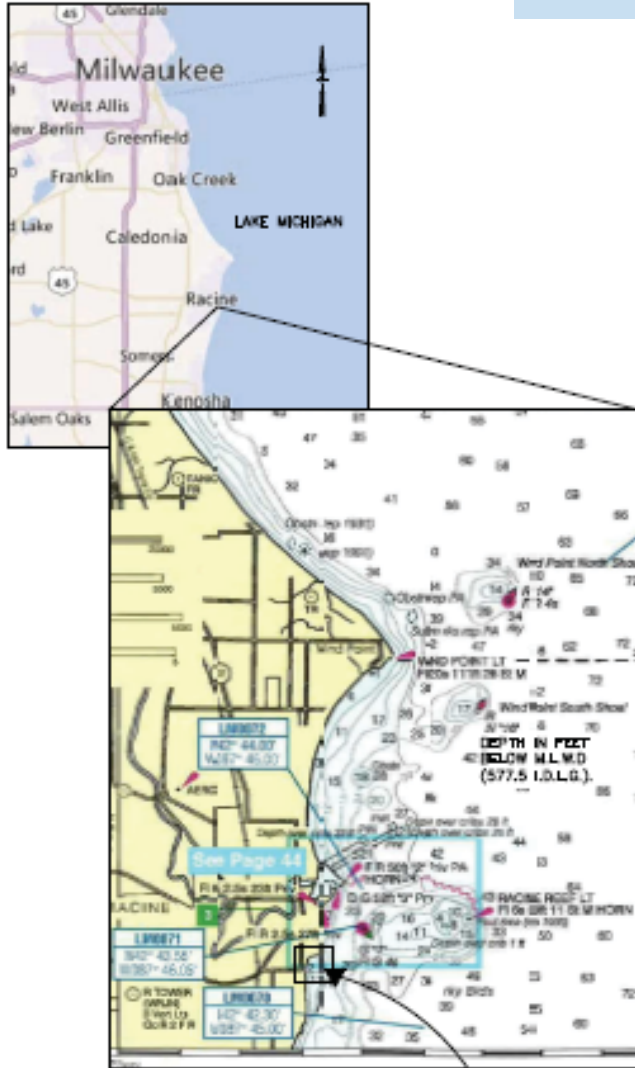


Samuel Myers Park – Implementing Restoration in the Direct Drainage Area of the Pike River Watershed

Julie Kinzelman, Adrian Koski and Stephan Kurdas
City of Racine Health Department Laboratory

