

Wisconsin Great Lakes Chronicle 2012



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On the Cover

Frog Bay, Red Cliff Reservation



FOREWORD

Governor Scott Walker

Dear Friends of the Great Lakes,

My administration continues to promote economic development and jobs as a top priority. Our Great Lakes are a magnetic natural resource that gives people reason to live in, visit and do business in our state.

Wisconsin's stewardship of the Great Lakes is demonstrated by example and initiative.



Tourism. Wisconsin's \$13 billion annual tourism industry supports nearly 300,000 jobs and generates hundreds of millions of dollars in tax revenues. Beaches, water recreation and related water activities contribute \$5 billion of tourism spending alone. The Department of Tourism initiated Travel Green Wisconsin to promote smart, environmentally friendly business practices. Wisconsin will continue to market and invest in the health of our coastal resources including our growing and competitive Travel Green businesses.

Fishing. Fishing is big business in Wisconsin. With 1.4 million licenses issued annually, sport fishing generates \$2.75 billion of economic activity and

supports 30,000 jobs statewide. Approximately 70 licensed commercial fishers take annual harvests of around \$5 million wholesale. We will continue to improve fish habitats and promote sport fishing.

Marinas. The nearly 300 marinas and hundreds of boat dealerships in Wisconsin generate thousands of jobs and millions of dollars of economic activity. Designated "Clean Marinas" attract boaters who prefer businesses that protect the environment. Participating marinas benefit from cost savings from reduced hazardous waste disposal, fewer pollutant clean-ups, lower insurance rates and reduced potential for violations and fines. Minnesota is implementing and Illinois developing programs based on Wisconsin initiatives.

Beaches. Each beach visitor can bring up to \$50 per day to the local economy; therefore, a beach closure can cause thousands of dollars of lost revenue. Wisconsin communities regularly monitor and test water quality to ensure beachgoers have a healthy, enjoyable experience. The City of Racine piloted a rapid method of testing for E. coli levels in water providing same day decisions to open or close a beach. Milwaukee's Bradford Beach, Racine's North Beach and three Apostle Islands beaches on Lake Superior have attained "Blue Wave" status, the national environmental certification for beaches.

Commerce and Shipping. Great Lakes shipping connects Wisconsin and the interior United States companies to world markets. More than \$8 billion of commerce moves through Wisconsin's Great Lakes and Mississippi River ports annually. In 2012, U.S. flag dry bulk shipping on the Great Lakes increased 3.1 percent over 2011 to 9,811,289 net tons, a trend that will continue to support port related jobs in Wisconsin.

Shipbuilding. Wisconsin is home to world famous shipbuilders and dozens of smaller builders that contribute over \$1 billion of economic output and 3,500 maritime jobs. In Marinette, the U.S. Navy combat ship *USS Fort Worth* was officially accepted in June 2012 and two more Navy combat ships are set for construction. The National Science Foundation research vessel *Sikuliaq* is scheduled for January 2013 delivery. Wisconsin companies will continue to be leaders in commercial and military shipbuilding.

The Great Lakes are a cornerstone of Wisconsin's continued economic, social and educational development. Wisconsin continues to enhance the economic and natural potential of its coastal resources through local, state, federal and private organizations. This year's *Wisconsin Great Lakes Chronicle* showcases a few of the many economic success stories and future challenges the Great Lakes corridor faces.

Measures employed by
the Army Corps of
Engineers are not able to
keep Asian carp from
invading the Great Lakes.

ASIAN CARP: A CALL TO ACTION

Attorney General J.B. Van Hollen

Bordered by the beautiful waters of Lake Michigan, Lake Superior and the great Mississippi River, Wisconsin faces one of the most serious economic and environmental threats in recent years: an Asian carp invasion into Lake Michigan that would threaten ecosystems and Wisconsin industry.

The non-native Asian carp, which also are known as bighead and silver carp, consume up to 40% of their weight in food per day and compete directly with commercial and sport fish for sustenance. In some stretches of waters they inhabit, up to 97% of the biomass consists of Asian carp.

Anyone who has ever seen video of leaping silver carp also knows that fishing, boating, water skiing and other recreational pursuits become dangerous around these large fish. The carp—some of which grow to 100 pounds—literally vault through the air after being startled by motors.

An Asian carp invasion into Lake Michigan would significantly affect Wisconsin's and the region's commercial and recreational industries that depend on a healthy lake. The Great Lakes fishery is valued at \$7 billion annually. In Wisconsin, sport fishing alone in Lake Michigan and Lake Superior is estimated to generate 5,000 jobs and

\$419 million annually. This does not include the Great Lakes' considerable value to other industries or other states, and it does not account for the loss of recreational opportunities that will diminish if Asian carp invade the Great Lakes.

The U.S. Army Corps of Engineers has assured Great Lakes states that monitoring, electrical barriers, netting, application of pesticides and reduction in commercial river lock operations would keep the carp from getting too close to Lake Michigan. These measures, we were told, would protect the Great Lakes while the Corps and other federal agencies continue to “study” solutions.

However, in December 2009 a bighead carp was recovered from the canal north of Illinois' Lockport Lock, and continuing eDNA sampling indicates that Asian carp are present at multiple locations lakeward of the electric barrier system. In June 2010, a bighead carp was recovered from Lake Calumet approximately six miles from Lake Michigan. Nothing stands as a barrier between Lake Calumet and Lake Michigan.

According to the Mississippi Interstate Cooperative Resource Association (MICRA), Asian carp also are marching up the Mississippi

River. In April, the Minnesota Department of Natural Resources reported that “commercial fishermen working near Prescott, Wis., netted a 30-pound bighead carp from the St. Croix River where it flows into the Mississippi.” It was “the second time this year Asian carp have been found by commercial fishermen in Minnesota waters.”

