Wisconsin Great Lakes Chronicle

2010

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FOREWORD

Governor Jim Doyle

Dear Friends of Wisconsin's Great Lakes,

In Wisconsin, the Great Lakes are fundamental to our identity and way of life. Lake Michigan and Lake Superior's natural resources, transportation routes and abundant beauty have enriched our lives for generations. The generations of Wisconsin's citizens that follow will continue to rely on the Great Lakes for recreation and as a gateway to national and global markets.

Because of their importance to the state, the region and the nation, one of my highest priorities as Governor has been to protect and enhance the Great Lakes. During the last eight years, it has been an honor to work with many talented and dedicated individuals to preserve the future of the Lakes. Together with many local and tribal governments, community organizations and citizens, we have achieved much since 2003.

Coastal Nonpoint Pollution Protection. In 2003, the National Oceanic and Atmospheric Administration and the U.S. Environmental Protection Agency approved the Wisconsin Coastal Nonpoint Pollution Control Program. Wisconsin's program, among the first such programs in the nation, serves as a model that addresses nonpoint source pollution from urban impacts, marinas, forestry, agriculture and hydromodification.

Regional Collaboration. As co-chair of the Council of Great Lakes Governors, I worked with other state and provincial leaders to develop and implement regional policies to restore and protect the Great Lakes. Together, the Council established nine priorities benefiting the basin. These priorities were codified in 2004 by Presidential Executive Order 13340 to become the Great Lakes Regional Collaboration.

Great Lakes Compact. Wisconsin worked with the other seven Great Lakes states, two Canadian provinces and the U.S. government to develop landmark legislation creating unprecedented protections for the Lakes. In 2008, I signed legislation approving Wisconsin's participation in the Great Lakes Compact. The Compact became federal law later that year. The protections contained the Compact will ensure the environmental sustainability and economic viability of the Great Lakes for years to come.

Lake Superior National Estuarine Research Reserve (NERR). In 2008, I nominated the St. Louis River as the Lake Superior National Estuarine Research Reserve. As the largest U.S. tributary to Lake Superior and the headwaters of the entire Great Lakes system, the St. Louis River basin is a nationally significant region providing critical habitat for birds, fish and plants. Federal designation of the Lake Superior NERR is expected in 2010 when it will join a national system of twenty-seven other reserves. The Lake Superior NERR will further enhance Wisconsin's reputation as a national leader in research and educational outreach related to freshwater studies.

Coastal Management. The Department of Administration's Wisconsin Coastal Management Program continues to work cooperatively with federal, state, local and tribal governments, universities, non-profit organizations and citizens to protect the Great Lakes as a natural, commercial and recreational resource.

As we look toward the future, this partnership remains strong. The federal government has committed an unprecedented $475 million in the first of a five-year investment to clean up contaminated sites, protect critical habitats and control aquatic invasive species and nonpoint pollution in the Great Lakes. Wisconsin has received notice that fifty proposals totaling nearly $30 million have been initially approved. This federal commitment will have a tremendous impact on the health of the Great Lakes well into the future.

The Great Lakes will continue to grow in importance as a vital natural resource and economic engine. I am proud of the work we have accomplished to preserve the Lakes for generations to come.

Port Washington will convert an environmentally challenged coal dock into a recreational jewel.

NEW LIFE FOR AN OLD COAL DOCK

Rob Vanden Noven

Historic Port Washington, established as a city in 1835, is located on Lake Michigan's western shore just 25 miles north of downtown Milwaukee. The heart of the city is its marina dredged in 1870 to become the first man-made harbor in North America. Adjacent to the marina, the historic downtown boasts the largest collection of antebellum architecture in the entire state, highlighted by several self-guided walking tours.

Hikers, bikers, bird-watchers, sailors, beach-goers and tourists from all over the Midwest come to Port Washington for the beauty and tranquility it has to offer. St. Mary's Catholic Church prominently watches over the downtown while the historic light station attracts tour groups from all over the world. The art deco lighthouse at the end of the break wall has guided boaters and attracted scores of people daily since the 1930s.

The Port Washington Generating Station—constructed by Wisconsin Electric in 1935—has stood on the city's Lake Michigan shoreline where the lakebed was filled to provide an area for coal deliveries and storage. In 2003, We Energies began a five-year project to convert the existing coal fired power plant into a state-of-the-art facility burning only natural gas. The conversion process resulted in the availability of nearly twenty acres of lakefront property formerly used for coal storage to become available for public use and a natural habitat for migrating birds.

At the same time We Energies began planning improvements to the power generating station, the City of Port Washington began planning improvements to convert the environmentally challenged and restricted coal dock into a recreational jewel, all adjacent to Port Washington's picturesque downtown and marina. In 2008, a Wisconsin Coastal Management Program grant funded the hiring of planners, landscape architects and engineers to move forward with ideas gathered by a citizens' committee in the years prior.

The first step taken by the City was the creation of the Coal Dock Committee comprised of stakeholders representing the marina, the parks system, tourism, the downtown business district, elected officials and citizens. Eight firms were interviewed by the Committee and the team of Hitchcock Design Group/Crispell-Snyder was ultimately selected to perform design work.

Hitchcock interviewed all stakeholders individually, met with the committee regularly, conducted a programming workshop open to all residents, facilitated a charrette, prepared alternative strategies, worked with various regulatory agencies and prepared a final concept design and implementation plan for approval by the City's Common Council. Crispell-Snyder then worked with City staff to create engineering plans and specifications based on the approved concept for construction in the following years.

Components of the project include accessible recreational trails, fishing areas, docking for visiting tall ships and other Great Lakes craft, an access roadway, parking lots, lighting, sewer and water, landscaping and other amenities that will enhance the natural beauty of the scenic shoreline. A footbridge will connect the north and south docks that are separated by the power plant's intake channel.

The south dock will feature a naturalized area providing a stopover point for migratory birds while maintaining waterfront access to boaters and fishermen around the perimeter of the dock. South of the migratory area, the path will continue to a newly developed beach served by a parking lot that will facilitate non-motorized small craft—canoes, kayaks, sailboards—launching and retrieval. The launching area will be the first of its kind in all of Ozaukee County.

