

Wisconsin Great Lakes Chronicle  
2017





# CONTENTS

Foreword . . . . .1  
*Governor Scott Walker*

Saxon Harbor Recovery  
and Redevelopment . . . . .2  
*Jason Laumann*

Milwaukee's Harbor District . . . . .4  
*Lilith Fowler*

Two Rivers: Turning Our Face  
Back to the Water . . . . . 6  
*Greg Buckley*

Wisconsin Harbor Towns  
Association . . . . .8  
*Kathy Tank*

Follow the Drop:  
A Watershed Odyssey . . . . .10  
*Bill Moren and David Libert*

J. Philip Keillor Fellowship . . . . .12  
*Adam Bechle*

Kids on the Coast:  
The Rivers2Lake  
Education Program . . . . .14  
*Deanna Erickson*

2017 Wisconsin Coastal  
Management Program Grants . . . .16

Acknowledgements . . . . .20

## On the Cover

Kohler-Andrae State Park



# FOREWORD

*Governor Scott Walker*

Dear Friends of the Great Lakes,

With federal, regional and local partners, the Wisconsin Coastal Management Program (WCMP) supports community planning, port and economic development, public access, water quality, hazard mitigation and other projects along our Lake Michigan and Lake Superior coasts. The demonstrated success of these partnerships has produced 39 years of significant benefits for our state, the Great Lakes region and the nation.



In summer 2016, WCMP was a member of a state agency team that responded to historic flooding in the Lake Superior basin. WCMP connected with local partners to assess needs and find resources to address damage in the lakeshore area. WCMP assistance included funding to Iron County to develop a plan for rebuilding Saxon Harbor, a safe harbor that was destroyed by last year's storms.

Additionally, the program has secured funding for key remote sensing data (LiDAR), a critical disaster planning tool. WCMP continues work with affected communities to develop plans to mitigate potential future flooding events.

The City of Superior received nearly \$1.5 million of WCMP funding for ecological restoration and public access improvements at Wisconsin Point. This project began with a small WCMP grant to develop a management plan. The restoration of Wisconsin Point will both preserve land that has long held great cultural importance to Native American communities, and support the local economy by providing access to residents and visitors for recreation.

Two Rivers used WCMP funding to support projects on the city's waterfront. The projects will improve and maintain infrastructure, enhance and expand boating access, and plan for the redevelopment of a former manufacturing property. WCMP support will position the city to strategically redevelop coastal resources in a manner consistent with its local vision.

Recently funded by NOAA, a project designed for "Improving Economic Security in Coastal Wisconsin" will be a collaborative effort led by WCMP with the University of Wisconsin Sea Grant Institute, the UW Madison Civil and Environmental Engineering Department and the Southeast Wisconsin Regional Planning Commission. This project proposes to reduce damages caused by coastal hazards, such as erosion, coastal storms and fluctuating water levels. Guidance will be developed regarding protecting bluff, beach and harbor ecosystems as well as the coastal economy. Four coastal counties, 22 municipalities and various state and local organizations will participate in the effort by exploring future opportunities through scenario development and improved risk communication.

Wisconsin is blessed to have Lake Michigan and Lake Superior as our gateway to the world. Stewardship and strong partnerships will ensure we can preserve and protect Wisconsin's coastal resources for the benefit of the entire nation.



An historic storm in 2016 changed the way people in the north perceive vulnerability and risk to natural disasters.

## SAXON HARBOR RECOVERY AND REDEVELOPMENT

*Jason Laumann*

July 11 and 12, 2016 brought multiple rounds of intense thunderstorms to northwestern Wisconsin. Historic rainfall caused destructive flash flooding resulting in three fatalities and millions of dollars in damage to roads, bridges and infrastructure. The storms intensified as they moved eastward across the region and reached a crescendo over northern Iron County where upwards of fourteen inches of rainfall turned normally tranquil Lake Superior tributaries into raging torrents.

The full fury of the storm struck Saxon Harbor at 7:45 p.m., first with downburst high winds, and then with torrential rainfall. The engorged waters of Oronto Creek washed away a campground and marina, destroyed dozens of boats, swept away vehicles and RV's and turned the nearshore waters of Lake Superior into a debris-laden, turbid slurry.

As the skies cleared and the floodwaters began to recede, it became clear that Saxon Harbor had been erased from the landscape like a sandcastle in the tide. Tragically, the storm also claimed the life of Mitch Koski—firefighter and former mayor of Montreal, Wisconsin—who had been responding to a call for help from Saxon Harbor when his vehicle was swept away in Oronto Creek floodwaters.

This historic storm changed not only the local landscape, but the way we in the north perceive our vulnerability and risk to natural disasters. It exposed weaknesses in our infrastructure and raised debate about whether these types of storms are going to become more frequent, disruptive and deadly.

The loss of Saxon Harbor also stunned this rural northern county of less than 6,000. The harbor is critically important to Iron County's tourism-based economy and also serves as an important safe harbor for boaters along the south shore.

In the wake of the disaster, recovery efforts began quickly.

In order to qualify for federal disaster assistance, total damage needed to exceed \$8 million. The Federal Emergency Management Agency (FEMA) determined the final loss estimates for the region totaled \$26.2 million, while losses for Iron County totaled \$14.6 million with over \$7.2 million at the Saxon Harbor Marina and Campground alone.

A Presidential Disaster Declaration issued in August 2016 included the seven counties most significantly impacted by the flood. The declaration paved the way for federal aid for recovery and rebuilding. State agencies provided additional support with clean-up and expedited permitting for recovery projects and technical support. The Wisconsin Coastal Management Program (WCMP) provided a \$24,450 planning grant to aid in long-term reconstruction planning.

The rapid-response recovery planning process began in September 2016 with an online survey used to gauge public perceptions and values associated with Saxon Harbor. The survey was designed by a planning team consisting of representatives from the Iron County Forestry and Parks Department—which managed Saxon Harbor operations and the campground, the Iron County Planning and Zoning Department and the Northwest Regional Planning Commission (NWRPC). The purpose of the survey was to inform the reconstruction design process to improve the harbor and campground during the rebuild and over the longer term. Survey response greatly exceeded expectations with nearly 1,200 completed surveys received.

Survey results were synthesized by NWRPC and distributed to the public and the Iron County Asset-Based Community Development (ABCD) Steering Committee. The Board-appointed ABCD Committee is charged with developing a long-range asset-based strategic plan for Iron County. Survey indicators were used by the committee to formulate a series of reconstruction and post-rebuild strategies to improve Saxon Harbor. A new section was added to the ABCD planning document which included the recommendations and specific directives for Saxon Harbor, along with a timeline for implementation. The desired future land use map also identified areas for future recreation expansion including the areas east of the harbor where the new campground will be constructed.

