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MICHIGAN COASTAL NEWS

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State Board: Four Near-Coastal Areas are Top Spots for Wind Energy Potential

An independent board appointed by the Michigan Public Service Commission (MPSC) has tentatively identified four near-coastal areas in the Lower Peninsula as having the richest potential for commercial wind energy development, warranting further study. This conclusion follows the Wind Energy Resource Zone Board's (WERZB) assessment of Michigan's land area, detailed in its proposed report released June 2. The MPSC established the 11-member Board last December as required under the Clean, Renewable and Efficient Energy Act of 2008. The Board's charge is to develop a "list of regions of the state with the highest wind energy harvest potential" and conduct relevant studies. Members include representatives from local government, electric utilities, independent power transmission companies, environmental organizations, renewable energy industry, MPSC, Office of the Attorney General, and the public.

The high-level wind energy resource assessment involved applying a series of criteria to Michigan's 37 million acres. First, the Board used several exclusion criteria to determine lands to be removed from consideration, due to constraints related to environmental and natural resource protection, topography, public safety, and other factors. For example, lands within one mile of the Great Lakes shoreline were excluded because of potential impacts to tourism and fragile coastal habitats. In the next step, a grid with 450 meter by 450 meter spacing laid over the remaining 19 million acres indicated the maximum number of wind turbines that could be theoretically placed on those lands, since turbines in commercial wind farms are spaced at least 450 meters apart. Finally, a wind resource map overlay from the National Renewable Energy Laboratory showed which areas had consistent wind speeds in the range thought to be high enough for commercial wind farms.

The Board found the four top regions emerging from the assessment have abundant and reliable wind resources, open space suitable for commercial wind projects, and are substantially free from other known development constraints. Three regions are on Lake Michigan and the other is the "Thumb" area on Lake Huron and Saginaw Bay. After comments are received, the WERZB will issue its final report. Electric utilities and transmission companies operating in the identified regions will then advise the MPSC on transmission infrastructure expansions and upgrades needed to deliver each region's expected wind-generated power to urban markets. The MPSC will use this and other information to designate at least one wind energy "zone" to guide the state in planning, siting, and constructing transmission lines. A link to the report, information on submitting comments, and the schedule of public hearings is available at www.michigan.gov/windboard.



Photo Credit: Michigan Nature Association



Excessive shrub growth shades lakeplain prairie plants

Project Spotlight: Lakeplain Prairie Restoration

Early settlers on parts of the Great Lakes coast saw a sea of tall grasses and wildflowers, punctuated by oaks. This distinctive wetland landscape, known as lakeplain prairie, spread across 160,000 acres along Saginaw Bay, Lake Erie, and certain other coastal areas in the southern Lower Peninsula. Spring flooding followed by summer drought discouraged trees and shrubs from taking hold, and fires sparked by lightning or set by local tribes also kept woody plants in check and allowed grasses and wildflowers to dominate. Today, 99% of this original acreage is farm fields and development, and remaining fragments are small and degraded. The Michigan Nature Association (MNA) recently used a Coastal Zone Management grant and other funds to study methods for restoring this globally rare wetland type.

The Association's Saginaw Wetlands Sanctuary in Huron County shelters one of the highest quality remnants of lakeplain prairie in existence. Yet even at this preserve, modern drainage practices and decades of fire suppression have impaired natural ecosystem processes and opened the door to shrub encroachment. The shrubs, mostly native dogwoods, shade out the sun-loving grasses and wildflowers including many rare species typical of lakeplain prairies. Several of these species are protected under state and federal law, which meant that MNA stewardship staff coordinated closely with state and federal wildlife agencies in conducting the shrub control research.

The rarity of the plants at the site warranted a careful approach, beginning with surveys to locate the threatened and endangered species within the study plots and record their GPS coordinates. The project team and volunteers also recorded the coordinates of the encroaching shrubs. Over the course of the following several months, the researchers tested the effects of various combinations of cutting, herbicide treatments, and controlled burning on the shrubs, and monitored the rare orchids and other plants for possible impacts. The study results indicated that cutting the shrubs close to the ground and immediately daubing herbicide on the cut surface provided effective control when done during the summer through winter timeframe. Prescribed burning in spring had no effect on shrub control, though it provides other ecosystem benefits. Importantly, the shrub management methods identified through the research had no adverse impacts on the rare plants in the study plots. Contact Sherri Laier, MNA Stewardship Director, for additional information on the project at **(517) 655-5655** or slaier@michigannature.org.

Partnership to Combat *Phragmites*, Other Invasives Underway on NE Michigan Coast

A coalition of conservation organizations and state and federal resource management agencies has joined forces to contain the spread of *Phragmites*, glossy buckthorn, and purple loosestrife along the northeast Lower Peninsula coast. Under a coastal cooperative weed management agreement formalized this spring, Huron Pines, The Nature Conservancy, U.S. Fish and Wildlife Service, Michigan Departments of Environmental Quality and Natural Resources, Alcona and Iosco County Conservation Districts, and other partners are contributing resources and expertise to implement a comprehensive plan for managing these invasive plants. The three species take hold in wetlands, shorelines, and other habitats with abundant moisture. Once established, they shade out and inhibit the growth of native wetland plants and often form large patches with very limited wildlife habitat value. The non-native type of *Phragmites australis*, or common reed, presents a particularly vexing problem for shoreline property owners since it is fast-spreading, difficult to control, and quickly forms tall, dense stands that are visual and physical barriers to the water. The native type that occurs in the area is less vigorous and doesn't pose a problem to shoreline plants.