In other words, the measures employed by the Army Corps of Engineers are not able to keep Asian Carp from invading the Great Lakes and more needs to be done if we are to avert tragedy. Before the turn of the Twentieth Century, an artificial door to the Great Lakes was created when Lake Michigan was linked with the Mississippi River system to allow Chicago to send its sewage west and south. It is time to shut this door.

On behalf of the State of Wisconsin, I filed a lawsuit with the Great Lakes States of Michigan, Minnesota, Ohio and Pennsylvania asking the federal district court in Chicago to reestablish the physical separation between the Great Lakes basin and the Mississippi River systems and order other immediate preventive and long-term solutions.

The separation we request is no pipe dream. The Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative led a project to


develop and evaluate alternatives for physically separating the Great Lakes and Mississippi River basins in the Chicago Area Waterway System to prevent the movement of Asian carp and other aquatic invasive species (AIS). In January 2012, the Commission and Initiative published its report indicating that “separation can be achieved while also maintaining or enhancing water quality, flood management and transportation.”

Meanwhile, the economic benefits of separation would be tremendous. The report states, “[s]eparation could generate significant benefits for the Chicago region and the Great Lakes and Mississippi River basins as a whole, with the potential for between \$1.4 billion to \$9.5 billion in long-term savings from avoided AIS control costs and damages alone, as well as improved water quality, strengthened flood protection and modernized shipping facilities. While the separation costs will be incurred over a limited timeframe, the benefits will be enjoyed indefinitely. The project’s technical report concludes that ‘stopping a single AIS from transferring between basins could avoid billions of dollars in economic loss.’”



If we want to save the Great Lakes, we need to move the United States government from short-term, inadequate solutions and studies to prompt and effective action. While I have joined attorneys general of other Great Lakes states to seek a judicial solution, I encourage those who share my concerns to contact their elected representatives at the federal level and let them know that we need action, not studies, if we are going to save the Great Lakes.

J.B. Van Hollen is Attorney General of the State of Wisconsin.



Shoreline Viewer educates the public on the science and risk associated with Great Lakes' coastal hazards such as bluff failure.

WISCONSIN GREAT LAKES SHORELINE ANALYSIS

Dr. David Mickelson and Jeff Stone

In the past thirty years, parts of Wisconsin's shoreline have changed dramatically. Consider how Sheboygan's waterfront has evolved from a fuel dock to a vacation resort (see photos below right). Changes such as those in Sheboygan are documented in over 10,000 oblique air photos now available for viewing.

This photo collection results from discussions of the Wisconsin Coastal Hazards Work Group including the Wisconsin Coastal Management Program (WCMP), Department of Natural Resources, Wisconsin Emergency Management, University of Wisconsin Sea Grant Institute, the University of Wisconsin-Madison and the Association of State Floodplain Managers (ASFPM). The Group wondered about the condition of our Great Lakes shorelines after two decades of relatively low lake level, and what changes had taken place since an extensive survey of shoreline conditions during high water levels of the mid-1970s.

Beginning in 2008, ASFPM and Dr. Mickelson partnered to map and evaluate changes in Wisconsin's Lake Michigan and Lake Superior shoreline between the mid-1970s and late-2000s. Funded by the WCMP, the project was conducted in three phases with the final phase completed in March 2012.

The overall goal of the shoreline evaluation centered on a qualitative analysis of shore erosion hazards and bluff stability between the two time periods. The shoreline mapping and evaluation was accomplished by using oblique aerial photos of the shoreline for both time periods along with current aerial imagery and base maps.

In 2007, ASFPM and Dr. Mickelson submitted a proposal to WCMP that included acquiring new oblique aerial imagery for the entire Wisconsin shoreline, qualitatively mapping within a Geographic Information System (GIS) the shoreline characteristics for both time periods, and developing a web-based mapping tool that allowed easy access and viewing of the photos and shoreline characteristics. Jeff Stone and his ASFPM associates spent considerable effort converting, capturing, analyzing and storing the oblique photos and all the associated GIS datasets required for the shoreline mapping effort.

In 1976, black-and-white oblique air photos of Wisconsin's Great Lakes shoreline were taken by the Department of Natural Resources as part of a major bluff erosion project. The 1970s oblique photos were scanned, converted to digital images and manually geo-located—a process used to locate the approximate location of where the photo was taken—allowing the digital image to be linked to a specific map location. Approximately 3,000 photos were processed for the 1970s time period.



In 2007 and 2008, oblique digital photos were taken of all of Wisconsin's Lake Superior and Lake Michigan shorelines. The 2007/08 photographs were geo-located automatically and the GIS datasets were generated with minimal processing. Over 7,800 photos were processed for the 2000s time period.

Next the shoreline characteristics were mapped for each time period using three classification components: beach description, backshore description and structure type. A standardized data model was developed within the GIS database to allow consistent data entry of the shoreline characteristics.

For the most part, shoreline classification work was done mile by mile, with all six classifications—three for each time period—completed for a single reach before moving down the shoreline. Shoreline characteristics were explored and/or evaluated for approximately

575 miles of shoreline for Lake Michigan, including Door County Peninsula and Green Bay, and approximately 237 miles of shoreline for Lake Superior, including Madeline Island.

Preliminary analysis of the shoreline conditions between both time periods was supported by the original funding. Among the most important results are changes in the stability of bluffs along the shore. For the counties along Lake Michigan where comparative analysis is possible, the shoreline mapped as having unstable and failing bluffs dropped from about 63 miles to 26 miles between the two time periods. On Lake Superior, the drop was from over 35 miles to about 30 miles classified as unstable and failing.

About thirty percent of the evaluated Lake Michigan shoreline had some type of shore protection in 2007/2008. This compares to about nine percent in 1976. The length of shore protected by some kind of structure increased in nearly every county. Kenosha County showed the greatest increase with Milwaukee County a close second. About nine percent of Wisconsin's Lake Superior shoreline had some type of shore protection in 2007/2008, compared to less than six percent in 1976/1978. In the near future, the project team plans to submit a proposal to perform a more comprehensive analysis of shoreline changes and why they have or have not taken place.