IL Lakes Management Association Annual Meeting – March 31, 2017

Samuel Myers Park – Racine, WI

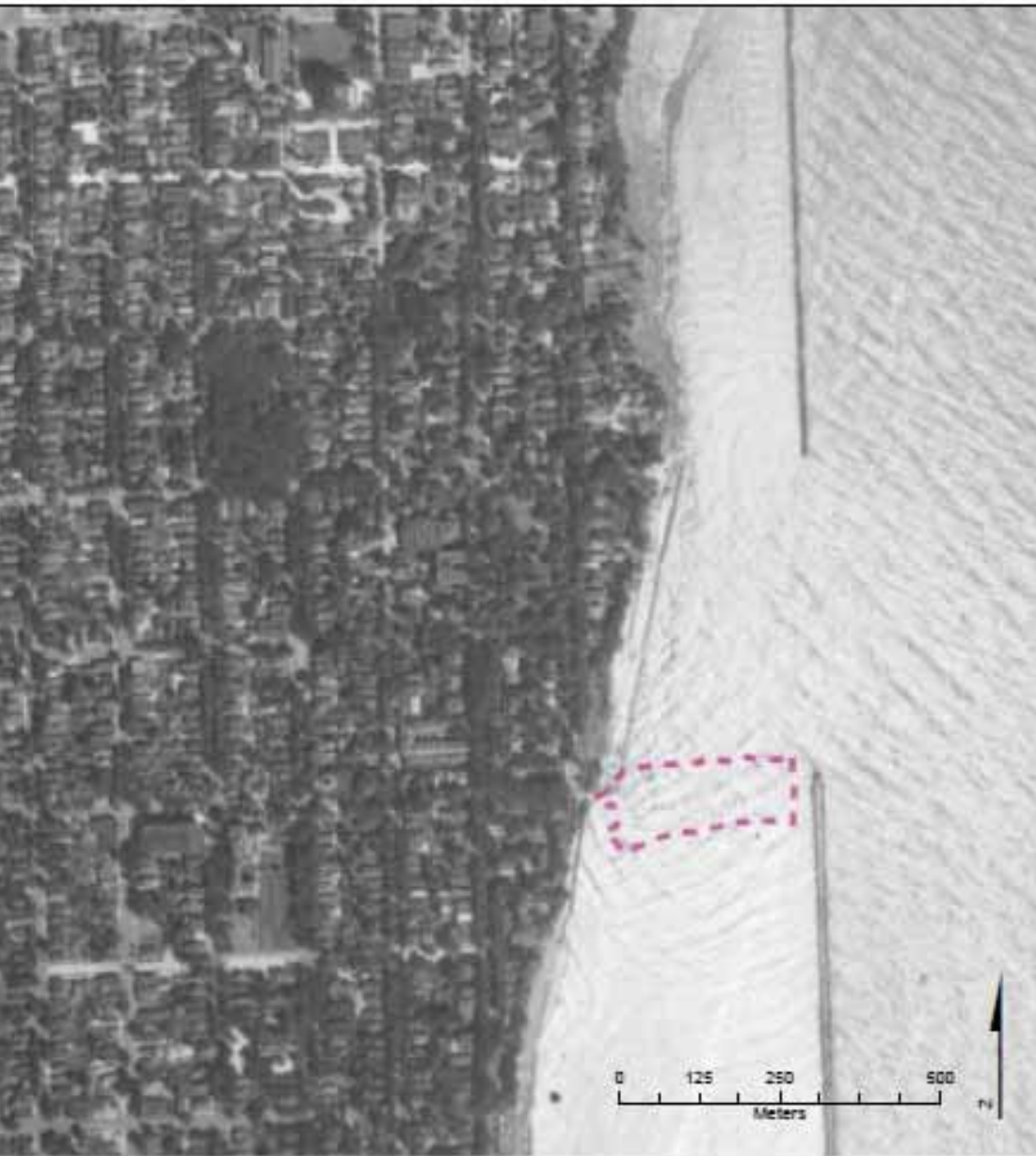


BEACH LOCATION

1937

vs.

2014



Prior to Restoration...

