

RIVER RAISIN LEGACY PROJECT



Field Guide



RIVER RAISIN LEGACY PROJECT FIELD GUIDE

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PAC for the River Raisin and Commission on the Environment Members

Richard Micka
Daniel Stefanski

Commission on the Environment Members

Maureen Pfund, *Chair*

Barry LaRoy, *Director of Water & Waste Water –
City of Monroe*

Gloria Rafko, *Council Person – City of Monroe*

Milward Beaudry, *Resident*

Brian James Egen, *Resident*

Bonnie Finzel-Doster, *Resident*

Ike Owens, *Resident*

AOC Coordinator – Detroit River, St. Clair River, River Raisin

Melanie Foose

Field Guide Designer

Jody L. Egen

Director of Communications – City of Monroe

The people of Michigan have the privilege of living in a remarkable state full of vital yet beautiful natural resources. We have 11,000 inland lakes, 76,000 miles of rivers, and we border four of the five Great Lakes amounting to 3,200 miles of coastline in the largest system of freshwater in the world.

We are dedicated to caring for these resources. Part of this work is the restoration of the 14 severely polluted areas in Michigan known as the Areas of Concern and often referred to as “toxic hotspots.”

Our communities have been able to make great strides in restoration of these Areas of Concern (AOCs) through the Great Lakes Restoration Initiative, launched in 2010. The River Raisin, is one of the smallest AOCs, encompassing just 2.6 miles of the river where it meets the Western Basin of Lake Erie.

Since the completion of the first Remedial Action Plan in 1987, the River Raisin Public Advisory Council along with countless state and federal agencies and local partners, have been closely working together to remove contaminated sediments from the river, implement habitat restoration projects and ensure clean and healthy environments for fish, wildlife and humanity alike.

We are all proud of the work accomplished in the River Raisin. We are so close to our goal of removing the River Raisin from the list of those long ago identified “toxic hotspots” and look forward to continuing to work with the community of Monroe to restore and protect the River Raisin long after it is no longer designated an Area of Concern. Moving from a community with a legacy of contamination to one that embraces and values its water and waterfront is a profoundly important goal that we all share. The people and communities and partners within the watershed should all be proud of the decades of hard work that make this transformation a reality.

Jon Allan

Jon Allan, Director
Michigan's Office of the Great Lakes



Welcome to the City of Monroe!

On behalf of our elected officials and all our residents, it is a great pleasure for me to extend a sincere welcome to Monroe.

Founded in 1785, Monroe is Michigan's third oldest community and one steeped in history. Besides being home to many historical sites and legendary figures, Monroe has many beautiful natural resources which our citizens can enjoy year round. Our many beautiful waterside parks are the perfect backdrop to family gatherings and concerts. A sunset walk along the Mark G. Worrell Memorial Trail as it turns the corner at Frenchman's Bend never fails to inspire. Exploring the winding River Raisin Heritage Trail of Sterling State Park out to the shores of Lake Erie is an adventure for all ages.

Center to all of this is the River Raisin, the heart of Monroe. Weaving through our city, the river reminds us all of our relationship with our natural surroundings, is an ever moving symbol of where we came from, and where we have yet to go.

We are happy you have an interest in Monroe's beautiful natural resources, and hope you will enjoy all Monroe has to offer.

Mayor Robert E. Clark

The mouth of the River Raisin hosts the only Michigan port on Lake Erie and was once home to abundant lotus beds and sturgeon. The cost of doing business on the River Raisin in Monroe has included some chronic pollution problems, such as PCBs in river sediments and an ongoing need to dredge the lower channel for ship traffic.

Starting in the summer of 2012, an initiative now known as the River Raisin Legacy Project commenced to invest more than \$23 million to enhance the environmental and recreational opportunities in the River Raisin and nearby Sterling State Park.

By reclaiming the River Raisin for free passage of fish and small boats, we hope this project will play a role in the extensive effort to restore, preserve and improve the natural environments vital to this community. This project will have a cascading effect on wildlife, bringing fish to spawn, freshwater mussels, aquatic insects, waterfowl and other wetland-dependent fauna back to the area. Fishing, wildlife viewing, bird watching, canoeing and kayaking will all emerge as never before in our lifetime.

Use this handy field guide to familiarize yourself with our amazing local natural resource, and protect the Legacy that is the River Raisin for generations to come.

ELECTED OFFICIALS

CITY COUNCIL

Mayor Robert E. Clark

Paula L. Whitman Charles D. Evans

John Iacoangeli Gloria Rafko

Kellie M. Vining William D. Sisk

City Clerk/Treasurer

Michelle LaVoy



The River Raisin has a long, rich cultural history. It was known as Nummasepee (River of Sturgeon) by the Native American tribes that first populated the area and used the river for hunting, fishing and transportation. Later, the abundance of grapes that grew along its banks led French settlers to name it Le Riviere aux Raisins when they migrated to the area in the late 18th century. The English and Americans would later anglicize the French 'Le Riviere aux Raisins' into the name we use today: the River Raisin.