Finally, the last major component of the project was the development of the web-based mapping tool known as the *Shoreline Classification and Oblique Photo Viewer* (a.k.a. *Shoreline Viewer*) available at <http://floodatlas.org/wcmp/obliqueviewer/>. *Shoreline Viewer* provides the oblique photos from both time periods along with shoreline characteristics in map view.


Public access to the rich collection of historic photos and the mapped datasets was a key component for the project. Web-based mapping applications enhance the ability to communicate to the public the underlying science and risk associated with Great Lakes' coastal hazards such as bluff failure. Through the *Shoreline Viewer*, the public can see what has changed on Wisconsin's shoreline between the late 1970s and the late 2000s.

Dr. David Mickelson is an Emeritus Professor at the University of Wisconsin-Madison and owner of Geo-Professional Consultants, LLC. He may be reached at (608) 257-1825 or geoprofs@yahoo.com.

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Sheboygan waterfront, 1970s (top) and 2008.



The Wisconsin Lake Michigan Water Trail provides kayakers and boaters with information on public access, amenities and safety considerations.

WISCONSIN LAKE MICHIGAN WATER TRAIL

Angela Pierce

The Wisconsin Lake Michigan Water Trail is a 520-mile network of public access locations used by boaters along Lake Michigan. Water trails are routes along rivers and coastlines that provide recreational users—such as kayakers, sailors, recreational boaters and anglers—with information on access points, safety considerations, activities and points of interest.

Development of the Wisconsin Lake Michigan Water Trail is the result of a multiyear effort between the Wisconsin Coastal Management Program, the Wisconsin Department of Natural Resources, the Bay-Lake Regional Planning Commission and the National Park Service Rivers, Trails and Conservation Assistance Program. The public and the kayaking and boating communities provided valuable feedback throughout the process.

The Wisconsin Lake Michigan Water Trail provides kayakers and boaters with information on public access locations, amenities and safety issues, and identifies gaps where additional public access is needed. The project area covers the entire western Lake Michigan shoreline from the Michigan-Wisconsin border at Marinette to the Illinois-Wisconsin border at Pleasant Prairie. With nearly two million residents and over one-third of Wisconsin's population living within a thirty-minute drive of the Lake Michigan shoreline, this trail has positive impacts for public recreation, public health, environmental stewardship, economic development and tourism.

The development of the Lake Michigan Water Trail was primarily oriented around increasing and improving public access to the shoreline and waters of Lake Michigan. This collaborative project involved acquiring Global Positioning System (GPS) location coordinates, inventorying available amenities and photo-documenting each access location along the lakeshore. Some of the data collected at each site includes access type, fees and the availability of parking, electricity, camping, shelter and restrooms.

Over 360 sites in eleven Wisconsin counties were evaluated for potential non-motorized water access that could be branded as the Lake Michigan Water Trail. After review by project partners, kayaking and boating partners and the public during open houses and a public comment period, 191 water trail points were selected to provide a good distribution of sites that provide safe and easy access and good amenities.

Sites were categorized by access types—carry-in access, developed access, alternate access or emergency access—based on the method by which the water can be accessed, the ease of accessing the water and the level of potential user conflict at the site.

Carry-in access is a public site with accessible shoreline that provides easy kayak access to the water and has little user conflict from adjacent landowners. **Developed access** is a public site that provides water access via a public boat ramp or dock.

Alternate access is a non-ideal carry-in access site that may be only a road that ends at the water. Alternate access sites may have a steep slope to the water, require wading or paddling through marsh or present some potential for user conflict from adjacent landowners.

Emergency access is a site to be accessed during extreme situations when the need to get off the water is immediate. Emergency access sites are not recommended for non-emergency use because the sites are primarily road ends where the potential for user conflict is high, little to no parking is available or an agreement has been made with the site owner to allow emergency-only egress.

Public access gaps where further access or improvements are needed were evaluated for future targeted efforts to improve the connectivity

of the water trail network by increasing public land holdings along the shoreline. The gaps in access were identified along stretches where a distance from one access point to another is greater than five miles, or where camping sites are more than ten miles apart.

These gap areas created “enhancement zones” along the water trail where future efforts will be aimed at closing the gaps and improving site amenities. Enhancement zones along the Lake Michigan Water Trail are eligible for Stewardship grants and communities are encouraged to work with the Department of Natural Resources to improve or expand access along the Trail.

On April 25, 2012, the Wisconsin Lake Michigan Water Trail was recognized by the Natural Resources Board as an official state trail. The Lake

Michigan Trail is the second longest trail in Wisconsin after only the Ice Age National Scenic Trail. With overwhelming Board, agency and public support, the Wisconsin Lake Michigan Water Trail became the first official State water trail designated by the Natural Resources Board.

Future efforts planned for the Wisconsin Lake Michigan Water Trail include development of a branding strategy and marketing materials, signage, a website where GPS coordinates can be downloaded, integration with the Wisconsin Coastal Atlas and mobile applications. Future efforts will focus on achieving designation as a National Recreation Trail. This designation would add Wisconsin to the Lake Michigan Water Trail National Recreation Trail that will eventually circle Lake Michigan in all four states. Such recognition will require letters of support from each community along the water trail.

A final report for the Wisconsin Lake Michigan Water Trail can be downloaded at <http://www.baylakerpc.org/natural-resources/lake-michigan-water-trail-planning>.

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Wisconsin Coastal
Management Program
has helped Superior
residents and visitors
enjoy the coast through
public access grants.

SUPERIOR'S SHORES: NATURE, HISTORY AND RECREATION

Mary Morgan

The City of Superior is situated at the western tip of great and majestic Lake Superior. Nestled between the St. Louis River—the largest United States tributary flowing into the Great Lakes—and Superior Bay, the community enjoys ninety-six miles of coastal shoreline.