Phragmites & other invasive species



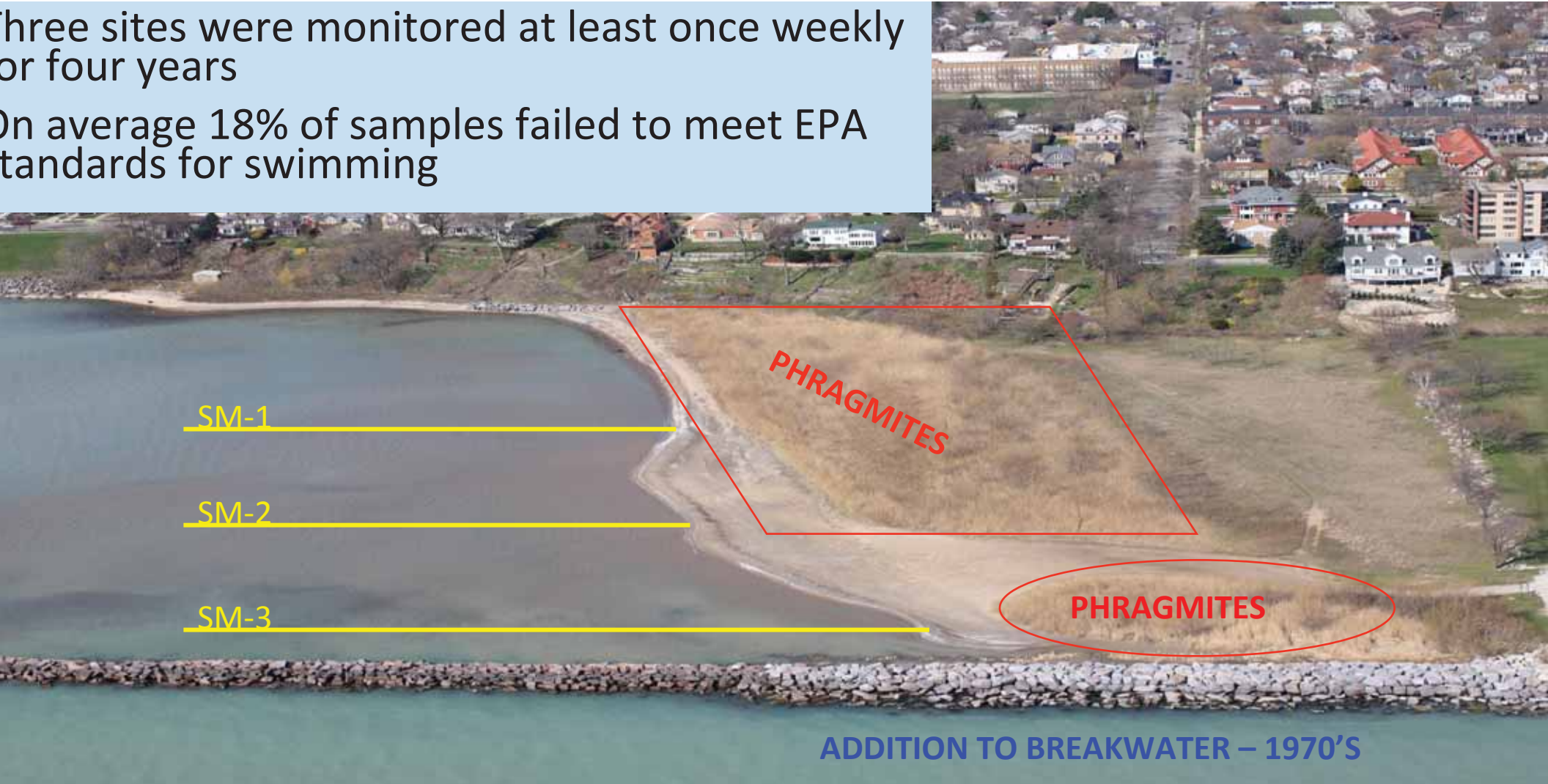
Lack of improved public access



Surface Water Quality (2010-2013)

Three sites were monitored at least once weekly for four years

On average 18% of samples failed to meet EPA standards for swimming



Sources of Pollution Identified

Quality increased with distance from the shore and depth

- Shallow water had higher bacteria counts

High bacteria counts & nutrients in sediments close to the water's edge

Quality decreased when water was more turbid

Water quality was worse after rain

- Surface runoff across sand surface and down boat launch
- Stormwater discharge from municipal infrastructure into embayment