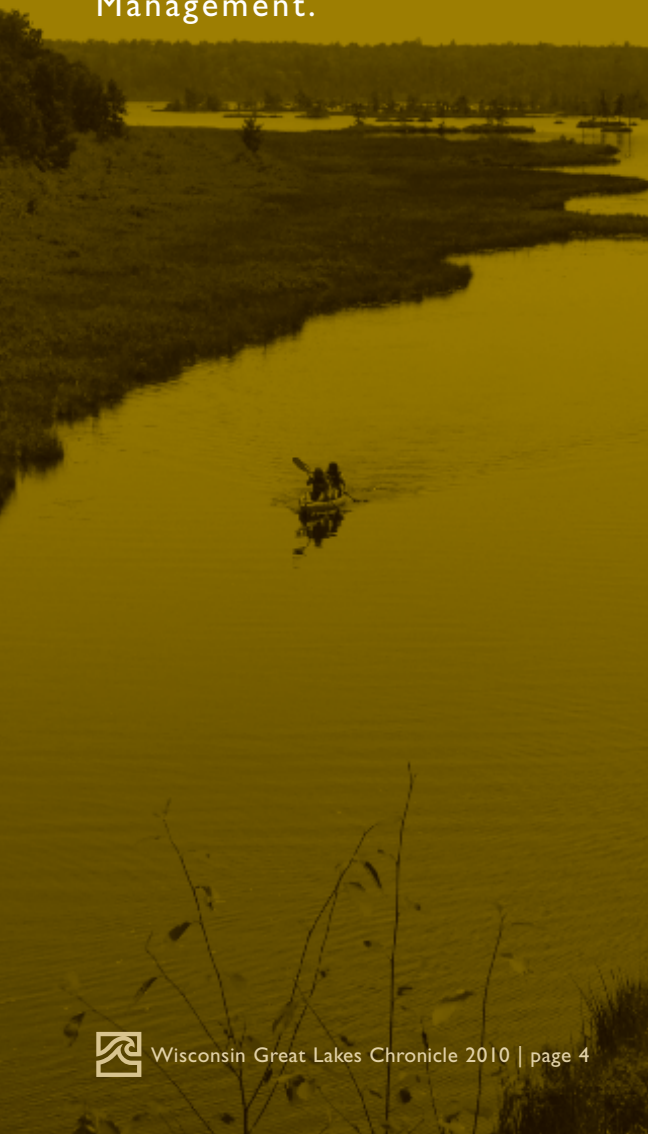
The Wisconsin Coastal Management Program has assisted with the funding of previous portions of the City's Harborwalk between Upper Lake Park, Veteran's Memorial Park, Rotary Park and Fisherman's Park along the Lake Michigan shoreline. This project will double the length of the existing Harborwalk connecting the City's four lakefront parks to the north beach, marina, the historic downtown and the Ozaukee County Interurban Bike Trail.

The potential impact of the proposed improvements is limitless. The City of Port Washington enjoys large tourist traffic that visits from all over Wisconsin and the Midwest during the summer and fall seasons. In addition to the tens of thousands of people that use the marina each summer for pleasure boating and charter fishing, it is estimated that over 100,000 visitors come each year to Port Washington's lakefront for popular festivals such as Fish Day, Pirate Festival, Maritime Heritage Festival, farmers markets and other events. Additionally, nearly 100,000 users of the Ozaukee County Interurban Bike Trail pass through the community on a yearly basis.

The City is working on grant writing and budgeting for the construction of the proposed improvements. The current plan would build the majority of the park and infrastructure improvements over a four-year period while entering a second phase of planning to construct a building to serve the public as a community center, museum and/or park facility. Upon completion of these improvements, the City of Port Washington is sure to have a one-of-a-kind, four season attraction for its residents and a destination for visitors of which it can be proud.

Rob Vanden Noven is City Engineer/Public Works Director with the City of Port Washington. He may be reached at (262) 284-2600 or rvandennoven@ci.port-washington.wi.us.

Wisconsin's coasts are enhanced by the state's partnership with the NOAA Office of Ocean and Coastal Resource Management.



A VIEW OF WISCONSIN'S COAST FROM WASHINGTON

Donna Wieting

The Coastal Zone Management Act (CZMA) helps bridge the miles between Wisconsin's beautiful Great Lakes coasts and Washington D.C. The National Oceanic and Atmospheric Administration's (NOAA), Office of Ocean and Coastal Resource Management (OCRM) partners directly with the Wisconsin Coastal Management Program (WCMP) to assist with work on the Great Lakes coasts. The CZMA takes a comprehensive approach to coastal resource management—balancing the often competing and occasionally conflicting demands of coastal resource use, economic development and conservation—while helping states address their own coastal priorities.

OCRM has had a productive and dynamic relationship with the WCMP since the program's approval in 1978. The WCMP uses federal CZMA resources to fund an impressive array of projects along both Wisconsin's coasts. These projects address a number of coastal issues including public access, stormwater management, wetland preservation and Great Lakes education. The WCMP has been a leader in creating a National Estuarine Research Reserve on Lake Superior and has successfully competed for additional NOAA funds for land conservation.

On the national front, there is good news for this federal and state government partnership. Following the lead of the President's Ocean Policy Task Force, NOAA is making sustainable coastal and Great Lakes communities a long-term priority goal in its Next Generation Strategic Plan. Shortly after President Obama appointed Dr. Jane Lubchenco to head NOAA in 2008, she gathered staff and stakeholders to develop a strategy for the future of the nation's coastal, Great Lakes and ocean resources, and the role NOAA should play in the next generation of coastal and ocean science and management. The resulting plan will be the basis of NOAA's corporate planning, performance management and stakeholder engagement over the next five years.

Sustainable Coastal Communities is of one of the Plan's four major goals. It will strive for coastal and Great Lakes communities that are environmentally and economically sustainable. Some important elements of the goal are climate change and weather adaptation, already a primary issue for Wisconsin and other Great Lakes states. Comprehensive marine spatial planning also promises to figure prominently in the goal. Other objectives revolve around marine transportation, improved water quality and human health.

Coastal managers, stakeholders and citizens weighed in on where and how NOAA directs its energies on the coastal goal and the other priority goals—climate adaptation and mitigation, weather-ready nation and sustainable ocean ecosystems. The Next Generation Strategic Plan is posted at the NOAA Office of Program Planning and Integration Web site at http://www.ppi.noaa.gov.

OCRM's interest in Wisconsin's coasts goes beyond national policy. We are working with Wisconsin toward common objectives that enhance and preserve the state's coasts and coastal communities. Two recent Wisconsin initiatives are particularly noteworthy.

Preserving Wisconsin's Coastal Treasures. One of the OCRM programs that best exemplifies the value of the partnership between NOAA and the WCMP is the Coastal and Estuarine Land Conservation Program (CELCP). CELCP is a competitive program that helps communities purchase valuable coastal land to preserve in perpetuity. CELCP saves habitat threatened with development and keeps coastal space available for people to hike, bike, bird watch or just see the sun go down over the lake. Moreover, it is a matching program that makes federal and local dollars go further to save land that otherwise might not be affordable.

Three Wisconsin projects were recently named to be funded through CELCP. The Nemadji River project—to be supported with regular CELCP funding—will save almost 4,000 acres in the Nemadji River watershed including six miles of river frontage. CELCP will also fund two projects through the Great Lakes Restoration Initiative. The Houghton Falls Nature Preserve project encompasses 77 acres of the Bayfield peninsula on the south shore of Lake Superior for nature-based recreation. The Mashek Creek project—just north of Kewaunee on Lake Michigan—will protect about 27 acres for recreation and education. These joint local and federal efforts will allow three Wisconsin treasures to be enjoyed for generations to come.