Founded in 1785 and incorporated in 1817, the City of Monroe is one of the most historic cities in Michigan as the third oldest community in the state. Its location on the western shore of Lake Erie and the River Raisin made it a natural crossroads for the Native Americans and later the French missionaries and fur trappers who settled here.



'Battle of the River Raisin - War of 1812,' courtesy of Tim Kurtz

Originally called Frenchtown, the settlement found itself caught between the British Army and the U.S. forces during the War of 1812. The U.S. forces, including the Kentucky militia, pushed the British Army back into Canada. Four days later, the British counterattacked resulting in 300 - 400 Americans killed, and approximately 560 wounded or captured – making the Battle of the River Raisin the costliest U.S. defeat in the war. “Remember the Raisin” became the American rally cry of the war after Indian allies of the British killed another 100 injured soldiers who were unable to retreat after the counterattack.

Even today the French influence is still evident in the way property is legally described in Monroe. In most townships throughout Michigan, property location is identified by one-square mile by one-square mile parcels of land known as Sections. However, in Monroe, property is described by what is known as French Claims (aka Private Claims). French Claims are narrow parcels of land that extend inland north and south from the banks of the River Raisin. In some cases these narrow plots of land could extend nearly 1.5-miles inland from the riverbank. The French Claims allowed early settlers to have access to the River Raisin, were used for home sites, and offered narrow strips of land for gardening, hunting, and afforded some protection from enemies because homes were spaced somewhat close.

Today, Monroe has three National Register of Historic Places historic districts: St. Mary's Church Complex Historic District, built between 1835 and 1839; the East Elm – North Macomb Street Historic District, with houses dating from the 1820s to the 1920s; and the Old Village Historic District, which was platted in 1817. Monroe also boasts six National Historic Sites, as well as seven sites in Michigan's State Register of Historic Places. In addition to the historic sites and war memorials, there are 60 historic markers. Each historic marker contains a description of the historical significance of the site. The Battles of the River Raisin, Tecumseh's Headquarters, the Capture of General Winchester, and more can all be found on these markers. The bulk of the markers are located within downtown Monroe, but they can be found as far out as LaPlaisance Bay and Sterling State Park.

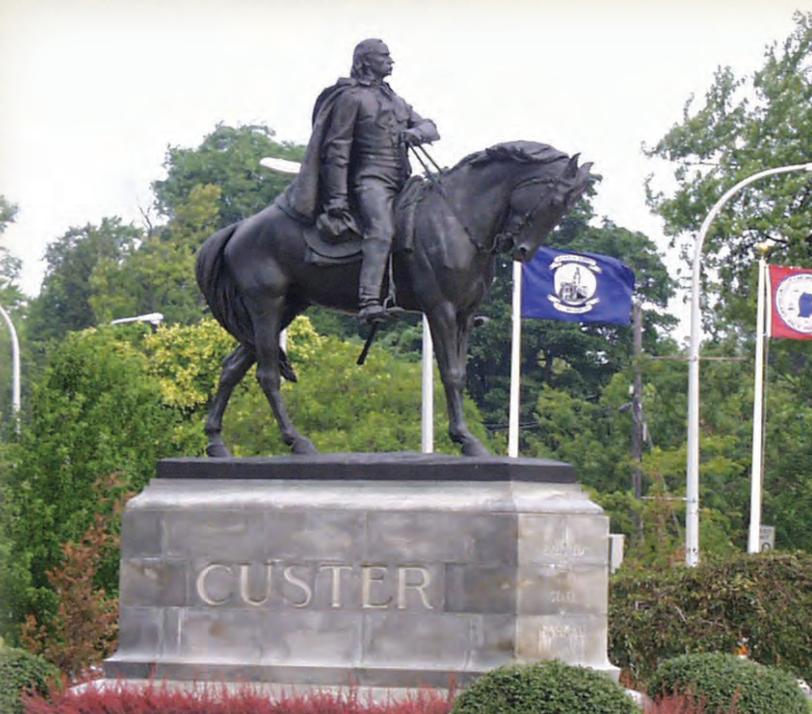
Monroe is also home of the River Raisin National Battlefield Park, established as the 393rd unit of the United States National Park Service on March 30, 2009. It officially began operation as a national park unit on October 22, 2010 and, of the four National Battlefield Parks in the country, it is the only one marking a site of the War of 1812.

Monroe is the home of many well known historical figures, the most famous of which was Gen. George A. Custer. Custer was born in Ohio, but attended school in Monroe and spent much of his early childhood here. He later married Elizabeth "Libbie" Bacon, the only daughter of a prominent local judge.