Stagnation near the breakwater negatively influenced water quality

Gull and goose feces determined to be a potential source of pollution

Pollution Sources

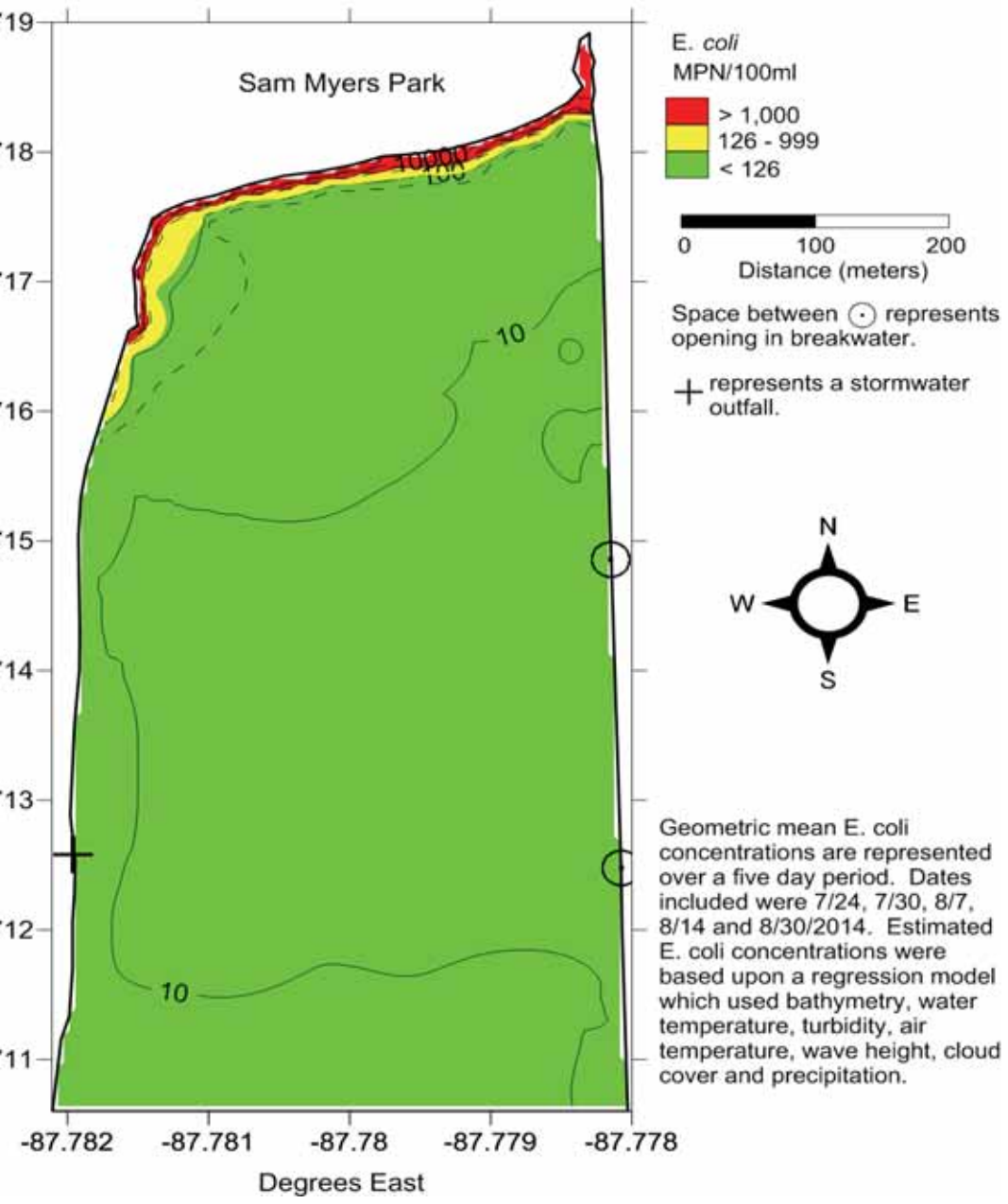
Stagnation adjacent to breakwater



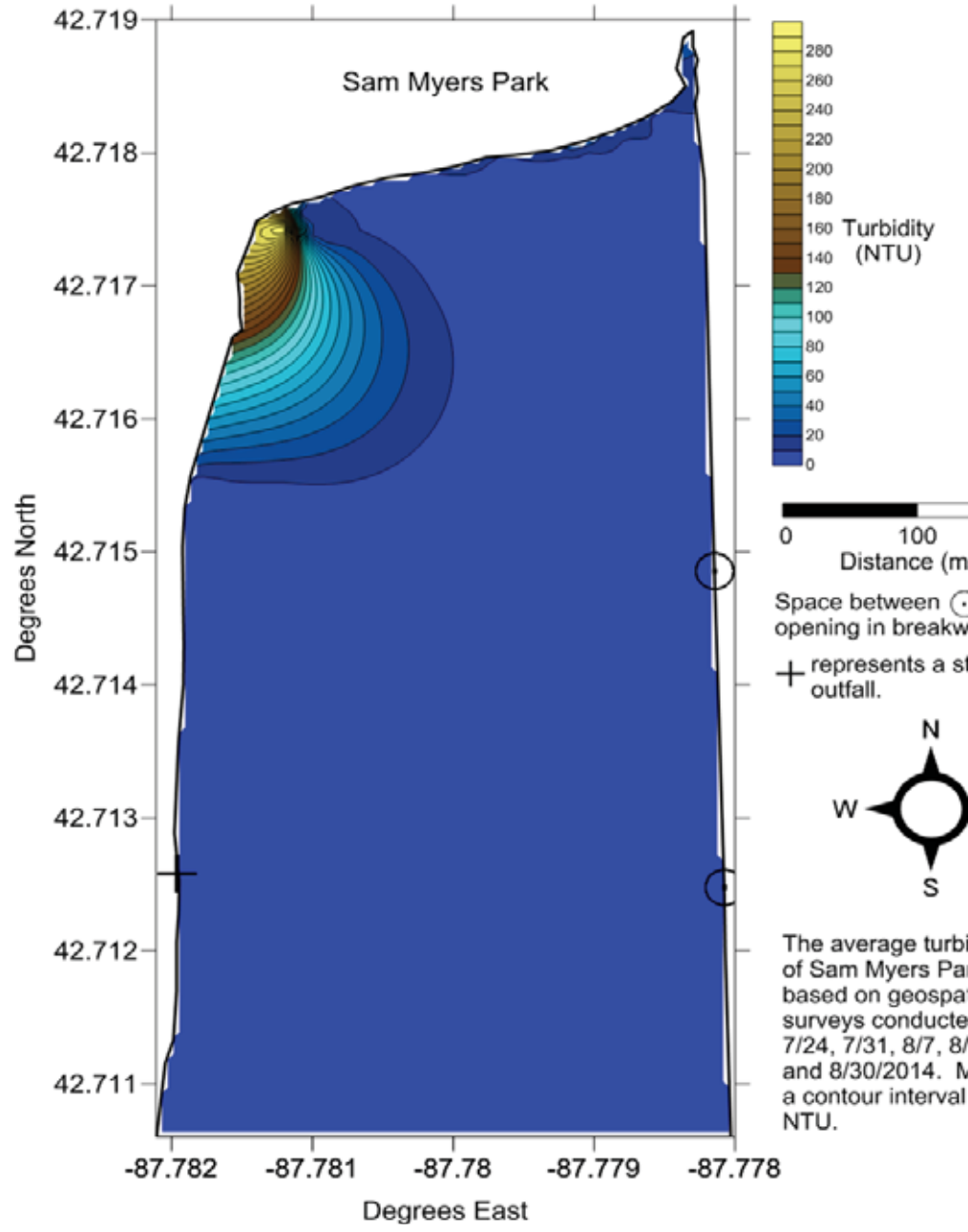
Invasive species & NPS Pollution



E. coli (5-day geometric mean)



Turbidity



Restoration Approach

- Reduce direct stormwater runoff
- Prevent stagnation along the breakwater
- Maintain beach sands
- Deter loafing gulls and geese
- Remove and manage invasive species
- Restore coastal habitat (flora)
- Encourage native fauna (bird flyway)
- Improve public access
- Create recreational amenities
 - Including off-shore swim zone



Restoration Plan



Invasive Species Management

Controlled Burn



Herbicide Application & Cutting



West Dune Feature and Jetty Supplement



East Wetland



ry Prairie Transition



Best Constructed Wetland & Dune Features



Storm Damage – East Wetland (February 2016)

Active Storm Surge



Aftermath



Improving Resiliency (Sept 2016)

Increased Size of Return to LM



“Pressure Relief Valve”



Upland

2013



2016 – In Progress



Native Upland Plants

Paper Birch & American Hornbeam



Others:

Red Twig Dogwood, Pussy Willow, Black Chokeberry, Potentilla, Hackberry



Dry Prairie

2013



2016



Native Prairie Plants

Brown Eyed Susan



Little Blue Stem, Goldenrod, Aster



East Constructed Wetland

2013



2016



West Constructed Wetland

2013



2016



Existing Coastal Wetland

2011



2016



Native Wetland Plants

Swamp Marigold, Arrowhead, Spike Rush



Joe Pye Weed



Dunes

2013



2016



Native Dune Plants

American Dune Grass & Evening Primrose



American Sea Rocket

State of WI Species of Special Concern



Improved Public Access

Gazebo



Scenic Overlook



Improved Public Access

Walking Trail – In Progress



Carry-In Canoe/Kayak Launch



Measures of Success

Restoration of Native Species

30,000 – 40,000 native species planted to date

52 native trees

Many additional native plants growing on their own from seed bank contained within the soil