Superior's 27,213 residents are deeply connected to Lake Superior and surrounding waters—economically, recreationally, environmentally and psychologically—as a matter of identity. They naturally want to spend both private and public moments near the water. The Wisconsin Coastal Management Program (WCMP) has made it possible for locals and visitors to comfortably enjoy the coast with public access grant projects.

Billings Park, located on the shore of the St. Louis River in the west end of the City, is the community's largest formal park. The twenty-seven-acre park was donated to the City by Mr. Frederick Billings of Woodstock, Vermont in 1890 and has been a favorite of residents and visitors for over 120 years.

The park features picnic areas, play equipment, two pavilions, numerous gardens—including a Japanese style garden—and a series of trails that wind through the park's uplands that overlook the river and hills of Minnesota. The shore provides a boat launch, trail system and several small islands that create areas of interest for park users.

WCMP funds assisted in establishing the boat launch and trail system and strengthening the shoreline surrounding the main upland in the park. Graduation parties, corporate picnics and family gatherings take place at this popular venue which draws up to 100 reservations each season.

Located nearby, the **Arrowhead Fishing Pier** is a remnant of a former 1920s-era bridge that led motorists between Wisconsin and Minnesota. The structure was slowly dismantled by the City as it deteriorated due to age and winter ice flow damage from the St. Louis River. In 2010, a WCMP grant rescued the facility by transforming it into a high quality recreational complex whose features were selected by Superior citizens.

A planning grant was secured to undertake a public process in which citizens voted on the configuration of the new facility, the construction materials used and the amenities now available at the pier. WCMP funds complemented other investments to build the complex which features a 200-foot fishing pier, boat launch, restroom and attractive picnic pavilion. This successful project drew donations from four separate St. Louis River user groups.

Barker's Island, located along the waterfront corridor, is a man-made jewel formed by the dredging of Superior Bay in the late 1800s by Captain Charles Barker. The island supports mixed use facilities including a municipally-owned

420-slip marina, public boat launch, hotel, residential neighborhood, the *S.S. Meteor Museum*, Barker's Island Festival Park and the Lake Superior National Estuarine Research Reserve.

Festival Park is scheduled for twenty-five events during the summer of 2012 including the Lake Superior Dragon Boat Festival, Superior's signature summer event. Eleven brides will say "I do" under the Park's pavilion on the shore of Superior Bay. For two decades, WCMP funds have been used to improve access to Lake Superior beginning with the boat launch on Barker's Island and the popular Osaugie Trail along Superior's waterfront.

The **Osaugie Trail** offers multi-use access and connects to the Tri-County Recreational Corridor leading sixty-two miles to Ashland. Named after Chief Osaugie of the Anishinabe Band, the trail spans five miles from Barker's Island to Bear Creek Park. Chief Osaugie was a leader in the Superior area circa 1800 and was reputed to be an excellent provider and expert hunter and trapper. He was described as friendly and intelligent and many of his ancestors remain Superior residents.

The trail is unique in that users can routinely see wildlife as well as the Great Lakes' largest working port as they travel the route. Two museums, Fairlawn and the Richard I. Bong Veterans Historical Center, grace the waterfront corridor near the trail. Fairlawn consists of a forty-two-



room mansion built in the popular Queen Anne Victorian style architecture of 1891 and the Veterans Center exhibits a World War II P-38 Lightning fighter aircraft.


Finally, WCMP dollars provided the City's first outdoor classroom and interpretive trail located in the **Superior Municipal Forest**. With 4,428 acres of woodlands and wetlands located in the southwest corner of the City along the St. Louis River, the Superior Municipal Forest is the third largest municipally-owned forest in the nation.

Forest pursuits include hiking, biking, hunting, fishing, boating, skiing and ecology. The Outdoor Classroom is positioned under a towering white pine and offers seating for sixty students. It is located on the popular Millennium Trail with

six interpretive pedestals displaying coastal resource and stewardship messages. Most of the pedestals present original local art or photos. Teachers use the site for environmental education and nature appreciation.

Whether enjoying the St. Louis River, Superior Bay or Lake Superior, residents and visitors stand in awe of the magnificent waters of Superior. Public access has never been more available or more enjoyable than it is today. The City of Superior continues to benefit from its partnership with the Wisconsin Coastal Management Program.

Mary Morgan is the Administrator of the City of Superior Department of Parks and Recreation. She may be reached at (715) 395-7270 or parks@ci.superior.wi.us.



Diverse neighborhoods
and exciting downtowns
extend the urban
waterfront beyond the
water's edge.

REDEVELOPING THE LOWER FOX RIVER AND GREEN BAY WATERFRONT

Aaron Schuette

Harbors have historically been the starting point for exploration of the land that lies beyond the shoreline. Forts were developed to protect these strategic locations that subsequently became ports and centers of commerce.

The Green Bay-area waterfront fostered growth of the lumber and the paper industries. These businesses benefited from Wisconsin's nearby vast woodlands and the low flat banks of the Fox River that enabled the horizontal placement of industrial machinery. The waterfront also became the focal point of activity in the region as downtown commercial areas developed in the cities of Green Bay and De Pere.

These areas were important not only economically and socially, but also as centers for ideas and information. They became the hubs of local government, civil society and commercial business. By the 1840s, a lock and canal system was developed along the Fox River to expand water-born traffic to inland Wisconsin communities.

Green Bay has enjoyed its status as a Great Lakes port and an international seaport following completion of the St. Lawrence Seaway in 1959. However, an unfortunate side effect of the rapid industrialization of the Fox River was a legacy of pollution in the river and disinvestment on its shores.

That legacy is changing. With the advent of the Clean Water Act, environmental awareness and improved public understanding of the connections between land use and impacts on the river, the Fox River and Green Bay shoreline today is a dynamic, diverse area.