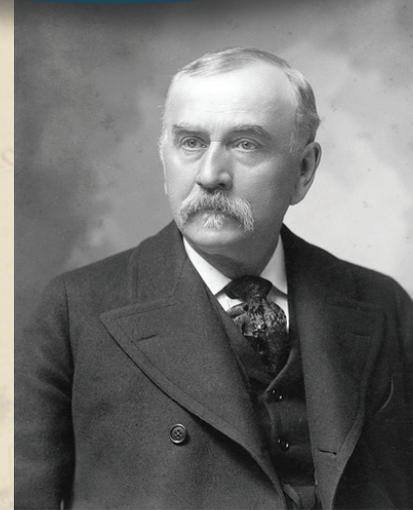
Custer left Monroe to attend the United States Military Academy and fight in the Civil War. Because of his hard work and success during the war—as well as the Union's need for officers—he was promoted to the rank of Major General and became a very well-known military figure.

After the Civil War, he fought in the Indian Wars in the West. His previous accomplishments in the Civil War, however, were overshadowed by his catastrophic defeat and death at the Battle of the Little Big Horn on June 25, 1876.

To honor him, a \$24,000, 14-foot (4.27 m) bronze equestrian statue, sculpted by Edward Clark Potter, was unveiled in Monroe in 1910 by President William Howard Taft and the widowed Elizabeth Bacon Custer. The statue commemorates his successful actions during the Civil War.



Another man who lived in Monroe for part of his childhood was J. (Julius) Sterling Morton — founder of internationally-observed Arbor Day. Morton lived in Monroe from 1834 to 1854, and developed a lasting appreciation for nature generally, and trees specifically. While growing up, Morton spent a lot of his time hanging out at his uncle Edward Morton's Monroe Advocate newspaper offices. In 1854, the 22-year-old Morton and his new bride Caroline moved to the Nebraska Territory where he began his own career in journalism and newspaper publishing.



Through writing and publishing stories, Morton encouraged farmers to improve their farming techniques, plant better crops, and plant trees on the largely treeless Nebraska plains. Morton promoted the many benefits trees could give farmers: reduce soil erosion, provide wood for heating and cooking, and protect farm families from the blistering summer sun.

To help promote the many beneficial uses of wood, Morton proposed a tree-planting holiday in Nebraska, called Arbor Day. A day dedicated to trees would be his legacy. Since then the popularity of the tree holiday has spread and is now celebrated around the planet, usually on the last Friday of April.

Monroe is also the home of many globally recognized companies, including Gerdau Steel, DTE, and Ventower Industries. Several industries were founded by local entrepreneurs, including Monroe Shocks and Struts, and LA-Z-BOY Incorporated, whose world headquarters are still proudly based in Monroe.



The City of Monroe is home to approximately 20,700 residents. Located along the banks of the River Raisin, it serves as the governmental seat for the County of Monroe. The historic small-town character of the city is apparent in the residential areas with many homes constructed in the late 19th and early 20th centuries. Mixed commercial and residential uses are closely integrated near the downtown. Front Street and Monroe Street, which intersect on the south side of the River Raisin in the heart of downtown, provide a variety of opportunities for addressing commercial, office, and residential needs.

Monroe is served by I-75, US-24, M-50, and M-125. I-75 provides connections to the entire interstate highway system. Monroe's transportation linkage is very important to the local economy, particularly in the area of tourism development.

Lake Erie and the River Raisin provide the primary water resources for Monroe; however, wetlands and industrial uses limit the use of Lake Erie for municipal recreation purposes. Sterling State Park, located outside Monroe in the adjacent township, currently occupies the best area available for use adjacent to the lake. Fishing and boating opportunities are extensive on the River Raisin from Hellenberg Park to its outlet, and on Lake Erie. The Monroe harbor provides excellent access to the Great Lakes system. Perch and walleye fishing attract sportsmen throughout the region. The City is also home to the Port of Monroe, the only port on Lake Erie, servicing industrial and recreational boating needs.