Lake Superior Reserve. Another success of the partnership between NOAA and the Wisconsin Coastal Management Program will soon become official. OCRM staff has been working with the WCMP, the University of Wisconsin Cooperative Extension and local partners for several years to bring Lake Superior into the National Estuarine Research Reserve (NERR) System. Located where the St. Louis River flows into Lake Superior, the proposed Lake Superior NERR will include 16,697 acres of wetlands, hardwood forests and sandy beach. By October 2010, this beautiful area will likely become the twenty-eighth member of the NERR System.

The CECLP projects and the Reserve are living examples of how Wisconsin and Washington can be closer than they seem. NOAA's Next Generation Strategic Plan will help map a future for an even stronger partnership with shared goals for America and Wisconsin's coasts.

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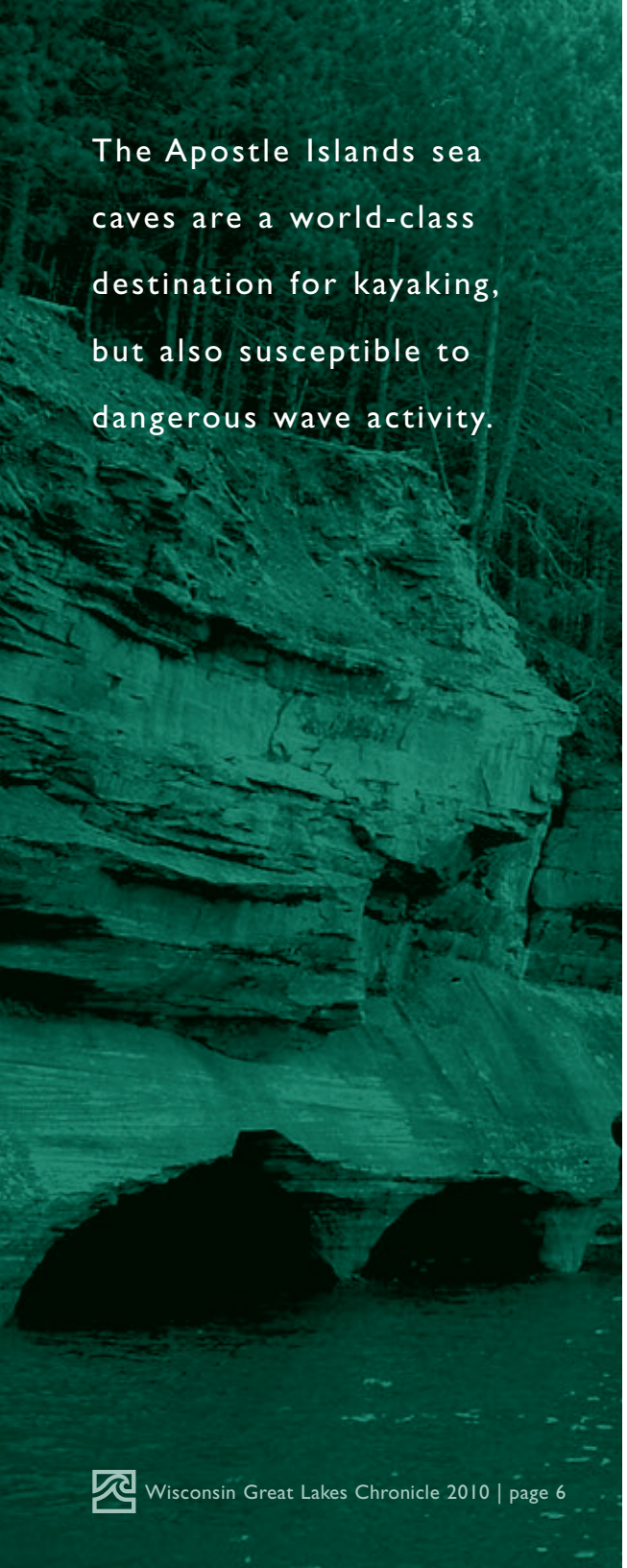


The Apostle Islands sea caves are a world-class destination for kayaking, but also susceptible to dangerous wave activity.

REAL-TIME WAVE INFORMATION SYSTEM AT THE APOSTLE ISLANDS MAINLAND SEA CAVES

Gene Clark, PE and Dr. Chin Wu

The sea caves at the Apostle Islands National Lakeshore are unique and spectacular natural rock formations. These eroded sandstone formations were formed when lake water and waves eroded the soft sandstone near the water edge, yielding a series of caves carved out of the exposed sandstone cliffs.

In Lake Superior, many sea caves are located on two of the islands—Devils Island and Sand Island—as well as on a relatively remote area on the mainland near Meyers Beach. The mainland sea caves can be viewed from above on land by a rugged two-mile hike along the bluff top trail from the Meyers Beach parking lot, but the best way to see these rock formations is on the water. The sea caves have become a world-class destination for kayaking, luring paddlers with their natural beauty and scenic wilderness. However, the sea caves can also be very dangerous.

Wave conditions in Lake Superior are dynamic and complex. Relatively moderate waves—in comparison with ocean waves—can be generated in open water in the Great Lakes. Waves diffract, refract and reflect when they encounter the twenty-one islands and twelve-mile mainland shoreline that make up the Apostle Islands National Lakeshore. Occasionally, unexpected and extremely high waves—sometimes called freak waves—occur when wave groups resonate together to create a singular wave that is two to five times larger than the incident wave heights. This problem is compounded at the vertical walls and scooped-out hollows in the sea cave areas.

Kayakers are well warned to avoid the cave area during rough seas. However, during periods of marginal waves, kayakers may see comfortable boating, but be unaware of the amplified waves near the sea caves. Due to the combination of wave focusing processes and shifting wind directions, freak waves can form suddenly and then disappear in several seconds. Unexpected freak waves can capsize boats or kayaks leaving little opportunity for kayakers to respond to this type of emergency. It is believed that two fatalities (*Duluth News Tribune*, 8/24/2004 and 6/26/2007) have been experienced by kayakers who may have been knocked out of their kayaks by freak waves near the popular sea caves. Future fatalities may be prevented if real-time wave conditions at the caves can be provided at the Meyers Beach launching area over a mile away.

The immediate safety concern to collect and provide real-time wave climate information at the Sea Cave was taken on by a team including members from UW-Madison, UW-Sea Grant, the Apostle Islands National Lakeshore, the City of Bayfield, the Inland Sea Society, the Friends of the Apostle Islands and Wisconsin Coastal Management Program.

A real-time wave observation system (RTWOS) was designed and tested in 2009. The RTWOS consists of the following components—an immersed water pressure sensor, a marine grade underwater submerged buoy, anchored cable, a waterproof box on land with an on-demand Campbell Scientific data acquisition system that can save the real-time data and transmit data through wireless modem, a 12-volt battery supply fed with a solar panel power charging system, and a main site with a PC that can retrieve, displace and save real-time data.

Using wireless cellular technology, the system successfully sampled and transmitted wave data to a host computer at UW-Madison, 350 miles away from the remote sea cave site. In addition, a real-time monitor control software was employed to display the processed data to a Web page being developed at the UW-Madison campus.