In April 2017, the Iron County Board approved hiring Foth Infrastructure & Environment, LLC as the engineering consultant for harbor reconstruction. Board approval was also granted to relocate the campground from its previous footprint adjacent to the marina to a 3.8-acre site on the east side of the harbor. State laws prohibiting the construction of a campground in a floodplain without an adequate flood warning system prevented the relocation within the original footprint. Due to the discovery of an active eagle nesting site at the proposed campground location, a new site was selected near the confluence of Oronto and Parker Creeks out to County Trunk Highway A. This site will potentially allow for the creation of new and expanded camping opportunities, new interpretive facilities, possible future trail development and connectivity with the North Country Trail and even possible future retail. Many of these new opportunities are the direct result of public sentiments expressed in the redevelopment survey.

The engineering consultant has mostly completed surveying and data collection. Due to the presence of an active eagle nesting site, the proposed campground will be relocated near the confluence of Oronto and Parker Creeks out to County Trunk Highway A. Engineering is expected to occur during the early to late spring of 2018 with construction in summer and fall of 2018. Iron County has set a target date of May 2019 for reopening the marina and campground.



In the meantime, a single small craft launch will remain open, along with the pavilion, parking lot and access to the beach.

Thanks to local, county, state and federal partners, Saxon Harbor will again be a hub for economic, recreation and maritime activity in Iron County.

*Jason Laumann is the Deputy Director of the Northwest Regional Planning Commission. He can be reached at (715) 635-2197 or [jlaumann@nwrpc.com](mailto:jlaumann@nwrpc.com).*



HDI seeks to build a waterfront that is a productive home to businesses, a place for people to visit and recreate, and a healthy ecosystem.

## MILWAUKEE'S HARBOR DISTRICT

*Lilith Fowler*

It's hard to pinpoint the exact moment when a tide begins to turn. In the case of Milwaukee's Harbor District, it might have been in 2010 when the University of Wisconsin-Milwaukee decided to locate its brand new School of Freshwater Sciences across the street from an eight-story high pile of coal. Back when cars on East Greenfield Avenue were routinely covered in a layer of fine black dust, it was surely not as obvious a choice as it seems now that the pile is permanently gone. But the investment in the new building gave credibility to people in Milwaukee who had been looking at improving the area for years.

The harbor had once been a vast marsh—home to a thriving ecosystem of fish, mammals, birds and native communities. In the nineteenth century, the deep river and protected harbor attracted European settlers in droves and put Milwaukee on the map. A bustling economy replaced the ecosystem. Meandering waterways were dredged and straightened, and marshland was filled in to make way for silos, lumberyards, tanneries, foundries and an iron mill to process and ship goods around the world.

By the end of the twentieth century, a visitor to the area would have found that the busy foundries and tanneries had closed leaving behind toxins in the soil and river sediments. Channelized rivers were like a desert separating Lake Michigan from upstream habitat. The Inner Harbor of 2010 had neither a vibrant ecology nor a healthy economy.

As we launched a revitalization effort, our question was: How do we rebuild both?

In 2014, a number of partners came together to create Harbor District, Inc. (HDI), a new nonprofit dedicated to creating a model working waterfront for the twenty-first century. The organization brings together a variety of stakeholders including property owners, businesses, city and state government, and civic leaders. HDI's operating assumption is that we can "have it all." By finding creative solutions, we can build a waterfront that is simultaneously a productive home to businesses, a place for people to visit and recreate, and a healthy—though altered—ecosystem.

Our first step was to bring all stakeholders together to develop a shared vision and a plan to achieve these goals. We gathered ideas from neighborhood fourth graders, multinational corporations and many people in between. We made sure the fish have a voice at the table, too. Gradually, we have been able to build consensus around key elements of a vision for the future.

First, people want access to the waterfront. Broadly, they share the belief that a business which does not require exclusive access to the waterfront should not have it. Second, they want a healthy environment in the form of both attractive rivers and greenspace and the protections to keep them that way. Third, they



like the mixed-use character that the area has always had—port and job-creating uses should be able to blend in with other uses.

As the planning process winds to a conclusion, we come to the really fun part: The creative problem-solving that will let us “have it all.” One of our first pilot projects is Habitat Hotels. The steel dockwalls and dredged bottom of the Inner Harbor, essential for shipping, will never be high-quality fish habitat. Therefore, we need a retrofit that offers fish a spot to rest and feed on their way through. The Habitat Hotels are designed to be cheap and easy to build, install and maintain. Metal baskets with stones or planting media are mounted on a long pole. The pole is welded to the dockwall above the waterline, but the baskets sit well below the surface where they can provide a home to aquatic plants and macroinvertebrates. The project is especially exciting because we are building partnerships with local high schools to build the hotels and grow the aquatic plants for them.

We are also exploring the possibility of a trash-collecting water wheel for the Inner Harbor. Pioneered in Baltimore, this contraption has booms that trap floating trash and funnel it to a conveyor belt—driven by a water wheel—that lifts the trash out of the water and conveys it to a dumpster. We have found a location for it—we just need a name worthy of its role as the partner to Milwaukee’s trash skimmer boat, the *Lynrd Skymmr*.



Business recruitment will be an important piece of our next phase as we seek companies that share our vision for a vibrant district within a “water-centric city.” Milwaukee’s Menomonee Valley redevelopment showed us that a district with good sites and a high-quality brand can successfully attract new jobs to former brownfields.

In addition to these projects, we will consider how to create safe public access for fishing and biking

at the Port’s facilities, whether we can perforate dockwalls to create a sort of post-modern wetland, and—perhaps most important of all—how to put a basketball court on a barge, or build a playground from shipping containers. In short, how to make a “working waterfront” that works for everyone.

*Lilith Fowler is the Executive Director of Harbor District, Inc. She can be reached at (414) 643-1266 or [lilith@harbordistrict.org](mailto:lilith@harbordistrict.org).*



Through a series of waterfront plans, Two Rivers has made great progress over the past fifteen years to capitalize on its water resources.

## TWO RIVERS: TURNING OUR FACE BACK TO THE WATER

*Greg Buckley*

Our city's origins were on the water.

Native Americans plied the East and West Twin Rivers in canoes from upstream tributaries to their confluence at Lake Michigan where they ventured to the rich fishing grounds offshore. French Canadians from the St. Lawrence came in the 1830s, also drawn by the lake fishery. Fish tugs still make port in Two Rivers.