1937

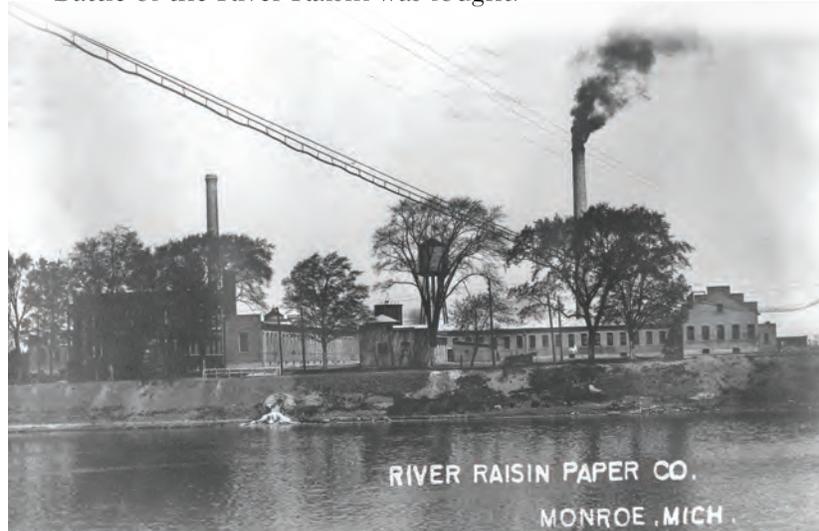
NEWTON STEEL of Youngstown, Ohio, joined other established industries in the city when it expanded its operation with construction of a new plant in Monroe in 1929. The mill eventually employed around 1,400 workers. Hard economic times forced Newton to eventually merge with Republic Steel. In 1937 it became the site of a high-profile labor strike that turned violent over contract disputes.

1946

ALCOA ALUMINUM PLANT - Operated from 1942 to 1946 on a site previously occupied by Newton Steel Co. which eventually became the Republic Steel Corporation. The aluminum company manufactured cylinder head forgings for the aviation industry. Production peaked during WWII, as the company supplied cylinder heads for war production.

1960

UNION CAMP CORP. - The corrugated paper company operated plants that flanked Winchester Street just north of E. Elm Avenue in Monroe. It began as the locally owned and operated River Raisin Paper Co. in 1910 and ceased operations in 1960. Its facilities operated on part of the land where the War of 1812's Battle of the River Raisin was fought.



RIVER RAISIN PAPER CO.
MONROE, MICH.



1972

*Monroe DTE Power Plant***MONROE WASTE WATER TREATMENT PLANT**

Operating at E. Front Street just east of I-75, the plant processes waste water for municipal sewage systems serving the greater Monroe area. The plant can treat approximately 10.4 million gallons of waste water per day and recently has undergone a range of improvements.

1974

DTE POWER PLANT - the third-largest coal-fueled electric generating plant in North America provides about a third of Southeast Michigan's electric power. The 3,000-megawatt plant was completed in 1974, but has undergone a series of modifications and emission-control improvements over the years.

1978

CONSOLIDATED PAPER CO. - The paper-making firm ran two plants along the River Raisin and was a key Monroe area industry from 1921 to 1978. The first plant to shut down did so in 1975. The remaining plant was shuttered after the firm filed for bankruptcy protection in 1978. Both have since been demolished.

1980

GERDAU SPECIALTY STEEL - Started in 1980 as North Star Steel Co., the company recycles scrap steel into special bar quality steel used in construction and automotive applications. It is in the midst of multi-year improvements to boost production and improve product quality and diversity.

1981

PORT OF MONROE - The Monroe Port Commission dates to 1932 but constructed a new office near the ship turning basin on the River Raisin in 1981. It controls a substantial amount of property and supports various tenants in the port area, with 4,000 feet of dock space. The port generates about \$38 million in annual business revenue.

*Port of Monroe*

1989

MICHIGAN PAVING & MATERIALS - Once known as Thompson-McCully, the asphalt plant settled at the port in 1989. It is said to be the largest asphalt-blending plant of its kind in the world.

2008

FORD MOTOR CO. MONROE PLANT - A history of industries operated at the location at the foot of E. Elm Avenue in Monroe until production ceased at the automotive parts plant in 2008. Once the City of Monroe's largest employer with nearly 3,000 workers, it now serves as a parts warehouse with only a few staffers.

2011

VENTOWER - The maker of wind-turbine towers built a plant on port land in 2011 to capitalize on the growing interest in renewable and alternative energy. It now operates seven days a week producing tower sections for utility-scale wind farms.

The River Raisin watershed covers portions of Southeastern Michigan and part of Northwest Ohio, an area comparable in size to the state of Rhode Island. Running primarily through the farmlands of Monroe, Washtenaw, Lenawee, Jackson and Hillsdale counties, the 135-mile river is notable for many unique attributes.

Originally named Nummasepee (River of Sturgeon) by Native Americans, the River Raisin's bedrock streambed, the result of post-glacial erosion and soil formation processes acting upon glacial deposits, is unique to Michigan's southern peninsula. This type of streambed was a favored spawning habitat for Sturgeon and could be utilized by other fish such as smallmouth bass, walleye, suckers, and other native species.