By and large, infestations of *Phragmites* and other invasives in northeast Michigan are smaller and less numerous than in southern parts of the state and many other areas in the Great Lakes Basin. Rather than being an occasion for complacency, habitat managers agree that the early stages of an infestation are the time to strike with aggressive containment and control efforts. Accordingly, the cooperative weed management plan emphasizes early detection of infestations and rapid response and removal. Given the area of the region to be covered and the modest amount of funding available, the success of the project hinges on the level of public interest and involvement generated. Educating coastal landowners in the region about the potential presence of invasives on their properties and recruiting, training, and mobilizing an army of volunteer monitors and "first responders" are critical steps.

Huron Pines is coordinating invasive plant treatments and volunteer recruitment and training. Cost-share funding is available to private landowners in Alcona and Iosco Counties interested in treating *Phragmites* and other invasives on their properties. Two invasive plant removal workdays are scheduled for volunteers, on July 22 in Iosco County and August 15 in Alcona County. Contact Tim Englehardt, Huron Pines Invasive Species Coordinator, for information on volunteering or cost-share funding at **(989) 344-0753** or tim@huronpines.org.



Photo Credit: Juli Dyle Bressie, Ph.D., GLERL

Saginaw Bay Research Initiative an Uncommon Collaboration Between Scientists, Resource Managers

Elizabeth Klimas, Great Lakes Environmental Research Laboratory

A “dark, black, decaying mess” is Warner Price’s colorful description of the shoreline in front of his lakefront property on Saginaw Bay. “The smell sensation you get is like you are standing in a barnyard,” said Price, 74, adding to his picture of the dead algae washing up on shore for the past decade.

A resident of Oak Beach near Port Austin – the thumb of Michigan – for 63 years, Price tries to attend any public meeting he can to help influence change in the Bay area. During the first year of a multi-year research project – *Managing Multiple Stressors in Saginaw Bay* – the

NOAA Great Lakes Environmental Research Laboratory (GLERL) and the Michigan Departments of Environmental Quality and Natural Resources assessed public concerns and needs. The project seeks to understand the relationship between factors such as invasive species, water levels, and phosphorus on water quality and fisheries in the Bay.

The project is using an Adaptive Integrative Framework approach, which ties researchers and managers closely together to identify effective management solutions. A local stakeholder survey was also conducted to gather public concerns. For Saginaw Bay, stakeholders identified water quality concerns including muck, pathogens, and nutrient loading and fisheries concerns including yellow perch and walleye recruitment, and feasibility of reestablishing lake herring in Saginaw Bay.

“The reason why this method is so important to us is because, as managers, we are being brought in right from the beginning of the study,” said Jim Bredin, with the MDEQ Office of the Great Lakes. “We’re telling researchers, ‘these are the management issues.’ This seems to be very seldom done, and we’re hoping researchers can, through this process, see what type of questions managers are up against.”

Now in the second year of the project, scientists are collecting data, making observations and creating models. “We hope to understand the processes well enough that our information can be used by management agencies to make effective management decisions,” Craig Stow, a NOAA GLERL scientist, said.

Though efforts are well underway and Price is optimistic about change, he said he doesn’t expect things to become “somewhat normal” for about 10 years. But, he said he is pleased momentum has begun. “Now there are so many people and things are going on that I don’t think that momentum can be stopped.”

Visit www.glerl.noaa.gov/res/projects/multi_stressors/index.html for additional information on the project.

NOAA Great Lakes Sanctuary to Become Climate Change Sentinel Site

The Thunder Bay National Marine Sanctuary (TBNMS) in the waters off Alpena County aims to become an integral part of the sentinel site network taking shape in the National Marine Sanctuary System. Sentinel sites are places intended to attract and foster collaboration among researchers studying the processes that affect ecosystems, for example, by supporting multi-disciplinary programs of sustained observations of environmental change, tracking indicators of ecosystem integrity, and providing resource managers with “early warnings” of significant changes. Having sites established in the Atlantic and Pacific Oceans, Gulf of Mexico, and Great Lakes will position NOAA to pursue national research priorities such as climate change, habitat degradation, and invasive species impacts across a range of regional ecosystems.

As the nation’s only marine sanctuary located in the fresh waters of the Great Lakes, near the heart of the continent, TBNMS is uniquely situated to serve as a sentinel site. For instance, climate change research conducted in TBNMS will offer enormous potential for comparisons with data collected from other parts of the marine sanctuary system. Under its newly-updated management plan, the Sanctuary is seeking to lay the groundwork for this research by expanding its current network of weather stations and other data collection infrastructure. Existing partnerships with NOAA’s Great Lakes Environmental Research Laboratory, outside organizations, and universities are a head start on the road to developing the multi-disciplinary research and monitoring programs that are central to the sentinel site vision.