Early woodworking industries used the waterways to bring logs to the mills and ship products to market. By the mid-1800s, mills lined the riverbanks and the harbor was choked with logs. Industrial uses came to dominate the waterfront and remained there long after water transport ceased to be a requirement. Two Rivers, like many manufacturing towns, turned its back to the water.

The Hamilton Manufacturing complex was the dominant feature of the waterfront and economy from 1880 until corporate parent Thermo Fisher Scientific announced its closure in 2012. By then, the Hamilton facility extended over three city blocks and formed a wall between the city's downtown and harbor. Thermo Fisher has since cleared the entire Hamilton site revealing water views hidden for over a century.

City leaders believe the Hamilton property is the centerpiece of a downtown waterfront where Two Rivers can make an economic pivot to the future where we can truly “turn our face back to the water.” Through a series of waterfront

plans—each supported by the Wisconsin Coastal Management Program (WCMP)—Two Rivers has made great progress over the past fifteen years to capitalize on its water resources.

**Improving Infrastructure.** In the early 2000s, the City secured Federal earmarks for rebuilding the north and south harbor breakwaters on Lake Michigan. Other investments in storm water infrastructure, water treatment and green infrastructure are improving water quality at Lake Michigan.

The deteriorating 17th Street Lift Bridge was replaced to preserve a vital link between downtown and the beach, not only for cars but for a growing bicycle and pedestrian trail system. A \$3.5 million local investment leveraged \$10.5 million in Federal and State infrastructure funding and new bridge was dedicated in 2013.

Deterioration of the 1930's-era Harbor Park seawall had city officials worried about a catastrophic failure of the structure. The City undertook a \$3.5 million seawall replacement, park and docking improvements project using \$400,000 of local funds and grant monies from the Wisconsin Department of Transportation Harbor Assistance Program, the Department of Natural Resources (DNR) Recreational Boating Fund and Stewardship Fund, the WCMP and the Department of Administration's Community Development Block Grant program. The project was dedicated in September 2016 with Lt. Governor Rebecca Kleefisch cutting the ribbon.





Long a popular sport fishing port, Two Rivers has invested in its launch ramp and fish cleaning station. DNR's Urban Rivers Grant Program and Recreational Boating Program assisted with construction of a new fish cleaning station in 2015. Fish wastes once flushed into the sewer are now processed into fish-based fertilizer at a plant in Algoma. Parking lot and storm water improvements are planned for 2017.

The 2013 Harbor Master Plan makes clear the need for changes to the harbor entrance to mitigate storm surge and alleviate shoaling in the outer channel. In 2015, the City and US Army Corps of Engineers partnered in a wave attenuation study of the outer harbor. The City is now pursuing funds to complete design and construction of the preferred alternative from that study—a dogleg addition to the south pier.

**Promoting Water Assets.** The City Council funded street and parking improvements and a paved beach walk to facilitate access along the Lake Michigan beach. The City has also partnered with organizers of major events including Kites Over Lake Michigan and the Coolest Coast EVP® beach volleyball tournament.

Two Rivers Rotary took the lead in raising \$125,000 for a permanent event venue—Rotary Beach Pavilion was dedicated in 2015. The River Trails Project—a joint venture with the Village of Mishicot and Bay-Lake Regional Planning Commission—promotes kayaking and canoeing along the East and West Twin Rivers.

**Celebrating Our Water Heritage.** Rogers Street Fishing Village and Museum commemorates the area's commercial fishing industry, early French

Canadian settlers and history of the US Lifesaving Service and Coast Guard at Two Rivers. WCMP partnered with Rogers Street and the City to fund a boardwalk project and a replacement Fresnel lens for the historic South Pier Lighthouse.

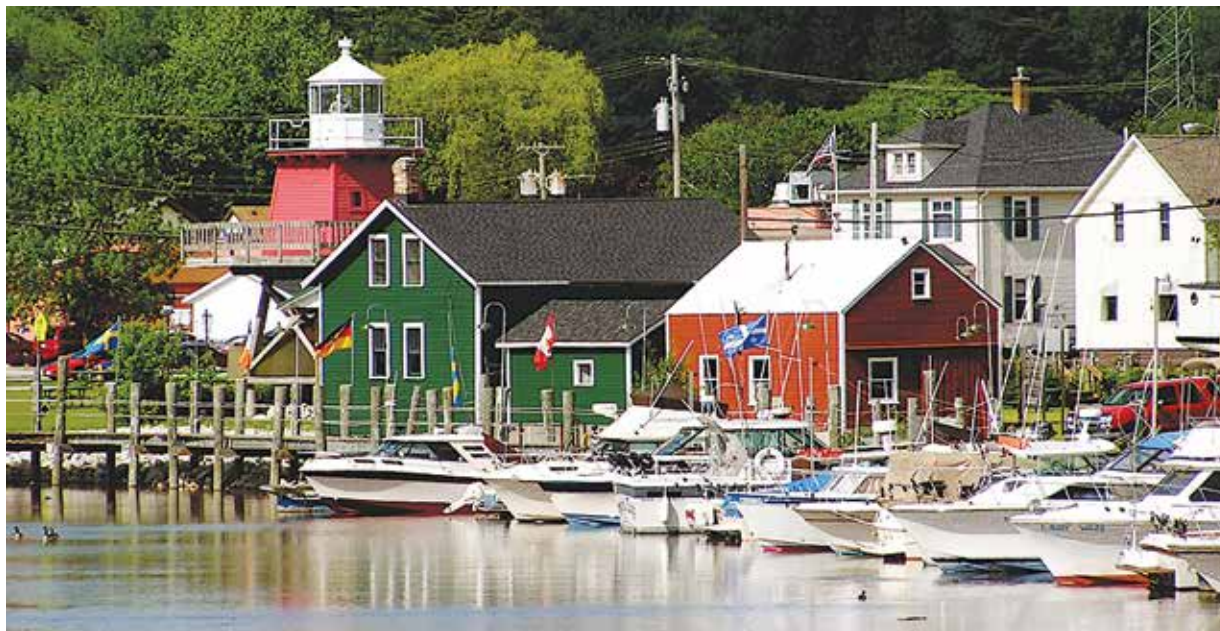
Two Rivers is an active partner in the proposed Wisconsin Lake Michigan National Marine Sanctuary that will extend south to Mequon. The waters off Two Rivers and Rawley Point contain some of the most historic shipwrecks on the Great Lakes, including the “Christmas Tree Ship” Rouse Simmons and steamer Vernon.

A tribute to the Native Americans of the Great Lakes and the birch bark canoe will rise on the shore of Lake Michigan in 2018, the work of Manitowoc native artist R.T. “Skip” Wallen. Bronze figures comprising the sculpture will stand eleven feet in height.