DAMS OF THE RIVER RAISIN

Dams were constructed in the 1930s to house sanitary sewers that crossed the river above the bedrock. These structures led to the unintended consequence of restricting the movement of lake fish up the river. The River Raisin Legacy Project removed those barriers by eliminating unnecessary structures or providing passage around, through, or over the low head dams. Completed in the spring of 2014, the lower 23 miles of the River Raisin is now open to Lake Erie for the first time in more than 70 years.



1933 Dam Construction

WILDLIFE OF THE RIVER RAISIN



Sturgeon



Smallmouth Bass



Sucker



Muskellunge



Northern Pike



Greater Red Horse



Walleye

Note: Not to Scale

The River Raisin in Monroe is home to an expansive gathering of wildlife including fish and game fish, waterfowl, raptors, amphibians, turtles and mammals. Fish passages improve access to spawning and rearing habitat further upstream for several important species of lake fish including smallmouth bass, northern pike, walleye, muskellunge, and lake sturgeon. Fishermen will see expanded fishing in addition to the many other recreational opportunities that are now at our doorstep.

On a canoe trip or hike down the river bank, one may spot white bass in the shallows, eastern garter snakes sunning themselves on rocks, snapping turtles waiting in a pool for minnows, a muskrat diving for seaweed, and a great blue heron watching it all from a stand on the river's edge. The river is a focal point for wildlife in Monroe county.



Canvasback Duck



American Bald Eagle



Northern Map Turtles



Bullfrog



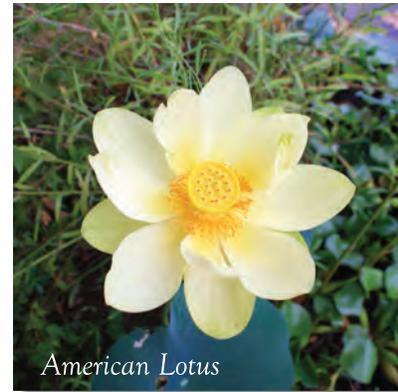
Muskrat

PLANT LIFE OF THE RIVER RAISIN

Many native varieties of plant life can be found along the banks and within the waters of the River Raisin. Here are just a few!

American Lotus (*Nelumbo lutea*)

American lotus is an emergent aquatic plant. The roots are anchored in the mud, but the leaves and flowers emerge above the water's surface. Reknowned for their pale yellow and white blossoms, flowering begins in late spring and may continue into the summer. The mouth of the River Raisin was once home to abundant lotus beds. Remaining beds of this threatend plant can now be found in the Eagle Island Marsh.



American Lotus

Water Willow (*Justicia americana*)

This is a threatened perennial of river slackwater areas; leaves opposite, narrowly elliptical; flowers pale violet marked with dark purple in clusters near top of plant.



Water Willow

Sullivant's Milkweed (*Asclepias sullivantii*)

This perennial prairie species is concentrated along the shores of the River Raisin. A member of the milkweed family, pink-purple flowers are produced by mid-July.



Sullivant's Milkweed



LAKEPLAIN WET-MESIC PRAIRIE

In addition to the River Raisin flowing through the downtown and the coastal marshes along the shores of Lake Erie, the Sterling State Park managed by the Michigan DNR contains a globally rare natural community known as a lakeplain wet mesic prairie. This wetland prairie is unique to the glacial lakeplains of the Lower Peninsula and is full of tall grasses such as big bluestem, Indian grass, and switch grass as well as brightly colored wildflowers including the purples of the marsh blazing star and ironweed and the sunshine-yellows of the tall coreopsis.

Fire is an important component of any prairie system in order for tiny wildflower seeds to germinate and to keep the community open, preventing the encroachment of trees and shrubs into the area. In managed prairies, prescribed fire is used by natural resource professionals mimicking the natural fires that used to burn the prairies in pre-settlement days.

Threats to these systems are those common to most wetland areas: invasive species such as Phragmites, glossy buckthorn, and purple loosestrife; human expansion and development; and alterations to the sensitive hydrology such as ditches and installation of drainage tiles. Although this rare plant community is nearly extirpated from Michigan, remnants of it do exist in the southeast Michigan region and we are fortunate to have an example of it in Monroe.



INVASIVE SPECIES

Among the native varieties of flora and fauna in the River Raisin watershed, there is also an assortment of unwelcome invasive species.

Flowering Rush (*Butomus umbellatus*)

Flowering rush is an aquatic plant that can grow as an emergent plant along shorelines and as a submersed plant in river. This exotic was likely brought to North America from Europe as a garden plant. Unfortunately, it also grows well in wet places. While single flowering rush plants are not a "problem," this exotic can form dense stands which may interfere with recreational lake and lake use. Flowering rush may also crowd out native plants and wildlife.



Flowering rush is very difficult to identify, especially if it is not in flower. Flowers grow in umbrella shaped clusters and each individual flower has 3 whitish pink petals. It closely resembles many native emergent plants, such as the common bulrush, but the stems are triangular in cross section. Because of this similarity, a permit is required to remove flowering rush because it is so difficult to distinguish from native plants.