The remediation of river sediments contaminated with polychlorinated biphenyls (PCBs) is underway throughout the river corridor. The impact of this work is promising. Voyageur Park in De Pere has been transformed from a landfill and bulk storage site for coal and salt to a destination that now hosts thousands of early spring anglers from its shores and boats launched from nearby docks during the annual walleye run.

Leicht Park and The CityDeck in downtown Green Bay are becoming focal points for festivals and concerts with the Fox River as their backdrop. Multiple port operators take advantage of the economies of scale associated with waterborne shipping of bulk commodities through the Port of Green Bay by Great Lakes ore carriers and saltwater freighters. Ashwaubenon has reactivated its waterfront through redevelopment of a former brownfield site north of the STH 172 bridge.

Through the Fox River Navigational Authority, plans are underway to reconnect the upper and lower parts of the Fox River to recreational boating. The Fox-Wisconsin Heritage Parkway is being developed to promote the unique history of the rivers and communities along them.

The Lower Fox River and Green Bay Shoreline Waterfront Redevelopment Plan was developed to build on this momentum. The plan creates communication and coordination among the multiple stakeholders within the study area and provides specific recommendations throughout the corridor to balance economic development, environmental restoration and cultural opportunities.

The plan identifies twelve unique opportunity areas with similar land uses within the overall study area to create more manageable, localized recommendations. Within each opportunity area, the existing land uses, current assessed valuations and waterfront public access sites were inventoried and analyzed.

The plan identifies specific opportunity area recommendations that would enable multi-modal connections to and from the river and bay shore

to other nearby attractions such as the East River Trail, Lambeau Field and Bay Beach Amusement Park. The goal is creation of a waterfront district with consistent streetscaping and wayfinding.

Additionally, the plan identifies existing underutilized waterfront locations that could be potentially redeveloped with uses that are dependent on waterfront locations. The plan contemplates additional port operations, public waterfront access, water-related businesses or natural shoreline restoration efforts.

For the plan to succeed, the waterfront needs to have a well-balanced 24/7 activity base. When considering the Fox River and Green Bay shorelines, this means an appropriate mixture of port, commercial, recreational, residential and institutional uses that each contribute to the overall activity level along the shoreline that spills

over to adjacent areas. In order for this to happen, the waterfront needs to be woven into adjacent neighborhoods and nearby attractions.

A community should celebrate what makes its waterfront district unique. In the case of the Fox River and Green Bay shoreline, distinctive features include its rich history, multiple recreational uses, business opportunities and connections to the larger community. As is the case in all successful waterfront communities, daily activities associated with diverse neighborhoods and exciting downtowns extend the urban waterfront beyond the water's edge.

The recommendations contained within the plan are intended to start a conversation among Brown County's residents, municipalities, agencies and private-sector partners about how the Fox River and Green Bay shorelines can enhance our quality of life. As local planning and development continues, it is hoped that this effort will produce a higher level of communication and coordination among various interests to create a unified waterfront district. Therefore, the completion of this plan is not an end to the waterfront planning process in Brown County, but rather a beginning.

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The Menomonee Valley
is connecting people
to jobs, environmental
education, restored
natural resources and
recreational opportunities.

MILWAUKEE'S MENOMONEE VALLEY

Laura Bray

Four miles long and a half-mile wide, the Menomonee River Valley extends from the confluence of the Menomonee and Milwaukee Rivers to Miller Park Stadium. For hundreds of years, the 1,200-acre Menomonee Valley was a wild rice marsh and home to Native Americans who gathered for fishing, hunting and the rice harvest.

As Milwaukee developed, the Menomonee River was channelized, its banks armored and its marshes filled with contaminated material to make new land for industry. When Milwaukee became known as the “Machine Shop of the World,” the Menomonee Valley was its engine. The Valley has long been the state’s center of industry and home to thousands of jobs.

Characteristic of many industrial cities, Milwaukee’s economic conditions changed in recent years and many manufacturing companies moved or closed their doors. By the latter half of the Twentieth Century, the Valley had become Wisconsin’s most visible eyesore with hundreds of acres of abandoned, contaminated land and a forgotten, polluted river.

In the late 1990s, the City of Milwaukee, the Milwaukee Metropolitan Sewerage District (MMSD), the State of Wisconsin and Valley businesses came together to develop a plan for the Menomonee Valley. One of the plan’s recommendations was the creation of a public-private partnership—Menomonee Valley Partners—to facilitate this effort. Since 1999,

a wide array of stakeholders has been working together to revitalize the Menomonee Valley for the benefit of the entire Milwaukee region.

In the past decade, thirty-three companies have moved to or expanded in the Valley resulting in the creation of 4,700 jobs. In addition, fourteen miles of the Hank Aaron State Trail and a nationally recognized shared stormwater treatment system have been developed, and forty-five acres of native plants have been established. More than ten million people visit the Valley’s recreation and entertainment destinations each year.

Today, the Valley is a national model of economic and environmental sustainability. Recognized by the Sierra Club as “One of the 10 Best Developments in the Nation,” the Menomonee Valley continues to receive local and national accolades.

During the last decade, the Wisconsin Coastal Management Program has been engaged in nearly a dozen projects that have led to the Menomonee River Valley’s reemergence, including:

- **Sustainable Design Guidelines for the Menomonee Valley**, a project to ensure that redevelopment efforts in the Valley are environmentally sustainable.
- **Stormwater Park**, an infrastructure project that treats stormwater from seventy acres of redevelopment and creates recreational open space that serves as a public amenity.



- **Menomonee Valley Cultural Resources**, a project which led to the creation of twelve interpretive signs throughout the Menomonee Valley that explain the unique history of the area from Native Americans to railcars, and immigrant neighborhood life to native plants.
- **Airline Yards Design Development**, a design for developing a twenty-four-acre park with 2,600 feet of river frontage in a 140-acre former rail yard.