**Looking to the Future,** community leaders believe carefully planning for, investing in and promoting the City's water assets can be a basis for long-term, sustainable economic development. We appreciate the support the Wisconsin Coastal Management Program and other partners in State and Federal government have provided for these efforts.

Two Rivers...we're turning our face back to the water.

*Greg Buckley is the Two Rivers City Manager. He can be reached at (920) 793-5532 or [grebuc@two-rivers.org](mailto:grebuc@two-rivers.org).*



The Wisconsin Harbor Towns Association is a valuable, successful collaborative between our Lake Michigan and Lake Superior communities.

## WISCONSIN HARBOR TOWNS ASSOCIATION

*Kathy Tank*

In 2000, a group of people sat down to talk about the feasibility of creating a Wisconsin initiative based on the model of Cruise Michigan, a joint economic development and tourism effort between the State of Michigan and a selection of Michigan-based Great Lakes cruise ship companies. The group included representatives from the Wisconsin Coastal Management Program, the Wisconsin Commercial Ports Association, the Wisconsin Department of Tourism, and individuals from lakeside communities including tourism directors, mayors, parks directors and marina operators.

Many meetings and much time were invested on this topic. Ultimately—after listening to cruise ship operators, polling all of the Wisconsin Great Lakes communities on their willingness, infrastructure and capacity for large ships, and studying economic considerations—the conclusion was reached that this model would not be sustainable for Wisconsin.

However, something more valuable than a cruise ship initiative came out of those initial meetings, something that has proved very sustainable. This initial group created strong, solid partnerships that extended between agencies, organizations, the public sector and private sector. This group concluded that collaboration between our Great Lakes communities would be valuable to promote Wisconsin's tourism industry, advance the Wisconsin Coastal Management Program's goal of encouraging people to enjoy and protect the Great Lakes, support Sea Grant's educational initiatives, and more.

So even as the idea of a “Cruise Wisconsin” was set aside, the focus changed and the partnership continued moving forward. The group started focusing on what this collaboration would look like. Who should be included? What kind of organizational structure should it have? How can it be made financially sustainable? What would be its mission? And most challenging—how can we make it work?

The group realized that the only way this potential organization could be effective would be if it had participation from each community along Lake Michigan, Green Bay and Lake Superior. Or to put it another way, from each Harbor Town community, big or small.

The challenges were geographic with partners stretching from Kenosha to Superior. Just handling the logistics of meetings seemed overwhelming. There were also fiscal challenges, with communities ranging in size from Milwaukee to Bayfield and related abilities to contribute. And the biggest challenge was selling the value to each individual Harbor Town, because without all of them, the collaboration would not work.

A working group consisting of then-Bayfield Mayor Larry McDonald, Department of Tourism representatives Kit Sorenson and Ruth Goetz, and Mike Friis from Wisconsin Coastal Management became invaluable. They believed strongly in this initiative and lobbied all of the partners until we got buy in.





It was decided that each community—regardless of size—would pay the same membership dues and have the same representation. After trying several different meeting formats, it was agreed to have several in-person meetings a year on the Lake Michigan side, with conference call-in available. Meetings were planned to coincide with statewide tourism meetings. And annual meetings were scheduled all over the Harbor Towns area.

In 2000, the Wisconsin Harbor Towns Association (WHTA) was officially born and moving forward. The first—and still primary—project was to create a Wisconsin Harbor Towns Association guide featuring all of the communities and their offerings. It was designed to be valuable to boaters and land-based leisure travelers. It would also serve as an access guide to Lake Michigan and Lake Superior.

Wisconsin's Coastal Management was and remains the primary partner for this project. WHTA finished the sixth printing of the guide in spring 2017, and has plans to distribute 98,700 copies over the next couple of years. Grants from the Wisconsin Department of Tourism helped to market the first two editions of the guide. Website development and e-newsletter creation followed.

Since that time, WHTA—with the support of Wisconsin Coastal Management—has been strengthened through other partnerships and joint projects. It was the birthplace of the Wisconsin Marine Association and the Clean Marina Program. It has worked with *Discover Wisconsin* on three Harbor Town-based television programs—one focusing on Lake Superior, one on Lake Michigan and one on Wisconsin Great Lakes beaches.

UW Sea Grant is working with Harbor Towns on several Wisconsin coastal access programs that it is developing. The Wisconsin Department of Natural Resources, the Bay-Lakes Regional Planning Commission, the Wisconsin Historical Society, Boat US and Discovery World have all provided content for the guides.

And, most exciting, Harbor Towns has worked very closely with NOAA's National Marine Sanctuary program, the Wisconsin Historical Society, the Wisconsin Coastal Management Program, and other State of Wisconsin agencies in creating a regional based concept of a National Marine Sanctuary in Lake Michigan from south of Port Washington to Two Rivers. The purpose of this sanctuary is to protect and educate about the cultural and maritime resources of the many shipwrecks in this stretch of Lake Michigan. The regional partnerships that will be required to manage the sanctuary will be based on the existing partnership created through the Wisconsin Harbor Towns Association.

Thanks to the vision, perseverance and commitment of its members and partners, the Wisconsin Harbor Towns Association is truly a success story.

*Kathy Tank is the Executive Director of the Port Washington Tourism Council and Past President of the Wisconsin Harbor Towns Association. She can be reached at (262) 284-0900 or [kathy@portwashingtontourism.com](mailto:kathy@portwashingtontourism.com).*



The Lake Michigan Learning Lab provides an innovative, interactive set of learning experiences for middle and high school students.

## FOLLOW THE DROP: A WATERSHED ODYSSEY

*Bill Moren and David Libert*

From the inception of the Port Washington Historical Society's Port Exploreum Museum, opportunities for inspirational discovery have been at the core of its mission.

The Lake Michigan Learning Lab is a project of the Port Exploreum in Port Washington that provides an innovative, interactive set of learning experiences for middle and high school students—particularly grades six to nine—in southeastern Wisconsin. Tuesdays are reserved for classroom visits.

The Lake Michigan Learning Lab offers students an opportunity to study Lake Michigan ecology and maritime heritage as a scientist would—making predictions, gathering data, analyzing results, drawing conclusions and identifying relationships.

The Port Exploreum has selected the theme of “Follow the Drop: A Watershed Odyssey” as a focus for student learning based on input from local stakeholders. A watershed focus provides an opportunity for students to study an array of issues associated with both the natural and human factors affecting water quality for our region and the future health of Lake Michigan.