Discovered in the River Raisin in 2003, it only took ten short years for this species to overtake our waterways. Removal efforts, including hand digging, have not deterred its onset. In 2014, the City of Monroe Commission on the Environment initiated a Flowering Rush Eradication Program funded by Monroe County Environmental Grant Fund, using an herbicide treatment in an effort to preserve the native habitat.

STERLING ISLAND HABITAT RESTORATION

Sterling Island is a man-made island within the Area of Concern. It has experienced significant erosion and is a major contributor of sediment, impairing aquatic habitat by reducing spawning, nursery and refuge habitat for fish and aquatic organisms. This restoration addresses loss of fish and wildlife habitat by constructing a rock deflector and longitudinal stone toe to protect the existing bank against river current, wave action, ice flows and Lake Erie seiches (a standing wave in an enclosed or partially enclosed body of water). Grading and timber steps were installed to prevent erosion from pedestrian foot traffic.

The project will provide aquatic habitat benefits, including a rock substrate spawning area and basking area for waterfowl and turtles. The project was completed in late 2012 with \$500,000 from the Great Lakes Restoration Initiative.



STERLING STATE PARK PROJECTS

At Sterling State Park, Michigan DNR is re-creating approximately 18 acres of emergent and submergent Great Lakes marsh and 32 acres of lakeplain prairie.

A second project involves repairing dikes and installing water control equipment for 310 acres of marsh. Phragmites is also being controlled in approximately 1,100 acres. The initial project was completed on December 31, 2012. Annual phragmites control and monitoring continue. Project funding of \$3.42 million was from the Great Lakes Restoration Initiative.



FISH PASSAGE

The River Raisin fish passage project aims to reconnect Lake Erie to the lower 23 miles of the river, allowing passage of fish, canoes and kayaks, and addressing loss of fish and wildlife habitat and degradation of fish and wildlife populations.

Phase I reopened 3.5 miles of river through the removal of two low-head dams and the installation of rock arch rapids at two locations in the city of Monroe. Phase II opened 19.5 miles by installing two rock arch rapids, constructing a small channel adjacent to Waterloo Dam and cleaning out Grape Mill Race. Funding of both phases was \$2.96 million from the Great Lakes Restoration Initiative.



PCB SEDIMENT REMOVAL

In 1987, the River Raisin was designated a Great Lakes Area of Concern with polychlorinated biphenyl (PCBs) in sediment the primary chemical of concern. In 1997, Ford Motor Company removed 20,000 cubic yards of highly PCB-contaminated sediment from the AOC, under USEPA order. From 1998-2002, the USEPA and MDEQ conducted post-remediation sediment monitoring, finding that high levels of PCBs remained. PCB contamination caused the following Beneficial Use Impairments (BUIs): Restrictions on Fish/Wildlife Consumption, Bird/Animal Deformities/Reproduction Problems and Restrictions on Dredging.

To address these BUIs, the Great Lakes Legacy Act Agreement on April 3, 2012, provided \$17.3 million for the remediation project. The USEPA Contaminated Sediment Project includes excavation of the Sterling State Park Confined Disposal Facility (CDF) then using it to dispose of PCB-contaminated sediment from the AOC. The use of the CDF required the removal of an equal volume (106,000 cubic yards) to preserve the capacity of the CDF for future navigation channel maintenance.

Testing confirmed that 112,000 cubic yards of CDF material is inert and the material will be excavated, dewatered, stockpiled and used on the Ford property site. The total dredging volume from the river includes 109,000 cubic yards of material. The project was completed in early 2013. Additional work efforts are planned in the future!



AREA OF CONCERN

In 1987, under the Great Lakes Water Quality Agreement, 43 areas throughout the Great Lakes in the United States and Canada were designated as Areas of Concern (AOCs). These areas are often referred to as “toxic hotspots” due to severe environmental degradation.

The boundary of the River Raisin AOC constitutes only 2.6 miles of the lower river where it flows into Lake Erie. However, within this small area, decades of industrial development resulted in contamination of the river sediments with heavy metals and polychlorinated biphenyls (PCBs). This contamination then made its way into the fish and the birds of the region.



So much work has now been accomplished in the River Raisin removing contaminated sediments from the riverbed and enhancing and restoring fish and wildlife habitat within the river and surrounding wetlands. It is now possible for fish to migrate from Lake Erie up to Dundee. Bird populations are also starting to recover, bald eagle and osprey are known to nest in the area; and migrating shorebirds arrive by the thousands to use the restored coastal marsh areas of Sterling State Park.

This recovery should continue and soon the River Raisin can be “delisted” as an Area of Concern.