The next phase of the Valley's revitalization—**Menomonee Valley From the Ground Up**—builds upon the area's success to date. From the Ground Up will provide a comprehensive approach to environmental, community and economic development which, when completed, will reach tens of thousands of residents in the region. This phase includes three main projects.

- **Converting a rail yard into a 24-acre park.** Menomonee Valley Partners is working to turn a narrow parcel with a half-mile of river frontage into an ecologically diverse park that will become part of the Hank Aaron State Trail. The plan includes the restoration of several habitat zones native to southeast Wisconsin, stabilization of an eroding riverbank and creation of new public access to the Menomonee River. Neighbors, school groups and other volunteers will be engaged in building the park, planting trees and actively building an amenity in the heart of Milwaukee.




- **Building new bike and pedestrian infrastructure.** This project will weave the Valley back into the fabric of the City through six new miles of the Hank Aaron State Trail and three bike/pedestrian bridges that reconnect city neighborhoods to the Valley. When completed in Spring 2013, the Hank Aaron State Trail will be a fourteen-mile system stretching from Lake Michigan to Waukesha County that offers walk-to-work opportunities and connections to some of the largest tourist attractions in the region including the Lakefront, Milwaukee County Zoo and Summerfest.
- **Opening a Menomonee Valley branch of the Urban Ecology Center.** A third branch of the Urban Ecology Center will be established to serve the Valley and its nearby neighborhoods. Through its Neighborhood Environmental Education

Program, the Center provides K-12 schools with programs to strengthen their science curriculum using hands-on outdoor learning experiences. The curriculum is developed with participating schools and aligned with local and federal science, literacy and math standards. In addition, the Center offers after-school, weekend and summer programs for youth, families and adults.

Through the efforts of many, many partnerships, the Menomonee Valley is connecting people to jobs, environmental education, restored natural resources and new recreational opportunities. The revitalized Menomonee Valley will be a place to work, play and learn for generations to come.

Laura Bray is the Executive Director of Menomonee Valley Partners, Inc. She may be reached at (414) 274-4654 or laura@renewthevalley.org.



The NOAA Coastal Fellowship Program develops tomorrow's coastal managers and provides project assistance to state coastal management programs.

A COASTAL FELLOW'S WISCONSIN ADVENTURE

Kathy Johnson

If anyone said ten years ago I would someday live in Wisconsin, I would not have believed it. However, that is exactly what happened after I became a Coastal Management Fellow in 2010.

Growing up as a young child along Winyah Bay in South Carolina, I developed a passion for the coastal environment. Some of my most enjoyable moments were spent along the beach or in a boat exploring the many marshes and waterways in Georgetown County. These experiences and my formal education in Environmental Planning led to me to apply for a NOAA Coastal Management Fellowship.

The Coastal Management Fellowship Program began in 1996 and is sponsored by the National Oceanic and Atmospheric Administration (NOAA) in conjunction with the coastal states. The program has two main objectives. First, the program offers coastal resource management and policy experience to postgraduate students seeking careers in coastal management. Second, the program provides project assistance to state coastal management programs.

States interested in hosting a Fellow for two years submit potential projects to the NOAA Coastal Services Center. Students in turn apply through their own state's Sea Grant Program and go through a competitive process to be nominated as a fellowship finalist. Twelve finalists are invited to a matching workshop hosted by the NOAA Coastal Services Center in Charleston. Ultimately, six Fellows are selected and placed in each of the host states.

As the first NOAA Fellow assigned to Wisconsin, I have been able to learn first-hand about coastal policy and proper management to ensure protection of the Great Lakes. My fellowship project involves assisting the University of Wisconsin Sea Grant Institute in the construction of the Wisconsin Coastal Atlas (<http://www.wicoastalatlant.net>). In addition, I recommended and developed spatial decision support tools which will be used to aid planners and coastal managers in implementing local comprehensive and hazard mitigation plans.

My fellowship in Wisconsin has provided many memorable and interesting experiences that have developed my career as a coastal manager. (Note: My first impression of Wisconsin was not of Lakes Michigan or Superior, but of how pretty and green the cornfields are!)

For example, I participated in a tour of St. Louis Bay on the research vessel *L.L. Smith, Jr.* where I learned about a corrosion problem that has caused deterioration of steel pilings in the Duluth-Superior Harbor. In Cornucopia, I observed a different coastal hazard: erosion along the coastline which has resulted in bluff failure in locations along Lake Superior. Although different from the hurricanes to which I am accustomed, exposure to these hazards is nonetheless a real threat to life and property in the Great Lakes region. To address the erosion threat, the Wisconsin Coastal Management Program (WCMP) has helped finance a project by Bayfield County to develop safer setbacks for new construction.

In the lovely City of Bayfield along Lake Superior and Washington Island and Door County on Lake Michigan, I examined locations where Coastal Zone Management Act (CZMA) funds have been used to implement public access projects along the coasts. I soon realized the major impact CZMA and WCMP have in preserving and protecting Wisconsin's Great Lakes.

Although living in the Low Country of South Carolina had given me significant exposure to wetlands, I had no idea that Wisconsin also has vast areas of wetlands. I have studied wetlands throughout Wisconsin's coastal zone and come to

a greater appreciation of their importance. However, I am not alone in appreciating Wisconsin's wetlands.

At a recent Wisconsin wetlands conference, the Ramsar Convention on Wetlands honored the Bad River Band of Lake Superior Chippewa Tribe with the treasured Wetland of International Importance award. In addition, the Wisconsin Wetlands Association received a Wetland Conservation Award from the Ramsar Convention.

I was pleased to celebrate such high honors and found myself taking pride in my new state for leading the nation in wetlands protection. That

feeling of pride grew when I joined a group touring wetland sites in Wisconsin and Illinois that hopefully will become part of the proposed Hackmatack National Wildlife Refuge.