Through this program, students have the opportunity to build understanding and expertise on the causes, effects and possible solutions for issues such as flooding, erosion and water pollution using a set of six thematic exhibits at the Port Exploreum and eighteen pre- and post-visit lessons. These resources are provided to teachers and students in the form of a Teacher Lesson Guidebook—a collection of existing and new

resources—and a Student Science Notebook that serves as a resource for data collection, reflection and analysis.

One of the thematic exhibits is the Virtual Watershed Table, an interactive 55-inch touchscreen table that students think of as a giant iPad. When a student touches the surface, the attract screen divides into four different two-dimensional settings—urban, suburban, industrial and agricultural.

When the screen image is touched, the student is presented with a challenge. In the case of the industrial setting, that challenge is “You are an elected official deciding how to use limited funds and tax incentives to help industry, but your choices will also affect the health of your waters. Your goal is to recommend projects that are good for your citizens and that don't harm the water for fishing, swimming and drinking.”

A touch on the screen then opens to a series of three questions with multiple-choice answers. When an answer is chosen, the industrial image changes to reflect that answer, and a table appears displaying nine categories of potential watershed impacts. After answering the questions, students are able to learn if they made “good, OK or poor” choices in regard to the waterways being swimmable, fishable and drinkable.

The next exhibits cover soil infiltration, stormwater runoff and the results of green infrastructure. First the students make predictions and then observe infiltration rates through four different soil types.



Then using two rain garden models, they develop an understanding of how human manipulation of soil composition within green infrastructure can prevent adverse water events.

Two exhibits, Fish Daze and the Lake Michigan Table, are unique to the Port Exploreum and not found in any other museum. Fish Daze is an interactive game where two contestants compete against one another and the clock to identify and grab virtual images of sport fish, invasive species and pollutants and place them in the correct container. It is a fast moving, fun learning experience.

For many students and visitors, the Lake Michigan Table is the most compelling exhibit. This is an eight-foot, three-dimensional table in the shape of Lake Michigan. Live feeds from NOAA of current wind direction and speed, cloud cover, wave height, surface temperature and, in winter, ice cover are projected from above onto the table's surface. When the table is touched, its image changes to five geographic zones. When the zone's selection wheel is touched, information on lake conditions, history, water depths, areas of interests, locations of shipwrecks and the real time location of vessels with the AIS software is displayed. When the image of the vessel is touched, its name and course are displayed.

The final activity in the student's visit is a scavenger hunt. Students develop an awareness of the ecology and maritime history of Lake Michigan and Port Washington by interacting with maritime level exhibits noting important



facts and answering related questions on the interactive Lake Michigan Ecology touchscreen.

This quiz contains eleven multiple choice questions from the nine pre-visit lessons. When the correct answer is selected, a screen containing additional written and visual information appears.

The Watershed Odyssey program has been designed to entertain and engage students. The program facilitates student understanding of science concepts and creates a macro level awareness of watershed issues and connections to local organizations where they can learn more and take action to preserve our freshwater so it is a resource for future generations.

Additionally, special weekend events are planned at the Lake Michigan Learning Lab for the general public as they, too, have a keen interest in a healthy watershed and Lake Michigan.

The Lake Michigan Learning Lab is preparing future community leaders to understand, appreciate and protect our valuable Great Lakes resources.

*Bill Moren is a Board Director of the Port Washington Historical Society. He can be reached at (262) 573-3130 or [billmoren65@gmail.com](mailto:billmoren65@gmail.com). David Libert is Managing Director of Southeastern Wisconsin Watersheds Trust, Inc. He can be reached at (414) 382-1766 or [libert@swwtwater.org](mailto:libert@swwtwater.org). For information on school visits or special events, email [pwhsevents@gmail.com](mailto:pwhsevents@gmail.com) or call 262-284-2406.*

The J. Philip Keillor Fellowship links science and policy to tackle coastal hazard challenges that face Wisconsin.

## J. PHILIP KEILLOR FELLOWSHIP

*Adam Bechle*

Many Wisconsin homes on Lake Michigan and Lake Superior are threatened by shoreline erosion and bluff failures, hazards that have been exacerbated in recent years by above-average lake levels. While stopping erosion may seem like the straightforward solution to protect property, the physical processes behind this hazard are only one aspect of this challenging issue. Economics, public trust, community relationships and personal emotions are just some of the many factors that must be considered when managing coastal hazard risks.

For over 30 years, Wisconsin communities and residents looking for guidance in dealing with the complexities of coastal hazards turned to Phil Keillor, Wisconsin Sea Grant's first Coastal Engineering Specialist. To celebrate Phil's legacy, the Wisconsin Coastal Management Program (WCMP) and the University of Wisconsin (UW) Sea Grant Institute partnered to fund the J. Philip Keillor Wisconsin Coastal Management/Sea Grant Fellowship in 2016. This fellowship provides funding for a recent graduate to work with WCMP and UW Sea Grant on linking science and policy to tackle coastal hazard challenges that face Wisconsin.

I am honored to be the first recipient of this fellowship. As a recent graduate in Civil and Environmental Engineering from the University of Wisconsin-Madison, my background has been focused primarily on the physics of coastal hazards. The fellowship has been a great opportunity to learn how to use this knowledge to inform decisions about the management of coastal lands both by

communities and citizens. Under the mentorship of WCMP and UW Sea Grant staff, I have learned first-hand the importance of communication, coordination, engagement and collaboration in developing effective solutions to coastal hazards.

My main project in the fellowship was to revise the UW Sea Grant Coastal Processes Manual, a resource for local officials and property owners that demonstrates methods to estimate their risk to hazards like erosion and flooding. The manual was originally written by Phil Keillor in 1987 and last revised in 1998—however, advances in coastal science and changing environmental conditions in the last two decades require many updates to be made.

Though I initially focused on technical details, a NOAA training on risk communication helped me step back from my lens as an engineer and tailor the revisions to the needs of the intended audience—from local planning staff looking for clear explanations of quantitative risk analysis techniques to property owners with pressing coastal issues but limited background knowledge on the subject.

I solicited feedback from known manual users which led to improvements in the document's organization and the inclusion of a site assessment guide that complements the manual's calculation-based methods. I also reached out to content experts to gain their insights on each chapter before jumping back into the revisions. By focusing on effective risk communication practices in addition to sound technical





information, the revised Coastal Processes Manual will continue to be a valuable resource for Wisconsin's communities and residents.