PROTECT

While many of us think first of industries dumping chemicals as the source of water pollution, the truth is our water can also be harmed by things that we do every day at our homes. When it rains, water washes over lawns, sidewalks, and streets. In addition to litter, this water picks up chemicals found in lawn fertilizers, bacteria found in pet waste, and oil from cars. This polluted water then enters roadside ditches and the storm drains found in our streets, and large pipes connect the storm drains to the closest lake or stream.

We all live on a lake or stream. We might not be able to see it from our window, but it's there. It might be a small stream or ditch or even the storm drain in the street. All of these lead to a river or lake.

What Can You Do?

CATCH BASINS

Everything that goes down a storm drain flows into our lakes and streams. Help keep our rivers, lakes, and beaches clean!

What can I do to keep rainwater from carrying hazardous materials down a storm drain?

Sweep extra fertilizer, grass clippings, and dirt on your driveway back onto your lawn. Hosing down your driveway sends these pollutants into storm drains that lead to lakes, streams, and beaches.

Only allow rain to go down the drain

Never dump motor oil, chemicals, pet waste, leaves, dirty or soapy water, or anything else down the storm drain. All of these materials pollute our lakes and streams.

Label your storm drains. Volunteer to label storm drains in your neighborhood to inform residents that storm drains flow directly to lakes and streams. Contact your local community for more information on storm drain labeling programs.

What Can You Do?

LANDSCAPING

The chemicals in herbicides and pesticides pollute our waterways if washed from lawns and gardens into storm drains and roadside ditches.

How can I maintain my lawn and garden while protecting our waterways?

Go native! Select plants native to Michigan. Native plants are better able to tolerate Michigan's climate, require less fertilizer and water, and are more disease resistant.

Plant a rain garden. Use native plants in low areas where rainwater collects in your yard to trap, absorb, and filter storm water.

Diversify your plantings. Use a wide variety of plants to help control pests and minimize the need for pesticides.

Place a thick layer of mulch (four inches) around trees and plants - this helps retain water, reduce weeds, and minimizes the need for pesticides.

Plant a tree! Trees can provide many benefits, such as soaking up water, that improve the environment and quality of life in your community. A typical, medium-sized tree can capture 2,380 gallons of rainwater per year.

Rake it or leave it. Follow your community's leaf pick-up guidelines. Avoid raking leaves into storm drains or roadside ditches. Try mowing leaves into your lawn—they also make a good fertilizer!

Use pesticides and herbicides sparingly. Limit application of these chemicals to problem areas only.

Capture the rain! Use a rain barrel to water your plants. Don't forget to empty it when it's full.

What Can You Do?

LAWN CARE

Fertilizer and grass clippings easily find their way into drains, which can lead to algae blooms in rivers and lakes.

How can I grow a green lawn while protecting our lakes, rivers, and beaches?

Keep fertilizer and lawn clippings on the lawn.

Sweep or blow fertilizer and grass clippings back onto the lawn and not into the street to prevent them from getting into storm drains and ditches, which can cause algae problems. Don't dump lawn clippings into drains or ditches.

Mow high and leave the clippings. Set your mower deck high (three inches) to establish strong, healthy roots and shade out weeds. Leave clippings on your lawn to return nutrients to the soil.

Fertilize in the fall. Fall is the best time for plants to absorb nutrients and develop a strong root system.

Create fertilizer-free zones. Keep a 15-foot buffer along waterfronts in your yard by not fertilizing or just letting the grass grow. A buffer helps to keep grass clippings and fertilizer from getting into the water and causing algae problems. A buffer can also help discourage geese.

Reduce your lawn area. Making your lawn smaller by creating more planting areas with native plants will help infiltrate more water and reduce the amount getting into storm drains.

Hire a knowledgeable contractor. Check online for Michigan Green Industry Association's companies for the Healthy Lawn Care Program for Watershed Protection.

Each year, the City of Monroe Water Department releases an Annual Water Quality Report (Consumer Confidence Report). Over the years, the department has been dedicated to producing drinking water that meets all state and federal standards, and continually strives to adopt new methods for delivering the best quality drinking water to the public.

The Monroe Water Treatment Plant draws water from the western basin of Lake Erie. This Great Lake contains over 116 cubic miles of water. Two intakes gravity feed raw water to an onshore pumping station. From there it is pumped approximately eight miles to our treatment plant. The Monroe Water Treatment Plant was constructed in 1924, and had major expansions in 1948 and 1972. It provides roughly 2.8 billion gallons of clean drinking water every year.

As new challenges to drinking water safety emerge, the City of Monroe Water Department remains vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

For more information, or to view a copy of the Water Quality Report, please visit the City of Monroe web site at www.monroemi.gov, or call (734) 241-5947.