During the summer and fall of 2010, the team will add on-line and off-line digital image cameras (DIC) to the RTWOS system and a water temperature gauge. Making visual images with real-time wave height information from this remote sea cave location accessible anywhere via a public Web page, sea cave visitors and kayakers will be better informed about potentially dangerous wave conditions at the sea caves.

In addition, Lake Superior is well known for its cold temperatures, even in the middle of summer. Average water temperatures in May and June are only in the 40s while even in late summer, typical surface water temperatures rarely exceed 60°F. Therefore, the real-time water temperature is also valuable to warn kayakers to wear wet suits or dry suits and pay very close attention to varying weather and wave conditions.

The web hosting software and public website will continue to update its visual photo display and post results to the Internet in real-time. The Web site will be easily accessible and readable for persons using mobile internet devices such as BlackBerry, iPhone and PDA. It is anticipated that many users may access the Web page from remote locations such as Meyers Beach or the Apostle Islands National Lakeshore headquarters—therefore, the page will be optimized so that information can be downloaded quickly.

Finally, the project management plan includes safety education and outreach, Web access training and informational meetings by creating public awareness of the potentially dangerous wave conditions at the sea caves and how to access the real-time information about the conditions via the project Web site.

Gene Clark is a Coastal Engineering Specialist with the University of Wisconsin Sea Grant Institute. He may be reached at (715) 394-8472 or grclark@aqua.wisc.edu. Dr. Chin Wu is a Professor with the Department of Civil and Environmental Engineering at the University of Wisconsin-Madison. He may be reached at 608-263-3078 or chinwu@engr.wisc.edu.

The Wisconsin Coastal Management Council brings together diverse perspectives to advise the WCMP on coastal management efforts.

THE WISCONSIN COASTAL MANAGEMENT COUNCIL

Mayor Larry MacDonald

Of the many challenges facing Wisconsin's coastal communities, a lack of good ideas is not among them. Citizens, local governments, Native American tribes and nonprofit organizations along our shores have a long history of overcoming obstacles by combining home-grown innovation, people and resources.

For more than three decades, the Wisconsin Coastal Management Program (WCMP) has played a critical role in enhancing our communities by providing technical assistance and funding to assist countless local projects including land use planning, nonpoint source pollution abatement, public access and Great Lakes education. A critical part of the WCMP's success is the participation of a citizen-based council that guides the program by providing perspective on local and statewide coastal issues.

The Wisconsin Coastal Management Council (Council) is a fourteen-member body appointed by the Governor to provide advice and assistance to the WCMP staff and partners. Council membership includes public and local government representatives from the Lake Superior region, the Green Bay and upper Lake Michigan region, the southern Lake Michigan region and City of Milwaukee. Council members also represent tribal government, academia, the State Senate, the State Assembly and the Departments of Administration, Transportation and Natural Resources.

The Council brings together diverse perspectives to advise the WCMP on policy matters involving Wisconsin's coastal management efforts. For instance, the Council annually considers program priorities used to guide the allocation of resources through the program. The Council may also provide policy advice to the Governor and federal partners on matters involving Wisconsin's coasts. In addition, Council members use their broad knowledge of coastal issues to make strong connections with key decision-makers—state legislators, local government officials, Native American tribal representatives and state agency officials—and the general public.

The Council is most active in its work involving local projects in need of WCMP financial resources. Our successful grant program is often considered to be the main part of what we accomplish, and has been a critical component for hundreds of coastal projects through the decades.

Serving on the Council since 2002 (Chairman since 2009) and as Mayor of the City of Bayfield (population 627) since 1994 has provided me an interesting view of coastal issues and solutions. Prior to serving on the Council, I represented the City of Bayfield as a WCMP grant applicant for a wide variety of projects. Some were funded and some were not. However, with each grant application we received sound, practical input and advice from the WCMP. It was not always what we wanted to hear, but always worth hearing.

Local applicants frequently have several good ideas for WCMP-funded projects. However, ranking those ideas needs to be a key initial element of their planning. Normally, only one grant per funding cycle will be awarded to an applicant, although they may apply for additional projects provided their list is prioritized.

My advice is to think big during the early stages of a project idea and focus on program requirements as the plan matures. Contact with WCMP staff is essential so the grantee's application is written to have the best chances of success. Grant guidelines are well detailed and must be followed. Good project planning will minimize obstacles to a successful application.

For example, the City of Bayfield in 1994 applied for a WCMP grant to renovate the historic Bayfield Lakeside Pavilion, a structure owned by the City since 1938. The grant application required proof of ownership. However, we learned just before the application was due that the transfer of title had never been completed. We were fortunate to find the daughter of the former owner who actually remembered the day in 1938 when the City paid her father for the structure. We obtained title shortly before the grant was due.

Grant applicants can take several preliminary steps to increase their chances of success:

- Contact the WCMP staff to review successful grant applications that relate to their ideas.
- Participate in WCMP grant workshops to ask questions of program staff.
- Attend a Council meeting to get a better understanding of the decision-making process.
- Contact a former grant recipient, a current Council member who lives in your area or the local regional planning commission to get perspective on a proposed project.

In 2010, the WCMP awarded 39 grants totaling $1.6 million. These awards leveraged other funds to generate aggregate project value of nearly $5.4 million. Grant recipients range from the very small Town of LaPointe on Madeline Island to the City of Milwaukee. All communities are welcome to participate in the program.

In past years, grants have been provided for projects as diverse as waterfront planning, community playgrounds, storm water runoff solutions and healthy beaches. Grant recipients are generally pleased to share their knowledge with new applicants. Communities that participate in the program become strong supporters of the broad spectrum of help and ideas provided by the WCMP.

Each of our coastal communities, tribes and non-profits has different needs, talents and skills. However, we all share the same goal of protecting two of the greatest resources on Earth, the Great Lakes named Superior and Michigan.

Larry MacDonald is Mayor of the City of Bayfield. He may be reached at (715) 779-5712 or bayfieldmayor@gmail.com.

The Wetland Gems program will elevate public interest in the importance and value Wisconsin's wetlands.

WETLAND GEMS: RECASTING THE IMAGE OF WETLANDS

Katie Beilfuss, Becky Abel and Laura England

No matter who you are or where you live, wetlands affect your life.

From clean water to flood attenuation, shoreline protection to fish and wildlife habitat, wetlands provide important natural benefits as well as recreational and educational opportunities that enrich the lives of the people of Wisconsin and our state's economy.

But a history of negative and erroneous stereotypes of wetlands—they are wastelands, they breed mosquitoes and other pests, they stand in the way of development—has contributed to the destruction of nearly half of Wisconsin's wetlands as well as pervasive misunderstandings about the value of wetlands. People who value Wisconsin's lakes, rivers and streams are often unaware of the role that wetlands play in keeping our beloved waterways healthy. Some of this lack of understanding may stem from the fact that wetlands as a natural community type are confusing and not always readily recognizable.

Just what are wetlands? Can they be dry? (Yes) Must they have cattails or pond lilies? (No) Can they be wooded? (Yes) Many of Wisconsin's citizens do not understand what wetlands are or the ways in which wetlands affect their lives. The Wetland Gems program aims to change all that.