Many of the connections that assisted me with the manual were made through the Wisconsin Coastal Hazards Work Group. This WCMP-led group coordinates statewide entities that deal with coastal hazard issues, including UW Sea Grant, the Wisconsin Department of Natural Resources, Wisconsin Emergency Management, the Association of State Floodplain Managers and the University of Wisconsin. My first work group meeting was a whirlwind of projects and new faces. As a sign of the networking opportunities provided by the fellowship, I have since worked with nearly everyone on the work group and at our most recent meeting was involved in over half of the agenda items.

I also engaged with the public and local officials through UW Sea Grant's Lake Michigan Coastal Bluffs Integrated Assessment. The aim of this project is to create a list of possible adaptation, policy and outreach actions in response to bluff erosion using an approach that integrates scientific knowledge with policy and stakeholder perspectives. During community conversations, we learned that while property owners wanted to implement reliable practices to protect their homes, they were also worried about unintended consequences that their actions may have on neighbors.

Participants expressed a great deal of interest in partnering with neighbors to find win-win solutions that would address these concerns. Public officials echoed this sentiment and were interested in improving dialog and cooperation between jurisdictions. This experience opened my eyes


to key opportunities for collaborative projects to improve Wisconsin's resilience to coastal hazards.

Encouraged by this positive energy towards collaboration, I led a grant writing effort to support a new framework for Wisconsin coastal communities to work together on coastal hazard issues. Working with WCMP, UW Sea Grant, and UW-Madison Civil and Environmental Engineering, we envisioned establishing a network where communities would work with technical experts to jointly identify vulnerabilities to coastal hazards, prioritize opportunities to cooperatively address these issues, and plan the implementation of these practices together. We were awarded a NOAA Coastal Resilience Grant to do this work and are excited to move this initiative forward.

These are just some of my most noteworthy experiences in a valuable year of professional growth as the Keillor Fellow. My mentors and the projects I became involved with pushed me to develop new skills in risk communication, coordination, engagement and collaboration. I am certain that I will leave the fellowship more prepared to help address the many types of challenges that face Wisconsin's coasts.

*Adam Bechle is a Postdoctoral Associate with the Wisconsin Coastal Management Program and University of Wisconsin Sea Grant Institute. He can be reached at (608) 261-2875 or [Adam.Bechle@wisconsin.gov](mailto:Adam.Bechle@wisconsin.gov).*





Rivers2Lake addresses issues affecting the St. Louis River watershed through research, education, outreach and stewardship.

## KIDS ON THE COAST: THE RIVERS2LAKE EDUCATION PROGRAM

*Deanna Erickson*

In September 2015, I had 600 pounds of freshly harvested wild rice seed in the back of my car and 30 fifth graders standing in front of me, all anxious to crawl into a fleet of canoes. Lindsay Braman's students from Lake Superior Elementary School in Superior already knew how to paddle the boats. In fact, they had been canoeing on the St. Louis River every year since second grade with the Rivers2Lake Education Program.

Our task was straightforward: load the wild rice into the canoes, paddle out onto Allouez Bay in the St. Louis River and spread the seed into shallow water. The work was part of a multi-state, multi-agency, and tribal effort to bring back wild rice, or *manoomin*, to a river being restored from decades of pollution. After three years studying Lake Superior and the St. Louis River—the largest estuary in the Great Lakes—the students were knowledgeable and worked hard even as the wind picked up. They knew they were contributing to the future of their community.

Rivers2Lake is the foundational education program at the Lake Superior National Estuarine Research Reserve. Based on Barkers Island in Superior and the surrounding St. Louis River Estuary, the Reserve works in partnership to improve the understanding of Lake Superior's coast and estuaries. A partnership between the University of Wisconsin-Extension and the National Oceanic and Atmospheric Administration (NOAA), we address issues affecting the watershed through the integration of research, education, outreach and stewardship.

Each year, a dozen pre-kindergarten to twelfth grade educators from the Lake Superior watershed enroll in the program. They spend four days traversing the St. Louis River from headwaters to estuary to Lake Superior, learning from resource managers, scientists and fellow educators along the way. They listen closely to staff from the Fond du Lac Band of Lake Superior Chippewa who share their wild rice and sturgeon restoration efforts. They tour the Western Lake Superior Sanitary District which cleans municipal water, paddle the Pokegama River, participate in Reserve research projects and monitor water quality.

In 2016, the National Park Service and the Bad River Watershed Association became key partners as well and provide perspectives from the south shore of the Lake. The Wisconsin Department of Natural Resources also now connects enrolled teachers and students with restoration projects along the coast.

After the Institute, teachers head back to their classrooms. But the program isn't complete. Rivers2Lake staff provide year-round mentoring and support to teachers as well as funding for classroom resources and transportation to field experiences. The students in their classrooms participate all year, too, and staff work hard to help them meet Wisconsin's educational standards while learning from the Lake and the rivers near their schools. All of this is in pursuit of the program's goal of integrating the Lake Superior watershed into education as a foundation for engaging place-based learning, Great Lakes literacy, stewardship and watershed restoration.



Since 2012, 64 teachers and 2,023 students have participated in the program. On average, each teacher participates in 80 hours of professional development and each student receives about eighteen hours of outdoor and inquiry-based instruction annually. Rivers2Lake has contributed over \$70,000 directly to the schools and teachers with whom we work. From 2013 to 2015, the Wisconsin Coastal Management Program provided key funding to the Rivers2Lake program, complementing funds from NOAA's Great Lakes Bay Watershed Education Training Program (B-WET).

And what have teachers and students done with all of their experiences? At South Shore School in Port Wing, teachers are beginning work with several agencies to collect data on watershed health and fish communities. They are reporting their findings to state and national databases and working toward integrating the watershed throughout the school, across grades and subjects.

Students in Bayfield recently learned how to operate an underwater Remotely Operated Vehicle (ROV) to look for invasive species. They are also collecting dragonfly larvae from Lake Superior estuaries to be analyzed for mercury with the support of the National Parks Service.

Rivers2Lake teachers at Superior Middle School began taking students outdoors weekly to make scientific observations and recently won a grant to build an accessible trail behind their school. Students at Northern Lights Elementary have



been monitoring the heavily impacted Faxon Creek for two years, sharing their findings with the research community and the City of Superior.

Rivers2Lake students and teachers have studied vernal pools, paddled rivers, removed invasive species, monitored crayfish populations, analyzed sediment data, presented to their families, and collaborated with scientists all the way from the Fond du Lac Ojibwe School to Ashland. They also reseeded wild rice which came up in the summer of 2016 in Allouez Bay, a hopeful new beginning for this keystone species.

These and many other projects are worth watching for in the future. Learn more about Rivers2Lake by visiting our website at [www.rivers2lake.org](http://www.rivers2lake.org) or learn about the Reserve and our new public learning center at [www.lakesuperiorreserve.org](http://www.lakesuperiorreserve.org).