Invasive species management is ongoing

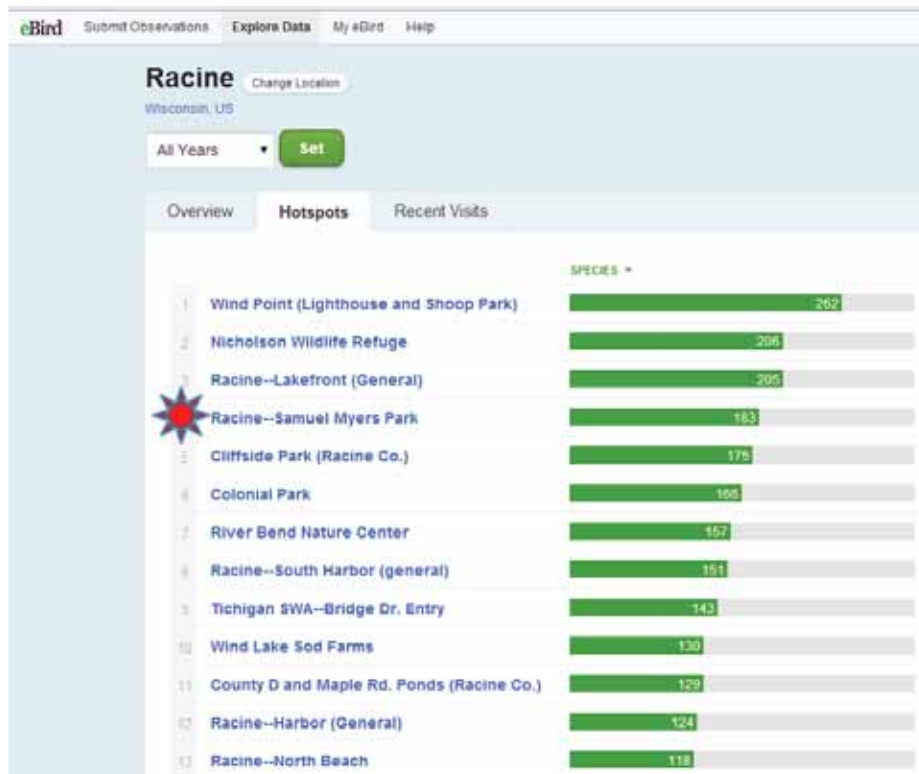
Migratory Birds & Other Wildlife

- Over 52 species sighted in a single day (Audubon “Big Sit”)
- 35 more species seen since restoration began, e.g.
 - Eagle
 - Piping Plover
 - Egrets
 - Herons
- Mammals
 - Muskrat, Mink
- Toads, Frogs
- Dragonflies
- Monarch Butterflies

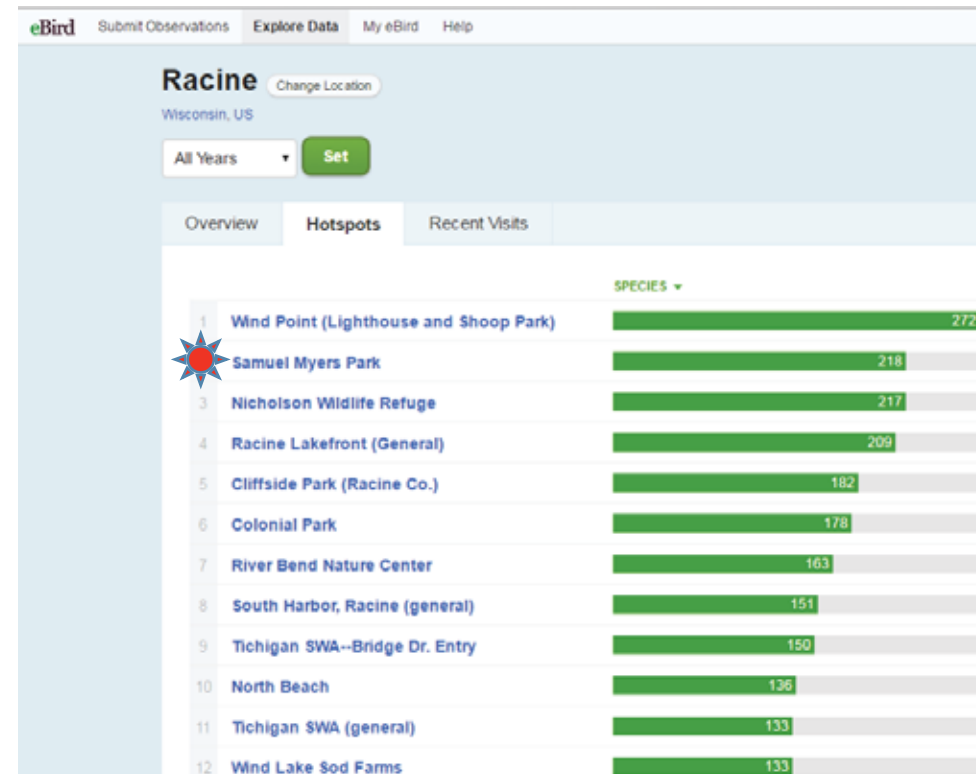


Increased Migratory Bird Sightings

Birding Hotspots - 2014



Birding Hotspots - 2016

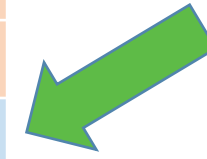
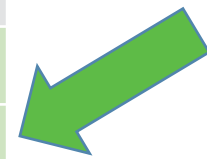