In 2009, the Wisconsin Wetlands Association (WWA) announced 100 Wetland Gems, high quality habitats that represent the wetland riches—marshes, swamps, bogs, fens and more—that historically made up nearly a quarter of Wisconsin's land area. They are landscapes that both preserve the past and inspire for the future.

The Wetland Gems program was designed to raise the profile and elevate public awareness of wetlands, their importance and value. It also aimed to motivate Wisconsin families and citizens to explore and enjoy wetlands, generate community pride about local wetland treasures, and catalyze community involvement in stewardship of local wetland treasures.

WWA has set a goal that citizens of Wisconsin will value all wetlands as natural treasures, and that increased public understanding and recognition of the value of wetlands will ultimately mean greater protection of Wetland Gems and other Wisconsin wetlands over the long-term.

The Wetland Gems list built upon the results of extensive conservation planning efforts that identified critical habitats, threats and conservation actions to protect the state's natural communities, species and special places, including coastal habitats. These include The Nature Conservancy's Ecoregional Plans, the Wisconsin

Important Bird Areas Project, and the Wisconsin Department of Natural Resources' Land Legacy Report, Wildlife Action Plan, State Natural Areas Program and Coastal Wetlands Assessment Report.

Following consultation with wetland experts, WWA selected ninety-three sites that collectively represent the diversity of wetland community types present in each of eight geographic regions. Wherever possible, WWA chose Wetland Gems containing multiple wetland and upland community types and representing fully functioning ecological systems. WWA selected an additional seven Workhorse Wetland Gems, sites that illustrate how wetlands deliver priceless services including flood attenuation, water quality protection, fish and wildlife habitat, shoreline protection, groundwater connections, and recreation and educational opportunities.

The announcement of Wisconsin's Wetland Gems included a series of public events held in communities around the state. The events celebrated Wetland Gems sites, recognized the landowners of these sites, and promoted the value and importance of wetlands.

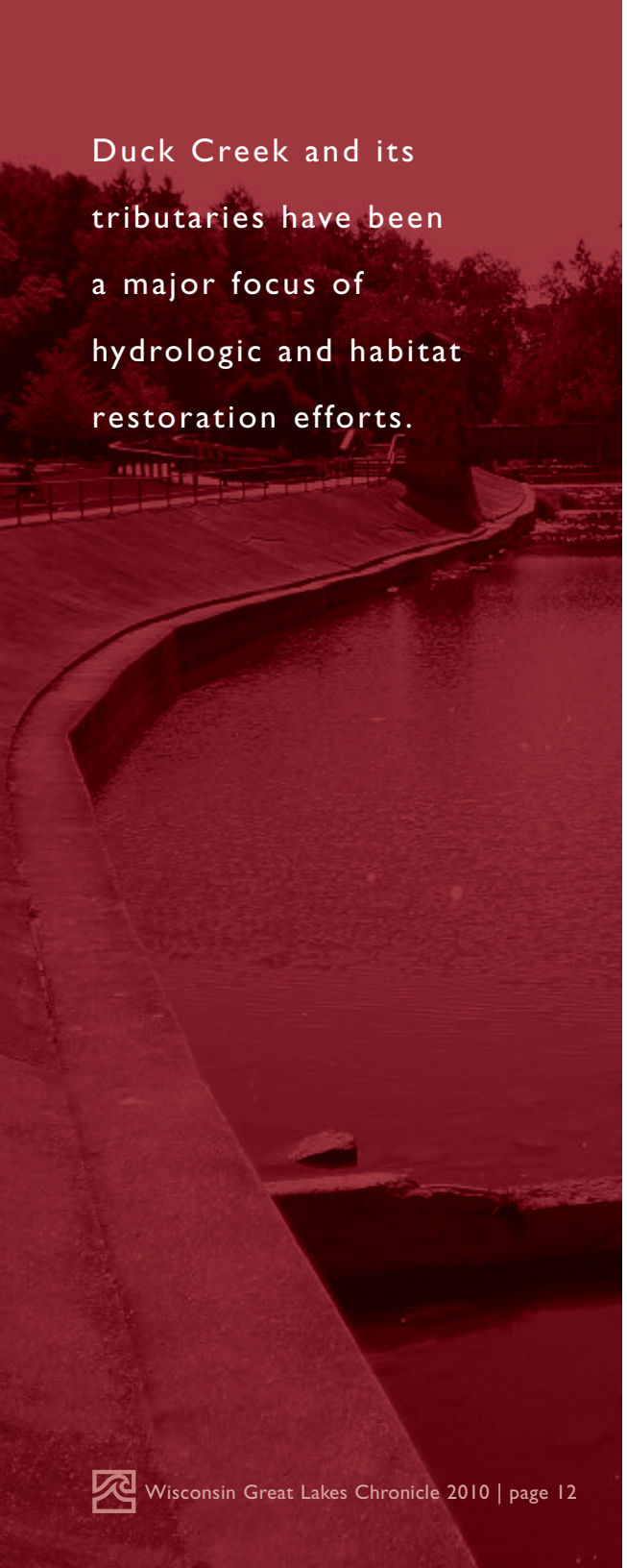
These Wetland Gems celebrations paid many dividends. They forged connections between individuals and groups that could prove critical for future wetlands outreach programs. They provided mutually-beneficial opportunities to connect with legislators who were invited to make comments about the importance of wetlands during the event programs. They attracted new audiences including members of local convention and visitors bureaus, chambers of commerce and county and town boards. And they garnered media coverage that spread the message of the importance of wetlands to broader local, regional and statewide audiences through Web, print and television stories.

The announcement of Wisconsin's Wetland Gems was just the start of efforts to recognize and promote these sites that together represent Wisconsin's wetland heritage. Popular demand led to the publication of a beautiful full-color book featuring all of the Wetland Gems materials—maps, fact sheets and more—compiled in a convenient, spiral-bound collection. This book—a travel guide to Wisconsin's wetlands—is sold through WWA, nature centers and gifts shops.

The Wisconsin Wetlands Association is also working with Wetland Gems site landowners and managers to help them promote the designation to increase community awareness of and appreciation for these special places. And WWA is working to bring formal worldwide recognition to a select few of these Wetlands Gems that are of international importance through the Ramsar Convention on Wetlands (www.ramsar.org).

We can change people's minds about wetlands, and must do so if we are to protect these beautiful and critical resources. Change can be motivated in small ways—an expedition to hear spring frogs with neighborhood children, an outing to witness sandhill cranes congregating at sunset, or a quiet float through a local floodplain forest. Our hope is the Wetland Gems program will inspire thousands of these visits that will in turn collectively inspire a casting change for wetlands from obstacles to treasures.

Katie Beilfuss (Outreach Programs Director), Becky Abel (Executive Director) and Laura England (Special Projects) work for the Wisconsin Wetlands Association and can be reached at (608) 250-9971 or programs@wisconsinwetlands.org.
More information on Wetland Gems is available at www.wisconsinwetlands.org/gems.htm.