Moving to Wisconsin has necessitated a major adjustment to the climate. Upon recommendation of a former colleague, I decided to try to "embrace" the cold weather. Early in 2011, I walked on Madison's frozen Lake Monona with colleagues from my office! I have enjoyed snowshoeing and tubing, but my favorite winter activity was a trip to Cable, Wisconsin where my son joined me for our first ever snowmobile trip. It was less than ten degrees and sooooo cold, but we had an awesome adventure!

I consider myself very fortunate to have been selected as a NOAA Fellow to study and contribute to the nation's critical Great Lakes system. I am perhaps even more fortunate to have served as a Fellow in Wisconsin where folks made me feel welcome and even seemed to appreciate my Southern accent.

I can truly say that Wisconsin has become my second home state and the Great Lakes are my second coast. For my friends down South, don't worry, I still say *y'all*.

Kathy Johnson, employed by The Baldwin Group, is the NOAA Coastal Management Fellow with the Wisconsin Coastal Management Program and the University of Wisconsin Sea Grant Institute. She may be reached at kathy.johnson@wisconsin.gov.



2012 WISCONSIN COASTAL MANAGEMENT PROGRAM GRANTS

Project Name

Grantee

WCMP Award

Project Description

Contact

Coastwide

Coastal Conservation and Resource Efficiency Program

Wisconsin Rural Water Association
\$51,310

Assist small regulated utilities identify efficiencies and conduct leak detection surveys to prevent loss.

Mr. David Lawrence, (715) 344-7778

Phosphorus and Nonpoint Pollution on Lake Michigan

Clean Wisconsin
\$35,000

Build stakeholder groups in Green Bay and Racine to implement the adaptive management option of Wisconsin's new phosphorus rule.

Mr. Mark Redsten, (608) 251-7020

Grosbeaks Galore Migratory Bird Habitat

Natural Resources Foundation of Wisconsin
\$33,336

Increase awareness of migratory bird issues among landowners, land managers and others in Lake Michigan coastal counties.

Ms. Barb Barzen, (608) 261-4381

Wisconsin Harbor Towns Travel Guide

Wisconsin Harbor Towns Association
\$25,600

Develop, print and distribute the new *Wisconsin Harbor Towns Travel Guide*.

Ms. Kathy Tank, (800) 719-4881

Private Wetland Restoration and Management

Wisconsin Wetlands Association
\$25,320

Assess programs and resources to support landowners interested in wetland protection and management.

Ms. Katie Beilfuss, (608) 250-9971

Coastal Cities Trail Connectivity

Bay-Lake Regional Planning Commission
\$25,000

Develop a comprehensive GIS database inventory of all trails within coastal cities along Lake Michigan.

Ms. Angela Pierce, (920) 448-2820

Volunteer Monitoring for Modeling Beach Data

Alliance for the Great Lakes
\$20,038

Test the feasibility of using trained Adopt-a-Beach volunteers to operate predictive beach models in lieu of local health department personnel.

Ms. Jamie Cross, (773) 486-9059

Lake Superior Estuaries Inventory

Department of Natural Resources
\$20,000

Complete the Lake Superior Estuary Inventory Plan and publish a summary of all 35 Lake Superior estuaries.

Ms. Rebecca Schroeder, (608) 266-5244



Lake Superior Water Trail

Northwest Regional Planning Commission
\$16,500

Develop a recreational companion guide to the Lake Superior Water Trail.

Mr. Jason Laumann, (715) 635-2197

Technical Assistance

Bay-Lake Regional Planning Commission
\$20,000

Support coastal management activities and technical assistance to local governments in the Bay-Lake region.

Ms. Angela Pierce, (920) 448-2820

Technical Assistance

Northwest Regional Planning Commission
\$20,000

Support coastal management activities and technical assistance to local governments in the Northwest region.

Mr. Jason Laumann, (715) 635-2197

Technical Assistance

Southeastern Wisconsin Regional Planning Commission
\$20,000

Support coastal management activities and technical assistance to local governments in the Southeast region.

Dr. Don Reed, (262) 547-6721

Coastal Wetland Inventory

Department of Natural Resources
\$87,039

Update data for the Wisconsin Wetland Inventory for Kenosha, Milwaukee, Ozaukee and Racine Counties.

Ms. Lois Simon, (608) 266-8852

Coastal Technical Assistance to Local Governments

Department of Natural Resources
\$330,239

Support core waterway and wetland permitting staff and local government technical assistance in the three coastal regions.

Ms. Lois Simon, (608) 266-8852

Ashland County

Griggs Approach Pier and Concrete Apron

Town of LaPointe

\$53,505

Repair and enhance the existing concrete approach ramp and improve access for recreation, boating and fishing on Lake Superior.

Mr. Keith Sowl, (715) 747-6855

Ashland County Invasive Species Prevention and Containment

Ashland County Land and Water Conservation Department

\$27,500

Build Ashland County's capacity to implement and enhance an invasive species education and prevention program.

Mr. Tom Fratt, (715) 682-7187

Bayfield County

Kayak Safety in Apostle Islands Sea Caves

University of Wisconsin-Madison

\$29,965

Implement Phase III of the Real Time Wave Observation System project at Meyers Beach to alert kayakers to dangerous conditions.

Dr. Chin H. Wu, (608) 263-3078

Pikes Bay Beach Public Access

Town of Bayfield

\$26,703

Improve public access to Pikes Bay Beach through trail and boardwalk construction.

Mr. Tom Gordon, (715) 779-5671

Houghton Falls Nature Preserve Trails

Town of Bayview

\$5,957

Improve public access at Houghton Falls Nature Preserve through the construction of boardwalks and informational signage.

