore	1	5/wk	73	30%	27
Thorndale	1	5/wk	0	NA	0
Wilmette Gillson Park	1	daily	400	10%	7
Wilmette Gillson Park Dog Beach	1	1/wk	14	7%	2
Wilmette Langdon	1	daily	96	4%	3
Winnetka Centennial Dog Beach	2	daily	72	49%	34
Winnetka Elder Park	1	daily	72	61%	42
Winnetka Lloyd Park	1	daily	71	11%	8
Winnetka Maple Park	1	daily	72	7%	5
Winnetka Tower	1	daily	71	11%	8
<b>Lake County</b>					
Fort Sheridan North	3	none	0	NA	0
Fort Sheridan South	3	none	0	NA	0
Great Lakes Naval Nunn	1	4/wk	60	22%	0
Highland Park Avenue Boating Beach	1	4/wk	53	9%	11
Highland Park Moraine Park Dog Beach	2	1/wk	14	7%	7
Highland Park Rosewood	1	daily	159	4%	0
Illinois State Park Camp Logan	3	none	0	NA	0
Illinois State Park North	1	4/wk	102	8%	5
Illinois Beach State Park Sailing Beach	3	none	0	NA	0
Illinois State Park South	1	4/wk	107	20%	15
Illinois State Park Resort	1	4/wk	106	18%	14
Lake Bluff Dog Beach	2	1/wk	14	7%	7
Lake Bluff Sunrise Beach	1	4/wk	53	8%	7
Lake Forest Forest Park	1	4/wk	160	3%	0
North Chicago Foss Park	3	none	0	NA	0
North Point Marina North	1	4/wk	108	49%	2 (74)*
Waukegan North	1	4/wk	8	0%	0

Beach	Tier	Assigned Monitoring Frequency	Total Samples	% of Samples Exceeding State Standards	Closing or Advisory Days
<b>Lake County</b>					
Waukegan South	1	4/wk	154	6%	0
Zion Hosah Park	1	none	0	NA	0

\*Reported closing or advisory days are for events lasting six consecutive weeks or less. Number of days in parentheses are for events lasting more than six consecutive weeks.

## NOTES

- 1 Hartmann, J.W., S.F. Beckerman, T.W. Seamans, R.M. Engeman, and S. Abu-Absi. Report to the City of Chicago on Conflicts With Ring-Billed Gulls and the 2009 Integrated Ring-Billed Gull Damage Management Project. March 25, 2010.
- 2 United States Environmental Protection Agency, Implementing the BEACH Act of 2000 (Report to Congress). October 2006.
- 3 Justin DeWitt, Illinois Department of Health. Personal communication. May 2011.
- 4 Cathy Breitenbach, Chicago Park District. Personal communication. June 2010.

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**Testing the Waters 2011 reflects data as of June 27, 2011.**