Duck Creek and its tributaries have been a major focus of hydrologic and habitat restoration efforts.

DUCK CREEK FISH PASSAGE

Stacy Gilmore

Duck Creek is a 42-mile stream that originates in central Outagamie County and winds northeast where it empties into the bay of Green Bay, just north of the city of Green Bay. More than 100 miles of Duck Creek and its tributaries lie within the Oneida Indian Reservation. During the last fifteen years, the Oneida Tribe of Indians of Wisconsin (Oneida Tribe) has partnered with the Wisconsin Department of Natural Resources (WDNR), the U.S. Fish and Wildlife Service (USFWS), Brown County and others to restore stream habitat and water quality in the Duck Creek system.

Duck Creek and its tributaries have been a major focus of hydrologic and habitat restoration efforts in recent years. Past land use practices caused changes in hydrology leading to alterations in channel morphology, stream bank erosion and loss of critical habitat. Agricultural land use is still prevalent in the watershed, and the WDNR, Brown County and the Oneida Tribe are all active in addressing agricultural impacts to surface waters. The Duck Creek Watershed has also been considered a priority watershed under the Wisconsin Nonpoint Source Water Pollution Abatement Program. This designation has strengthened collaboration and cooperation around the vision of restoring health to the Duck Creek system.

In January 2008, representatives from the WDNR, USFWS, Brown County and the Oneida Tribe met to identify issues and evaluate stream data associated with an initiative to enhance fish passage in Duck Creek. Of particular concern, several low-head dams in Duck Creek pose significant obstacles to fish passage.

Two large structures on Duck Creek at Pamperin Park are in need of major repairs. They also pose potential liability risks to Brown County because of their location on public land and use for public access. The Pamperin Park structures have created slow, warm, low-quality water impoundments that contain degraded natural habitat. Each spring, migrating fish congregate in these impoundments because the structures restrict the distribution of many fish species upstream to better feeding, spawning and nursery habitat.

Extensive fishery surveys have been conducted throughout the Duck Creek system by WDNR, USFWS and the Oneida Tribe over the last two decades. Assessment of watershed-wide fishery impacts of dam removal included compiling species and distribution lists and identification of invasives, exotics and any species of concern. Water quality and habitat data were evaluated with fishery data to make ecologically-based recommendations regarding the structures in Duck Creek.

The project team drafted a plan that included removal of the Pamperin Park structures and proposed modifications to another structure upstream at the Oneida Golf and Country Club (OGCC) to act as a barrier to invasive fish species. The proposed plan was approved by Brown County and supported by the Oneida Environmental Resource Board and Oneida Land Commission.

Pamperin Park Barrier Removal. Proposed work will consist primarily of removing two concrete dams—low-head structures about 100 feet long and two to three feet high—with heavy equipment. In-stream fish habitat restoration and streambank stabilization will also be included as part of the project. With the fish impoundment removed, fish refuge status can be lifted and the fishery may be opened to park visitors. In the near future, tribal fishing areas will be enhanced upstream to provide more fishing opportunities to Oneida Tribe members.

OGCC Barrier Modification. OGCC is located directly upstream from Pamperin Park. The low-head dam on this property is in good repair and more conducive to fish passage than the structures at Pamperin Park. Some modifications at the waterline are necessary to improve the upper OGCC structure as a more effective barrier to invasive sea lamprey and round goby. Modifications to this structure may include the addition of a lip to prevent sea lampreys from using their suction-cup mouths to climb over the barrier, or creating areas of high velocity to exploit the sea lampreys' poor swimming ability. The result will be a fish pass through which fish can swim, but through which sea lampreys cannot.

Natural Streambank Re-Establishment. The southern streambank of Duck Creek in Pamperin Park has been armored in concrete, presumably for protection from spring ice jams. Runoff from an adjacent parking lot travels down this concrete slope and directly into Duck Creek. The volume and speed of this runoff further degrades the water quality of the Creek. Removal of the in-stream structures will allow ice floes to proceed downstream without jamming in this area. Re-establishment of native vegetation along the streambank will improve water quality and provide habitat for fish and other aquatic species.

The cooperative efforts of this project team will not only facilitate a sound ecological recommendation based on years of data, but also provide for monitoring long after the project is completed. Funding for the project has been secured through the Fox River Natural Resource Damage Assessment, the USFWS National Fish Passage Program, the Wisconsin Coastal Management Program and the Great Lakes Restoration Initiative (Bureau of Indian Affairs).

Removal of the structures will build on years of previous efforts within the basin, and is an essential step toward restoring the ecological balance of the Duck Creek watershed.

Stacy Gilmore is a Water Resources Specialist with the Oneida Tribe of Indians of Wisconsin. She may be reached at (920) 496-5325 or sgilmore@oneidanation.org.

Bayfield County uses LIDAR data for purposes including shoreline zoning, conservation efforts and tourism.

LIGHT DETECTION AND RANGING (LIDAR) DATA

Scott M. Galetka

Bayfield County has a wealth of natural features and amenities that attract people from around the world. The County offers varied water resources including warm sand beaches, rushing waterfalls and cold, crystal clear water flowing in artesian wells. Several of Wisconsin's national treasures are found in Bayfield County, such as the Apostle Islands National Lakeshore, Chequamegon-Nicolet National Forest and Whittlesey Creek National Wildlife Refuge.

The County's location on Lake Superior makes it a true getaway for people to become inspired, learn, teach, relax and talk with a great mix of people from all walks of life. Our community appreciates its many environmental resources and their importance on local economy. We, like many people on the Lake, benefit from tourism and work hard to ensure our resources are protected for residents and visitors alike.

The Bayfield County Land Records Department and its partners believe one of the best ways of ensuring the resource is enjoyed and protected is by acquiring Light Detection and Ranging (LIDAR) data on the coastline. LIDAR is a remote sensing system used to collect elevation measurements. Data is acquired by scanning the Earth with a laser mounted on an aircraft to acquire x, y and z coordinates on the landscape to inventory land use.

Bayfield County uses LIDAR data for many purposes, including zoning for building setbacks on the shoreline, conservation efforts and tourism. Several County departments—Health, Land Records, Administration, the County Board, Forestry, Highways, UW-Extension and Sheriff—are finding LIDAR data useful in carrying out their functions.

We are excited about the possibilities of using LIDAR data for tourism and physical health. For instance, the County is in the process of collecting trail data and overlaying it with elevation data taken from the LIDAR flight. This combination of information will allow the County to assign different skill levels to individual trails. When made available to the public, outdoor enthusiasts will be able to make smart decisions when they choose to hike or bike a trail that may be above their skill level. This information will also be placed in our dispatch center for Wireless E-911 calls to better define the origin of calls made from cell phones. The trail project is one example of how LIDAR data will be used by the County to promote public safety and health.

LIDAR data has been used for preliminary work on the recently built rain garden on the County Courthouse lawn. The rain gardens have visually improved the Courthouse grounds, but also have the ability to capture eighty percent of the annual

runoff and put it back into the groundwater. This provides the benefit of limiting the amount of runoff that would otherwise flow directly into the cool lake bringing its contaminants and raised temperature along with it.