Improved Water Quality

2015 vs. 2016

Site	Year	Sample Depth (ft.)	n	Median <i>E. coli</i> (MPN)	Advisories	%
M-E2	2015	2	6	346.0	4	66.7
M-E2	2016	2	12	79.5	4	33.3
M-E3	2015	3	14	178.5	6	42.9
M-E3	2016	3	8	108.5	1	12.5
M-W2	2015	2	14	469.5	9	64.3
M-W2	2016	2	12	166.5	5	41.7
M-W3	2016	3	8	163.5	1	12.5

Prior to Restoration – NO SWIMMING



Goal...Establish an offshore swim zone, aka “boater’s beach”

Education and Outreach

SAMUEL MYERS PARK WETLANDS



A wetland is defined as “an area where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions (Wisconsin Statutes).”



Great Lakes coastal wetlands are threatened. According to the U.S. Environmental Protection Agency, 50% of these unique ecosystems have been lost to development. Wetlands play an integral role in the ecology of the watershed. The combination of shallow water, high levels of nutrients & primary productivity is ideal for the development of organisms that form the base of the food web and feed many species of fish, amphibians, shellfish and insects. Many dozens of species of birds and mammals rely on wetlands for food, water and shelter, especially during migration and breeding.



Primary Wetland Functions:

- Filter and store stormwater
- Recharge groundwater supplies
- Maintain critical habitat for migratory birds and other animals
- Enhance recreational opportunities
- Provide places of natural beauty
- Present research and education opportunities



Great Lakes
RESTORATION



Fund for
Lake Michigan



WISCONSIN COASTAL
MANAGEMENT PROGRAM

Visit www.rootpikewin.org for more information
on wetland restorations in the Pike River watershed.



Educational Signage and Outdoor Classroom Space

Pike River Watershed Restoration Plan

Preserving, protecting and improving the Pike River Watershed

Fostering an appreciation and stewardship of the watershed through public education

Protecting, enhancing and monitoring surface water quality to meet US EPA standards

Identifying and protecting natural areas/ open space

Providing passive recreational benefits

Implementing storm water management BMPs within open space that help to reduce runoff


Managing and maintaining existing natural depression storage, wetlands, streams and riparian areas

Improving aquatic and terrestrial habitat to encourage balanced ecosystems

Encouraging and supporting stakeholder efforts to implement watershed plan actions

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SAMUEL MYERS PARK PIKE RIVER WATERSHED




A watershed is an area or region drained by a particular river, river system, or other body of water. The Pike River drains into Lake Michigan, both at its mouth in the City of Kenosha and through direct drainage in the northeast portion of the watershed. Samuel Myers Park is located in the direct drainage portion of the Pike River watershed.

An EPA 9-element watershed restoration plan for the Pike River watershed was completed in 2013. The plan contains a prioritized list of projects throughout the watershed that will, when completed, reduce the pollutant load in the river.

The restoration at Samuel Myers Park closely follows many of the primary objectives of the Pike River Watershed Restoration Plan, including improving surface water quality, protecting important natural areas, providing open space for appropriate recreational benefits, and improving aquatic and terrestrial habitat to encourage diverse, resilient ecosystems.

Visit www.rootpikewin.org for more information on Pike River watershed restoration initiatives.



Many Thanks to Our Supporters!!!!!!!!!!!!

US EPA

Fund for Lake Michigan

WI Coastal Management Program

Root-Pike Watershed Initiative
Network

Wege Foundation

Ozaukee Washington Land Trust

Racine Yacht Club

Miller Engineers & Scientists

- Kiwanis of Racine
- A.W. Oakes & Son
- Distinctive Woodwork, Inc.
- Vaash & Sons Excavating
- Friends of Myers Park
- Walden III Middle & High School
- UW-Parkside
- Alliance for the Great Lakes
- Our Stupendous Volunteers!!!

Time for a Few Questions...

Or you can email me: Julie.Kinzelman@cityofracine.org

Visit the Friends of Myers Park Facebook page:

<https://www.facebook.com/Friends-of-Myers-Park-198608603679269/>