*Deanna Erickson is the Education Coordinator at Lake Superior National Estuarine Research Reserve. She can be reached at (715) 399-4086 or [deanna.erickson@ces.uwex.edu](mailto:deanna.erickson@ces.uwex.edu).*

# 2017 WISCONSIN COASTAL MANAGEMENT PROGRAM GRANTS

*Project Name*

*Grantee*

*WCMP Award*

*Project Description*

*Contact*

## Coastwide

### **Green Infrastructure Center of Excellence**

Southeastern Wisconsin Watersheds Trust  
(Sweet Water)

\$44,500

Launch a Green Infrastructure Center of Excellence to scale up green infrastructure implementation and improve water quality in the region.

Ms. Linda Reid, (414) 382-1766

### **Paddling Through History: Shipwreck Interpretation for Paddlers**

Wisconsin Historical Society

\$29,733

Conduct a Phase II archaeological field survey of a nearshore shipwreck and develop the Mid-Lake Michigan Shipwreck Paddler's Trail.

Mr. John Broihahn, (608) 264-6496

### **Lakeshore Coastal Recreation Study**

Bay-Lake Regional Planning Commission

\$25,161

Create a lakeshore coastal recreation study for the counties of Kewaunee, Manitowoc and Sheboygan.

Ms. Angela Kowalzek-Adrians, (920) 448-2820

### **Environmental Education for Kids—Great Lakes Education Portal**

Wisconsin Wildlife Federation

\$10,000

Update and expand the Environmental Education for Kids (EEK!) website by adding information on Wisconsin's natural resources including those relating to the Great Lakes coastal region.

Ms. Ruth Ann Lee, (800) 897-4161

### **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 Kowalzek-Adrians, (920) 448-2820

### **Technical Assistance**

Southeastern Wisconsin Regional Planning Commission

\$20,000

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

Dr. Thomas Slawski, (262) 547-6721

### **Technical Assistance**

Northwest Regional Planning Commission

\$20,000

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

Mr. Jason Laumann, (715) 635-2197





## Ashland County

### Ashland Ore Dock Redevelopment Phase 1

City of Ashland

\$80,000

Create final design, construction plans and bidding documents for the redevelopment of Ore Dock Park.

Ms. Sara Hudson, (715) 682-7059

### La Pointe Town Dock Expansion

#### Preconstruction Phase

Town of La Pointe

\$63,360

Implement the preconstruction phase of the Town Dock expansion including preparing final design/bid documents and securing permits prior to construction.

Ms. Lisa Potswald, (715) 747-6914

## Bayfield County

### Bayfield County Digital Interactive

#### Hydrogeological Atlas

Bayfield County

\$30,000

Develop a digital interactive hydrological atlas that provides an inventory and analysis of groundwater conditions in Bayfield County.

Mr. Scott Galetka, (715) 373-6156

## Door County

### Beach Park Swim Beach Expansion

Village of Egg Harbor

\$32,000

Develop design and engineering plans for expanding the public beach at Beach Park.

Mr. Ryan Heise, (920) 868-3334

### Bradley Lake-Sturgeon Bay Connectivity Coastal Resource Management Plan

City of Sturgeon Bay

\$31,260

Develop a coastal resource management plan for Bradley Lake that identifies issues and opportunities for sediment removal, fishery restoration and habitat improvement.

Mr. Robert Bordeau, (920) 756-2912

### Door County Wetlands Water Quality Indicators

The Nature Conservancy of Wisconsin

\$29,998

Investigate potential linkages between nonpoint source pollution and wetland water quality and habitat health in five Door County wetlands.

Ms. Sarah Gatzke, (262) 642-7276

### Porte des Morts Staircase

Town of Liberty Grove

\$29,500

Construct a staircase at Portes des Mortes Park from the top of the bluff to the water below to provide safe controlled access and enhance the use of the park and Lake Michigan waters.

Mr. Walter Kalms, (920) 854-2934

### Door Peninsula Coastal Wetland Ramsar Site Outreach and Education

Door County Soil & Water Conservation Department

\$18,620

Provide education and outreach to private landowners who are adjacent to the Door Peninsula Coastal Wetlands Ramsar Site.

Ms. Krista Lutzke, (920) 746-2363



## Douglas County

### Wisconsin Point Dunes Restoration

City of Superior

\$1,300,000

Implement access, habitat and cultural resource protection improvements at Wisconsin Point.

Ms. Linda Cadotte, (715) 395-7270

### Groundwater Education and Well Testing Program

Douglas County Land and Water Conservation Department

\$24,800

Implement a groundwater well testing program to develop a better understanding of baseline groundwater quality and increase public awareness in Douglas County.

Ms. Christine Ostern, (715) 395-1318

### City of Superior Comprehensive Outdoor Recreation Plan

City of Superior Parks, Recreation and Forestry Department

\$24,446

Develop a Comprehensive Outdoor Recreation Plan focused on identifying a management strategy for public open space, opportunities to diversify recreational programming and facilities.

Ms. Linda Cadotte, (715) 395-7270

## Kenosha County

### WATERshed Program (We All Take Environmental Responsibility)

Hawthorn Hollow Nature Sanctuary and Arboretum

\$15,212

Create, develop and deploy a sustainable system for expanding the WATERshed program to fourth grade students in the Kenosha Unified School District.

Ms. Nancy Carlson, (262) 552-8196

## Manitowoc County

### Twin Rivers Water Trail Plan

Bay-Lake Regional Planning Commission

\$21,903

Create an inventory and assessment of all public access locations on the West Twin River and the East Twin River in Manitowoc County and develop a plan for a water trail.

Ms. Angela Kowalzek-Adrians, (920) 448-2820

## Milwaukee County

### Turtle "Park" Habitat Restoration

Milwaukee Metropolitan Sewerage District

\$39,600

Establish a high quality natural area at the southern end of the Milwaukee River Greenway.

Ms. Kimberly Gleffe, (414) 271-8000

### Kinnickinnic River Watershed Environmental Awareness and Stewardship

Sixteenth Street Community Health Centers

\$31,128

Implement a series of interactive, bilingual environmental workshops, activities and field trips for families, children and adults living near the Kinnickinnic River in Milwaukee.

Mr. Kevin Engstrom, (414) 897-5598

### Shoreline Park Accessible Path Design

City of South Milwaukee

\$29,500

Design an ADA accessible path from the top of the bluff to the beach as depicted in the preliminary park plan for Shoreline Park.

Mr. Kyle Vandercar, (414) 762-2222

### Port of Milwaukee Green Infrastructure and Stormwater Management

Harbor District, Inc.