The County's most ambitious use of LIDAR data was on a one-mile buffer of shoreline including a project area around the Cities of Bayfield and Washburn. Original proposals to collect the data came back over budget. Instead, we worked with the Department of Administration to expand the project to neighboring communities and thereby identify economies of scale to bring costs down.

The project was ultimately expanded to include the entire south shore and four miles up the St. Louis River at Superior. The project was successful because of help from many public and private partners including the National Oceanic and Atmospheric Administration, the United States Geological Survey, the National Parks Service, the Red Cliff Band of Chippewa Indians, the cities of Ashland and Superior, the Wisconsin Coastal Management Program, the Wisconsin Land Information Program and Impact Seven, Inc.

The contract with LIDAR consultants Laser Mapping Specialist and Allied Information Solutions provided that the County and its partners—including Ashland and Superior—would conduct ground control work to bring

down project costs. The willingness of the contractor to find savings and the assistance of our partners made this project happen.

Through this project, we have developed a geographic information systems user group to build on additional partnerships. These partnerships will help capture common goals and develop our skills as a region.

The success of this project is creating potential opportunities for Bayfield County. For example, Bayfield County has moved to next in line on the list of Federal Emergency Management Agency re-mapping projects—Bayfield County was not previously on the list. In addition, the U.S. Fish and Wildlife Service is also considering moving Bayfield County up on its priority list for certain projects and we are combining these projects into existing goals of the community.

Bayfield County has acquired skills to help neighboring communities that may want to expand on our LIDAR work. We are looking into the feasibility of processing LIDAR data in-house to help support our neighbors in their ventures.

Bayfield County thanks its partners for being part of this project, and we welcome future opportunities to work with anyone to accomplish common goals for the region.

Scott M. Galetka is the Land Records Administrator/Land Information Officer for Bayfield County. He may be reached at (715) 373-6156 or sgaletka@bayfieldcounty.org.

2010 WISCONSIN COASTAL MANAGEMENT PROGRAM GRANTS

Project Name
Grantee
WCMP Award
Project Description
Contact

Coastwide

Wisconsin Clean Marina Program Training and Certification
Wisconsin Marina Association
$50,825
Complete development of the Wisconsin Clean Marina Program by providing education, training and technical assistance to improve water quality.
Ms. Michelle Shrider, (715) 373-5050

Protecting Wisconsin's Coastal Working Lands
Gathering Waters Conservancy
$34,300
Conduct seven workshops and develop outreach materials on the Purchase of Agricultural Conservation Easement program in coastal communities.
Mr. Michael Carlson, (608) 251-9131

Road-End and Public Access Inventory to Lake Michigan
Bay-Lake Regional Planning Commission
$29,997
Inventory and assess public access locations to Lake Michigan in Kewaunee, Manitowoc and Sheboygan Counties.
Ms. Angela Pierce, (920) 448-2820

Coastal Conservation and Resource Efficiency Program
Wisconsin Rural Water Association
$29,665
Provide water conservation information, technical assistance and promotional material to coastal communities and utilities.
Mr. Ken M. Blomberg, (715) 344-7778

Return the Sturgeon
Riveredge Nature Center
$28,717
Provide educational programs supporting efforts to re-establish Lake Sturgeon in the Milwaukee River including a volunteer program and the 2010 Lake Sturgeon Release event.
Mr. Marc White, (262) 375-2715

Integrated Wetland Outreach to Coastal Communities
Wisconsin Wetlands Association
$24,541
Conduct wetland summits in coastal counties, reprint and distribute *A Local Decision Makers' Guide to Wetlands Conservation*, and designate up to two coastal sites as Ramsar Wetlands of International Significance.
Ms. Becky Abel, (608) 250-9971

Nowcast Models for Predicting Water Quality at Five Lake Michigan Beaches
Department of Natural Resources
$21,227
Build, refine and evaluate nowcast water quality models at five Lake Michigan beaches in Ozaukee County and the City of Racine.
Mr. Adam Mednick, (608) 261-6416

Technical Assistance
Bay-Lake Regional Planning Commission
$20,000
Support coastal management activities and technical assistance to local governments in the Bay-Lake region.
Mr. Richard Heath, (920) 448-2820

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

Technical Assistance
Southeastern Wisconsin Regional Planning Commission
$20,000
Support coastal management activities and technical assistance to local governments in the Southeast region.
Dr. Donald Reed, (262) 547-6721

A Survey of Residents: Advancing Water Quality and Restoration Efforts
1000 Friends of Wisconsin
$18,000
Develop and conduct a bilingual survey of residents in the Menomonee, Kinnickinnic and Milwaukee watersheds related to stormwater and water resources.
Ms. Kate Morgan, (608) 259-1000

Great Lakes Educator Recognition Program
Alliance for the Great Lakes
$15,000
Develop a formalized recognition program and peer-training opportunities for Wisconsin educators who integrate Great Lakes education into classroom activities.
Ms. Stephanie Smith, (773) 486-9059

Wetland Toolkit—Phase II
Department of Natural Resources
$15,000
Reprint the *Wetland Restoration Handbook for Wisconsin Landowners* and develop a wetland protection laws publication for local governments and landowners.
Ms. Cherie Hagen, (715) 635-4034

Greater Milwaukee Watersheds Water Monitoring Plan
River Alliance of Wisconsin
$10,000
Develop a monitoring plan for the Greater Milwaukee watersheds region to identify data gaps and options for measuring improvements.
Mr. Christopher Clayton, (608) 257-2424

Coastal Wetland Inventory
Department of Natural Resources
$90,691
Update the Wisconsin Wetland Inventory for Kewaunee and Oconto Counties, update wetland map changes for other coastal counties and provide GIS support to data users.
Ms. Lois Simon, (608) 266-8852

Technical Assistance to Local Units of Government
Department of Natural Resources
$389,230
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

Plan and Feasibility Study for Future Development of the LaPointe Harbor
Town of LaPointe
$40,000
Develop a long range plan and feasibility study for the development of a harbor on Madeline Island.
Ms. Barb Nelson, (715) 747-6913

Bayfield County

Third Street Boat Launch Rehabilitation
City of Bayfield
$50,000
Support improvements at the Third Street Boat Launch.
Mr. Tom Kovachevich, (715) 779-5712

Real-Time Wave Observation System on Lake Superior
University of Wisconsin-Madison
$29,925
Implement a real-time wave observation system at the caves in the Apostle Islands National Lakeshore by adding a digital camera and compact web-browser.
Dr. Chin Wu and Mr. Gene Clark, (608) 263-3078

Community Lands Assessment and Ameliorative Multi-Site Master Plan
Town of Clover
$26,650
Complete a lakefront and public lands master plan that addresses the redesign of a town park and campground on Lake Superior.
Ms. Jane Bucy, (715) 774-3797