Mr. Al House, (715) 292-5117



Brown County

Port of Green Bay Opportunity Study

Brown County Planning Commission
\$29,949

Update and expand the 2005 Port Opportunity Study and develop a prioritized list of properties for potential Port of Green Bay acquisitions.

Mr. Aaron Schuette, (920) 448-6486

Watershed Education

University of Wisconsin-Green Bay
\$19,896

Build watershed and water quality awareness about the Lower Fox River by educating teachers and engaging students in water quality monitoring.

Ms. Annette Pelegrin, (920) 465-5031

Door County

West Waterfront Walkway Extension and Sawyer Park Improvements

City of Sturgeon Bay
\$99,650

Construct a 1,100-foot waterfront walkway under the Oregon Street Bridge through Sawyer Park.

Mr. Marty Olejniczak, (920) 746-6908

Mink River Estuary Groundwater Flow Model

University of Wisconsin-Extension
\$47,511

Design, construct and calibrate a numerical groundwater flow model for the Mink River estuary and surrounding aquifers in Door County.

Ms. Suzanne Samuelsen, (608) 265-5917

Detroit Harbor Waterfront Master Plan

Town of Washington Island
\$30,000

Develop a harbor waterfront master plan for the Detroit Harbor area on Washington Island.

Mr. Joel Gunnlaugsson, (920) 847-2522

Horseshoe Bay Cave Hibernaculum

Department of Natural Resources
\$27,247

Develop a cave inventory and management plan that addresses the prevention of White-nose Syndrome in resident bats.

Ms. Jennifer Schehr, (608) 267-0281

Peninsula State Park Water Use Audit

Department of Natural Resources
\$20,245

Conduct a pilot water use audit and retrofit to reduce water use at Peninsula State Park in Door County.

Ms. Shaili Pfeiffer, (608) 267-7630

Douglas County

Aquatic Invasive Species Awareness Project

City of Superior
\$5,000

Design and install aquatic invasive species signage at three boat launches in the City of Superior.

Ms. Diane R. Thompson, (715) 394-0392

Iron County

Saxon Harbor Pavilion

Iron County
\$81,680

Construct a new pavilion, restrooms and showers at Saxon Harbor.

Mr. Mike Saari, (715) 561-3375

Kewaunee County

Crescent Beach Management of Non-Point Pollutants

City of Algoma
\$48,074

Identify upstream nonpoint pollution sources in the Ahnapee River that may contribute to poor water quality at Crescent Beach.

Mr. Tom Reynolds, (920) 487-5203



Manitowoc County

Harbor Park Sea Wall Replacement and Park Improvements

City of Two Rivers

\$53,690

Develop a plan and design to address a failing sea wall and future development of the harbor at the Twin Rivers and Lake Michigan.

Mr. James McDonald, (920) 793-5540

Milwaukee County

City of Milwaukee Green Streets:

From Pilot Projects to Policy

City of Milwaukee Office of Environmental Sustainability

\$60,000

Establish a policy for green infrastructure to reduce flooding hazards and non-point source pollution in the City of Milwaukee.

Mr. Erick Shambarger, (414) 286-8556

Downtown Milwaukee Lakefront

Gateway Analysis

City of Milwaukee

\$36,000

Develop a redesign and alternatives analysis for the intersection at Michigan Street and Lincoln Memorial Drive on Milwaukee's lakefront.

Mr. Robert Harris, (414) 286-5654

Green Street Development for a Healthy Community

Sixteenth Street Community Health Center

\$35,125

Develop a Green Street concept plan to address urban storm water management needs along the Kinnickinnic River.

Mr. Ben Gramling, (414) 385-3577

Milwaukee Estuary Wetland Restoration Plan: Grand Trunk Site

City of Milwaukee Redevelopment Authority

\$30,000

Develop a project plan to restore 6.5 acres of wetlands and a small creek on the edge of the Port of Milwaukee.

Mr. Michael Maierle, (414) 286-5720

Rotary Centennial Arboretum Curriculum Development

Urban Ecology Center

\$15,000

Develop and pilot curriculum utilizing the Neighborhood Environmental Education Project framework.

Ms. Demetria Dunn, (414) 964-8505

Ozaukee County

Boardwalk Construction and Native Landscape Restoration

City of Port Washington

\$40,000

Construct an elevated boardwalk over a restored coal storage dock.

Mr. Rob Vanden Noven, (262) 268-4267

Racine County

Root River Public Access Planning

Root River Council

\$29,355

Develop design recommendations for a dedicated riverfront path in downtown Racine.

Mr. Monte Osterman, (262) 308-2766

Pike River Watershed Plan

Root-Pike Watershed Initiative Network

\$20,000

Develop a watershed restoration plan for the direct drainage area of the Pike River basin.

Ms. Susan Greenfield, (262) 898-2055

Sheboygan County

Wetland Restoration Monitoring in Sheboygan and Ozaukee Counties

Department of Natural Resources

\$29,220

Update wetland restoration inventories and merge with the Department's restoration tracking program.

Ms. Melissa Sparrow-Lien, (920) 892-8756



ACKNOWLEDGMENTS

The Wisconsin Coastal Management Program was established in the Department of Administration (DOA) in 1978 under the Federal Coastal Zone Management Act. The program and its partners work to achieve balance between natural resource preservation and economic development along Wisconsin's Great Lakes coasts. The program thanks its principal federal partner, the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, for the technical and financial support it provides on behalf of Wisconsin's coastal communities.

Wisconsin Coastal Management Program

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 WISCONSIN COASTAL
MANAGEMENT PROGRAM





The Coastal Zone Management Act (CZMA) was established by Congress on October 27, 1972. During the past forty years, the NOAA Office of Ocean and Coastal Resource Management and thirty-five coastal states have invested more than \$1 billion of federal funds to preserve, protect, develop, enhance and restore America's coasts. The Wisconsin Coastal Management Program congratulates its federal and state partners on this achievement.