\$29,000

Prepare a Green Infrastructure Stormwater Management Plan to improve stormwater management at the Port of Milwaukee and identify opportunities to incorporate green infrastructure into systems on Jones Island and at Grand Trunk.

Ms. Lilith Fowler, (414) 643-1266





**West Nash Street to West Appleton Avenue  
Bioswale Installation**

City of Milwaukee  
\$24,500

Install five bioswales in the terrace areas between the curb and sidewalk on West Nash Street to capture stormwater runoff from an area approximately 115,000 square feet in size.  
Mr. Jeffrey Polenske, (414) 286-2400

**Love Our Water**

Highland Community School  
\$9,096

Develop an experiential education program for elementary school students focused on increasing awareness and stewardship of freshwater resources.  
Ms. Michaela Lewellyn Humpal, (414) 342-1412

**Ozaukee County**

**Breakwater Gateway Public Access Project**

City of Port Washington  
\$82,650

Construct a public access boardwalk/paddlecraft dock in an approximately one-acre parcel located at the northern end of the harbor near the public marina.  
Mr. Mark Grams, (262) 284-5585

**Ozaukee County Park System Lake Michigan  
Public Access Improvements**

Ozaukee County  
\$50,000

Develop the engineering, design and construction of a passive public access to Lake Michigan along the 130-foot high clay bluff at Virmond County Park.  
Mr. Andrew Struck, (262) 238-8275

**Mequon Preservation Partners: Support &  
Targeted Outreach for Open Space**

Protection  
Ozaukee Washington Land Trust  
\$38,582

Facilitate development and early implementation of the City of Mequon's Open Space Preservation Plan.  
Mr. Tom Stolp, (262) 338-1794

**Port Washington Dangerous Rip Current  
Warning, Communication and Awareness/  
Response**

University of Wisconsin-Madison  
\$29,969

Implement an observation system for real-time rip current risk warning at South Beach, update a dynamic kiosk system for risk communication, and conduct outreach and education on waterfront safety awareness.  
Dr. Chin Wu, (608) 263-3078

**Watershed and Water Health Education for  
Urban and Suburban Youth**

Mequon Nature Preserve, Inc.  
\$24,325

Provide experiential learning to 250 elementary and middle school students about Lake Michigan watersheds and water resource protection through school year and summer camp programming.  
Ms. Kay Amland, (262) 242-8055

**Racine County**

**Samuel Myers Park Upland Rain Gardens for  
NPS Pollution Control**

City of Racine Health Department  
\$49,765

Install a 4,500-square foot rain garden at Samuel Myers Park in Racine at the intersection of a circle drive and asphalt walking path to capture, infiltrate and redirect surface runoff.  
Dr. Julie Kinzelman, (262) 636-9501

**Harborside District Connections Design**

City of Racine  
\$30,000

Develop public space schematic designs for the Harborside District on the Root River that include alignment, cross-sections and preliminary cost estimates for stormwater infrastructure improvements and public space enhancements.  
Ms. Amy Connolly, (262) 636-9151

**Sheboygan County**

**Accessible Kayak/Canoe Launch**

City of Sheboygan  
\$28,437

Construct an ADA accessible kayak/canoe launch, trailer parking and walkways at Kiwanis Park on the Sheboygan River.  
Mr. Joe Kerlin, (920) 459-3459

# 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 for Coastal Management, for the technical and financial support it provides on behalf of Wisconsin's coastal communities.

## Wisconsin Coastal Management Program

Scott Walker  
*Governor*

Scott A. Neitzel  
*Secretary, DOA*

Dawn Vick  
*Administrator, DOA Division of Intergovernmental Relations*

Mike Friis  
*Leader, Resource Policy Team and Manager, WCMP*

Kathleen Angel  
*Coastal Natural Hazards and Federal Consistency Coordinator, WCMP*

Todd Breiby  
*Coastal Nonpoint and Education Coordinator, WCMP*

Lauren Leckwee  
*Environmental Compliance Coordinator, WCMP*

Joe Dwyer  
*NOAA Coastal Management Fellow, WCMP*

Adam Bechle  
*Postdoctoral Associate, WCMP*

## Wisconsin Coastal Management Council

Larry MacDonald, *Bayfield, Chair*

Sharon Cook, *Milwaukee*

Stephen Galarneau, *Wisconsin Department of Natural Resources*

Patricia Hoeft, *Oneida*

James Hurley, *University of Wisconsin Sea Grant Institute*

Representative Joel Kitchens, *Sturgeon Bay*

Ken Leinbach, *Whitefish Bay*

William Schuster, *Sturgeon Bay*

Dawn Vick, *Wisconsin Department of Administration*

Senator Robert Wirch, *Kenosha*

## Editor

James M. Langdon



## Photographs

### *Page, Image, Source*

Cover, Kohler-Andrae State Park, Department of Tourism

Contents, Big Bay Town Park, Department of Tourism

1. Gov. Scott Walker, Governor's Press Office
- 2, Saxon Harbor, Iron County Forestry
- 3, Saxon Harbor, Iron County Forestry
- 4, Milwaukee Kayakers, Eddee Daniel
- 5, Port Milwaukee, James Wasley
- 6, Boardwalk, City of Two Rivers
- 7, Rogers Street Fishing Village, City of Two Rivers
- 8, Door County, Door County Visitor Bureau
- 9, Milwaukee Waterfront, VISIT Milwaukee
- 10, Kids at Lake Michigan Table, Sam Arendt
- 11, Kids at Exhibit, Quinton Klaxon
- 12, Adam Bechle, Andrew Mangham
- 13, Adam Bechle, Andrew Mangham
- 14, Kids at Water, Lake Superior NERR
- 15, Kids with Tree, Lake Superior NERR
- 16, Big Bay Town Park, Department of Tourism
- 20, Kohler Andrae State Park, Department of Tourism
- 21, Death's Door Sunset, Door County Visitor Bureau

## Wisconsin Coastal Management Program

101 East Wilson Street  
PO Box 8944  
Madison, Wisconsin 53708-8944  
(608) 267-7982  
<http://coastal.wisconsin.gov>  
[coastal@wisconsin.gov](mailto:coastal@wisconsin.gov)

Funded by the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, Office for Coastal Management, under the Coastal Zone Management Act, Grant NA17NOS4190035.

The Wisconsin Coastal Management Program in the Wisconsin Department of Administration publishes *Wisconsin Great Lakes Chronicle*. It welcomes, but is not responsible for, the opinions expressed by contributing authors.



 WISCONSIN COASTAL  
MANAGEMENT PROGRAM