Brown County

Katherine Harper Riverwalk and Wildlife Viewing Pier
City of De Pere
$100,000
Construct a recreational walkway that crosses a channel of the Fox River. The project includes a scissors bridge from Voyageur Park to Government Island.
Mr. Marty Kosobucki, (920) 339-4065

Duck Creek Fish Passage Project
Oneida Tribe of Indians of Wisconsin
$34,000
Remove and modify deteriorating dams to restore in-stream habitat and restrict invasive species along a fish passage.
Ms. Stacy Gilmore, (920) 496-5325

Cleaning Water Today for Tomorrow's Generations
Green Bay Metropolitan Sewerage District
$6,850
Develop an environmental education video and brochure to educate students on wastewater treatment, water quality, stormwater pollution and invasive species.
Ms. Lisa Evenson, (920) 438-1064

Door County

Monitoring Groundwater Inflow to the Mink River Estuary
University of Wisconsin-Extension
$37,980
Establish a groundwater monitoring network around the Mink River Estuary in Door County to identify and protect critical habitat for the endangered Hine's emerald dragonfly.
Mr. Jim Erickson, (608) 262-6636

Egg Harbor Municipal Marina Parking Lot Runoff Control Project
Village of Egg Harbor
$25,000
Construct a stormwater filtration basin and catch basin to prevent parking lot and upland runoff from discharging directly to Egg Harbor and Green Bay.
Mr. Joshua Van Lieshout, (920) 868-3334

Murphy Park Pasture Acquisition
Door County Parks Department
$25,000
Provide funding for the acquisition of fourteen acres for open space and access to Horseshoe Bay Cave next to Murphy County Park on Green Bay.
Mr. George Pinney, (920) 746-9959

Coastal Terrestrial Invasive Species Education and Control
Door County Soil and Water Conservation Department
$15,000
Provide workshops to landowners and organizations on terrestrial invasive species and their control.
Ms. Amanda Surfus, (920) 746-2214

Iron County

Iron County Invasive Species Integrated Prevention Project
Iron County Land and Water Conservation Department
$25,890
Develop a citizen monitoring program to educate lake residents and visitors on water quality and aquatic invasive species and provide outreach on Eurasian water-milfoil.
Ms. Mary Jo Gingras, (715) 561-2234

Kewaunee County

City of Kewaunee Land Use Plan Implementation
City of Kewaunee
$11,500
Update the City of Kewaunee Outdoor Recreation Plan and Zoning Ordinance.
Mr. Brian Kranz, (920) 388-5000

Manitowoc County

Manitowoc County Zoning Ordinance and Mapping Update
Manitowoc County
$30,000
Update Manitowoc County's 1965 Zoning Ordinance to implement the County comprehensive plan.
Mr. Tim Ryan, (920) 683-4185

Milwaukee County

Reed Street Yards Riverwalk
City of Milwaukee
$75,000
Complete 2,700 feet of river walkway that bridges gaps and completes the Hank Aaron State Trail.
Mr. Dan Casanova, (414) 286-5921

Maryland Avenue School Rain Garden
Milwaukee Public Schools
$39,310
Create a 14,000 square foot exploratory rain garden to be integrated into the school curriculum as an environmental studies laboratory.
Mr. Phil Dosmann, (414) 906-4800

Boulevard Bioswales
City of Milwaukee
$35,000
Install 5,000 square feet of bioswales on Bay Street boulevards to channel street runoff and plant native perennials and trees to promote pollutant filtering.
Mr. Kimberly Kujoth, (414) 286-5453

Kinnickinnic River Corridor Residential Green Infrastructure Planning
Sixteenth Street Community Health Center
$32,000
Identify and create plans to address locations of high levels of water pollution from nonpoint sources.
Mr. Peter McAvoy, (414) 385-3746

Lakefront Redevelopment Plan
City of Oak Creek
$30,000
Support a planning process to guide environmental remediation and redevelopment along one mile of the City's Lake Michigan shoreline.
Mr. Doug Seymour, (414) 768-6526

Habitat Improvement Project in the Estuary Environment
Milwaukee Metropolitan Sewerage District
$23,282
Study the feasibility of underwater baskets to provide habitat for fish and other aquatic life in urbanized parts of the Milwaukee estuary.
Mr. Kevin Shafer, (414) 225-2088

Lakeshore State Park—Science in the Park
Friends of Lakeshore State Park
$10,000
Install interpretive signs and park entrance kiosks to provide visitors with information regarding Great Lakes issues, park programs and education opportunities.
Mr. Todd Montgomery, (414) 273-1173

Ozaukee County

Sucker Creek Coastal Watershed Pilot Project
Ozaukee County Land and Water Management Department
$33,725
Conduct a habitat assessment of Sucker Creek watershed, sample outfalls and develop a measurable plan of action to improve water quality.
Mr. Andy Holschbach, (262) 284-8271

High Bluff Stabilization of Lake Michigan through Research, Education and Outreach
University of Wisconsin-Madison
$29,545
Assess current slope stability and monitor changes in the bluff at Concordia University to develop a solution to shallow slope failures at the site.
Dr. Chin Wu, (608) 263-3078

Racine County

Increasing Public Access to Lake Michigan
City of Racine
$21,825
Purchase and install a Mobi-Mat RecPath at the North Beach to increase accessibility to the beach area.
Mr. Donnie Snow, (262) 636-9451

Coastal and Estuarine Land Conservation Program (CELCP) Grants

Nemadji River Coastal Corridor Acquisition
Douglas County Forestry Department
$1,912,000
Acquire and protect 3,995 acres of forested land and six miles of the Nemadji River through the Douglas County Forest.
Mr. Jon Harris, (715) 378-2219

Houghton Falls Nature Preserve
Town of Bayview
$1,416,300
Acquire 77 acres along Chequamegon Bay for a nature preserve that protects 2,230 feet of Lake Superior shoreline, 2,305 feet of forested riparian corridor and Houghton Falls.
Mr. Don Jenicek, (715) 779-5737

Mashek Creek Natural Area
Department of Natural Resources
$398,000
Acquire 26.9 acres on Lake Michigan for a recreation area providing public access to 1,756 feet of shoreline.
Mr. Doug Haag, (608) 266-2136

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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5, Big Bay State Park, Travis Olson

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9, WCMC and Friends, Mark Eggleson

10, St. Louis River, Eric Epstein

11, Renak Polak Woods, Joy Wolf

12, Duck Creek, Rick Stoll

13, Duck Creek, Rick Stoll

14, Lake Superior, Todd Breiby

15, Lake Superior, Jason Laumann

16, Ashland Waterfront, City of Ashland

20, Jackson Harbor, Todd Breiby

21, Newport State Park, Jeffrey Potter

Back Cover, Bud Jordahl at Chequamegon Point (1964), Jordahl Family

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WISCONSIN COASTAL MANAGEMENT PROGRAM

Wisconsin Great Lakes Chronicle 2010 is dedicated to the life, work and living memory of Harold "Bud" Jordahl.
Bud's accomplishments as an environmental steward, educator and mentor are his lasting gifts to the people of Wisconsin and the Great Lakes.

WISCONSIN COASTAL MANAGEMENT PROGRAM