The River Raisin Legacy Project supports and enhances river-related recreation such as fishing, canoeing, small boating, kayaking and wildlife viewing through habitat restoration efforts.

Local public programming offers many outlets to recreate outdoors and engage with our natural surroundings in fun and creative ways!



City of Monroe

FISHING DERBY

Each summer the Michigan DNR provides a “Free Fishing Weekend”- no license required. The derby is held at Veteran’s Park. Prizes are awarded for the biggest fish and the most fish caught in several age groups. Crafts such as “Make a lure” and “Paint a Fish Tee” are available. This free event is handicap accessible and an adaptive fishing pole holder for wheelchairs is available upon request.

POP CAN, PVC, AND CANE POLE FISHING 101

Learn how to fish without expensive equipment, using pop cans, cane poles and homemade PVC poles. Learn about the types of local fish and easy casting techniques. Supplies will be provided. This event is handicap accessible and an adaptive fishing pole holder for wheelchairs is available upon request.



FREE GUIDED BIKE TOURS

Free bike ride on the River Raisin Heritage Trail, from St. Mary’s Park, past the River Raisin Battlefield, into Sterling State Park to Lake Erie and back. This ride is geared for those 45+ years and/or those who wish to ride at a slower pace. Stop midway for rest, water, and restroom use. The ride takes approximately 1.5 to 2 hours.



BIRDING FOR KIDS

Free outing specifically geared for kids of any age to learn to watch and listen for birds. Binoculars provided.

NATURE WALKS

Family friendly walks to see animals and birds in their natural habitat.

BIRD LIST

The City of Monroe is developing a list of birds spotted in our area. Add your avian sightings to the roster!

For more information on these and other City of Monroe recreation programs, please contact the Recreation Department:

(734) 384-9156,
recreation@monroemi.gov
www.monroemi.gov

County of Monroe

WATER TRAILS

Water trails are swiftly becoming a signature feature of outdoor recreation in southeast Michigan, helping to encourage healthy lifestyles and active living. They support recreational activities and bring greater awareness to environmental issues related to the river and its surrounding shoreline.

In 2013, Monroe County, working in cooperation with several regional partners and volunteers, was awarded a grant from Michigan's Coastal Zone Management Program (CZMP) to develop a comprehensive plan for linking water trails on the River Raisin and Lake Erie.

The River Raisin passes through some of the most scenic areas of Monroe County. From easy paddles with accessible launch sites, to rarely visited expanses of coastal wetlands, from a winding, scenic river to open waters of Lake Erie, Monroe County has unlimited opportunities for paddlers to experience the great outdoors in a wide variety of settings for every skill level.

The majority of the river is relatively calm, but paddlers should be aware of logjams in the upper reaches of the river. A series of dams in and around the City of Monroe have been altered or removed to increase fish passage and support recreational use. Paddlers may be able to use these sections when water levels are higher.

Discover more, including a map of existing water trails county-wide, at www.MichiganWaterTrails.org



EAT SAFE FISH IN MICHIGAN!

By choosing the right fish and then cleaning and cooking it the right way, you can reduce some of the chemicals in the fish by nearly half!

Call the Michigan Department of Health & Human Services to get the free Eat Safe Fish Guide that lists which fish have been tested and are safe to eat. For now, these steps will help keep you S.A.F.E.

Small fish are better.
They tend to have fewer chemicals.

Avoid large predator fish & bottom-feeders.
Always check the Eat Safe Fish Guide before eating these fish.

Fat should be removed.
Some chemicals are stored in the fat of the fish.

Eat fish that have been broiled or grilled on a rack. More fat can drip away during cooking.

Cleaning

Some chemicals, like PCBs and dioxins, collect in the fat of the fish. When cleaning the fish, trim away any of the fat you can see. Remove and throw away the organs, too. Careful cleaning can remove a lot of the chemicals from the fish.

Cooking

Even after trimming away the fat that you can see on the fish, some fat will still be hidden inside the fish filets. Poke holes in the skin or remove it completely so that fat can drip away from the fish filet as it cooks.



Need more information? Contact the MDHHS at 1.800.648.6942 or visit www.michigan.gov/eatsafefish



There are many ways YOU can help maintain the amazing natural resource that is our River Raisin! Annual River Raisin clean up days take place throughout the year in many of the communities along the Raisin's winding shores. Volunteers are always needed for this community pride project!

The City of Monroe is proud to host Clean Up Days every summer. Light, medium, and heavy duty jobs will be available for individuals, families, teams, organizations and businesses to lend a hand. Work all day or just part of the day! Lunch is also served after the clean-up!

For more information, please contact the City of Monroe Mayor's Office at 734.384.9144.



The City of Monroe collaborated with the following organizations and agencies to improve the quality of our environment in the spirit of Pure Michigan.



