



WISCONSIN HISTORICAL SOCIETY

Historically, Milwaukee's rivers and lakefront were a recreational treasure.

Healing the Milwaukee Estuary Area of Concern

An urban center gets a second chance.

Kevin Harter and Megan O'Shea

Milwaukee, a major Great Lakes port since 1835 and Wisconsin's largest city, is at the heart of the Milwaukee Estuary. It is where the three rivers of the estuary — the Milwaukee, Menomonee and Kinnickinnic — converge. It is the home of thousands of urban residents who are looking for places close to home to escape the bustle of the city. With many area partners working to bring nature back to the city, these urban residents are finding more opportunities to fish, swim, and enjoy green spaces right in their neighborhoods.

In the early years of Milwaukee's history, before pollution took its toll, local residents and visitors used these rivers for many types of recreation — swimming, fishing, boating and ice skating. As the area grew into a center for shipping, commerce and industry, the balance between nature and the human-built environment was lost. The rivers were dammed, dredged, straightened, widened and often lined with concrete. More than a century of agricultural, industrial and residential development led to pollution of these waterways. In 1951, an oil spill caused a Milwaukee River tributary to catch fire, a symptom of an ailing waterbody that could no longer be used for fishing and swimming and indeed posed a safety hazard to the community.

Because of the severe pollution that had degraded the waterways, the estuary was designated as an Area of Concern in 1987.

"Historically, issues were a lot different than what we know today, and in some cases people didn't know, or consider the consequences of what they were doing," says Megan O'Shea, DNR's Milwaukee Estuary Area of Concern Coordi-



TOM SEAR

Top: In 2010, the Milwaukee Metropolitan Sewerage District removed a section of concrete lining on Underwood Creek in Wauwatosa.

Bottom: The same location today after the Sewerage District removed the concrete and naturalized the channel. Projects like this help enhance habitat and aesthetic appeal.

MEGAN O'SHEA

nator. "There was pollution from a variety of sources, ranging from agricultural runoff and industrial dumping, to driveway oil and yard chemical runoff."

Rejuvenating the rivers

Working closely with a variety of partners, the Department of Natural Resources is helping to coordinate the cleanup of pollution in the rivers and near-shore waters of Lake Michigan with the goal of restoring the rivers' place in the community as urban natural treasures. Removing polluted sediments from the rivers and adjacent lands is an important first step.

In 2009, a public and private partnership paved the way for the revitalization of the Kinnickinnic River by cleaning up toxic contamination in a section of

the river. Public and private investments also made cleanup projects on the Little Menomonee River and portions of the Milwaukee River possible.

These projects are complex and many partners are needed to successfully carry them out. The Department of Natural Resources, Milwaukee County and U.S. EPA's Great Lakes National Program Office Legacy Act Program have each made important contributions to the cleanups. To date, approximately 300,000 cubic yards of sediments, many contaminated with toxic chemicals, have been removed, improving conditions in the water and in the local communities.

In addition to cleaning up toxic contamination, minimizing the amount of runoff and keeping it clean is another key

Enjoying an improved
Bradford Beach.



MEGAN O'SHEA

What looks like wilderness
on the Milwaukee River
is just a few miles from
downtown.



GAIL EPPING-OVERHOIT

Cleanup and restoration increases
recreational opportunities on
Milwaukee's rivers.



KAE DONLEVY

to balancing the human-built and natural environments.

As rain or snowmelt passes over developed land, it picks up pollutants and transports them to the nearest storm drain and eventually into local water ways. This runoff is often also laden with trash, bacteria and nutrients like phosphorus and nitrogen. Consequently, this type of pollution closes local beaches and can harm or kill fish and other wildlife. Runoff pollution plays a role in beach closings, which periodically occur in many of Milwaukee's lakefront beaches.

The University of Wisconsin-Milwaukee is using innovative bacteria source identification methods, which will help ensure that safe conditions exist for

water-based recreation in Milwaukee. Local partners are also working hard to control runoff pollution, with progress that can be seen and enjoyed. Bradford Beach on the East Side of Milwaukee is one example. The beach was once underused and littered with trash. It is now one of Milwaukee's most popular lakefront destinations and even earned Blue Wave certification, the first national environmental certification for beaches.

Creating a healthier place for all

Along with cleaning up sediments and reducing runoff pollution, habitat work is important for restoring the waterways. Improving fish passage by removing structures like dams and blocked culverts opens up miles of streams to fish that weren't accessible to them before. This helps ensure that fish have a diverse array of habitats to help meet their critical life cycle needs as they migrate between Lake Michigan and its tributaries. Such habitat restoration has occurred in portions of the Milwaukee River, Menomonee River and Underwood Creek. Citizens are playing an important role in improving fish passage by assessing fish passage impediments in AOC tributaries.

Removing concrete lining from river channels and restoring streams to more natural conditions is another way to improve habitat in cities like Milwaukee. Such habitat restoration has occurred in portions of the Kinnickinnic River on Milwaukee's south side, the Menomonee River in the Miller Valley and Underwood Creek in the City of Wauwatosa. Restoring stream conditions not only helps fish, but also improves conditions for the aquatic invertebrates (see p. 5, "What Lives in the Mud") on which the fish feed.

Besides helping fish and other aquatic life, restoring more natural stream conditions makes the stream more attractive. Aesthetic problems can keep people from fully enjoying the water. In order to assess the aesthetic conditions in the AOC that might interfere with enjoyment of the area's waters, the Department of Natural Resources has developed a collaborative citizens' monitoring program. With help from citizen volunteers, the Department of Natural Resources will be able to identify the sources of aesthetic problems and implement strategies to address them.

Where the built environment cannot be altered, there may be other ways to improve habitat. Riverbanks along the Milwaukee Estuary shipping channel have been widened, dredged and hardened to provide structural stability and eliminate erosion from passing barges. These structures are necessary to protect the streambank, but they make it difficult for young fish to survive their

trip to the lake from upstream spawning beds.

A local nonprofit group is working with a team of regional experts to install innovative rubber containers that are attached within the corrugations of steel bulkheads. They contain a variety of wetland plants that young fish use as food and shelter to rest as they migrate back to Lake Michigan. The design included considerations for wall conditions, water quality, freeze/thaw patterns, ice and wave action, tolerant vegetation and fish species' needs.

Through their hard work and dedication, partners are making great strides in the Milwaukee Estuary, ensuring its ability to thrive in both the built and natural environments and providing a healthy place for people and wildlife.

"After hundreds of years of development, we will never get back to pre-settlement conditions, but we are seeing progress," says Ann Brummitt of the Milwaukee River Greenway Coalition. "Overall, people feel pretty hopeful. We are improving habitat, [biological] diversity and fish populations." •

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DAVE TURCIANO

Dam removal and habitat restoration are bringing lake sturgeon back to Milwaukee's waters.

To learn more about the Milwaukee Estuary Area of Concern and partner efforts watch the following videos:

(A Community Returns to Its Rivers)
youtube.com/watch?v=gpLJ0f3J3P0

(Connecting Milwaukee's Youth)
youtube.com/watch?v=V0YamFLhzB4

HEALING OUR RIVERS & HARBORS

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