The Sanctuary offers a unique venue and opportunity for public demonstrations and interpretations of climate change and other sentinel site research. The TBNMS visitors’ center, the Great Lakes Maritime Heritage Center, is a LEED Gold-Certified building that houses 9,000 sq. ft. of exhibit space and receives over 60,000 visitors annually. In addition, Sanctuary staff are planning new interpretation that focuses on environmental monitoring, sustainable technologies, and renewable resources, many of which are or will be implemented in the Center. Contact Jeff Gray, Sanctuary Superintendent, for additional information at **(989) 356-8805 extension 12** or jeff.gray@noaa.gov.

Draft Report Addresses Recent Declines in Lake Levels, Questions Remain

A board of scientists and engineers appointed by the International Joint Commission (IJC) has released draft findings of a two-year study, concluding that erosion triggered by decades-old dredging projects in the St. Clair River is not the major culprit behind lower water levels in Lakes Michigan and Huron and does not require mitigation. This preliminary conclusion has met mixed responses. Also, the Study Board did not address the known lake level declines due to the dredging projects themselves. The IJC is seeking public comment on the draft report while it undergoes peer review. The IJC was established under the Boundary Waters Treaty of 1909 to advise the U.S. and Canadian governments on cooperative management of the Great Lakes and other waters shared by the two countries.

The idea that erosion linked to historic dredging in the St. Clair River might be boosting outflow from Lakes Michigan and Huron came to the fore in 2005. That year, a foundation operating in the Georgian Bay area released a technical report claiming that ongoing riverbed erosion is "the primary cause of the drop" in the level of the two lakes. The report pointed to a short segment of the St. Clair River flanked by the cities of Port Huron, Michigan, and Sarnia, Ontario as the focus of the asserted problem. The U.S. Army Corps of Engineers completed the last major navigational dredging of the lower portion of the St. Clair River in 1962, on behalf of the U.S. government.

The claims commanded considerable attention because low lake levels affect a host of concerns, from commercial shipping and recreational boating to coastal wetland health. Consequently, the IJC decided to investigate possible physical changes in the St. Clair River as part of its larger International Upper Great Lakes Study (IUGLS) launched in March, 2007. In the draft St. Clair River report released this past May, the Study Board acknowledges that physical changes in the St. Clair River since 1963 have contributed to a lowering of Lakes Michigan and Huron, though the most significant changes occurred in the 1980s and appear unrelated to the navigational dredging. The Study Board also determined that the riverbed has been stable since 2000, possibly earlier. Apparently, a more important ongoing influence on lake levels is the effect of changes in patterns of precipitation, evaporation, and other climatic phenomena in the Lakes Superior, Michigan, and Huron watersheds. These shifts reportedly account for a substantial portion of the recent declines in lake levels, especially the drops observed between 1996 and 2005.

Lingering questions include whether and how to mitigate for the drop in lake levels directly attributed to navigational dredging and other intentional alterations to the St. Clair River since the mid-19th century. Past IJC studies indicate that historic dredging and commercial sand and gravel mining in the river caused a cumulative drop of about 14 inches in the level of Lakes Michigan and Huron. The Corps of Engineers' 1962 navigational dredging project accounted for the last 5 inches of that total. Congress had authorized the construction of compensating works in the St. Clair River to restore the level of the two lakes to pre-dredging levels, and the Corps completed design studies in the early 1970s. However, water levels reached record highs in the mid-1970s and Congress de-authorized construction of the compensating works in 1977. The late 1990s brought lower water levels, and in 2006 a U.S. Senate committee adopted a resolution authorizing a study of navigational dredging in the St. Clair River, erosion, and declining water levels. However, Congress has not appropriated funding for the necessary research.

The IJC took comments on the draft St. Clair River report through July 1, and a number of Study Board project teams will conduct additional research over the summer. The Board will review and incorporate the public and stakeholder comments, modeling, and analysis in the final report, scheduled for completion in fall, 2009. The draft report is available for review on the IUGLS website at www.iugls.org.

Volunteer for Michigan's Coast!

Delta County - Martin Bay Sanctuary Natural History Assessment.

Nature enthusiasts are invited to help the Michigan Nature Association catalog the birds, mammals, insects, reptiles and amphibians, and plants of the 34-acre sanctuary on a small embayment of Big Bay de Noc. The July 15 and September 26 events will run from dawn to dusk. Contact Natalie Kent to volunteer and receive directions to the preserve at (517) 655-5655 or nkent@michigannature.org.

Chippewa County - Pat Grogan Orchid Bog Nature Sanctuary Natural History Assessment.

The Michigan Nature Association needs volunteers to help with the August 2 and September 23 natural history assessment days at this 80-acre sanctuary near Paradise. See the above



Photo Credit: Michigan Nature Association

Martin Bay

Martin Bay Sanctuary announcement for details and contact information.

St. Clair County - Algonac State Park. The DNR Parks and Recreation Division needs weekend volunteers to help cut and stack invasive shrubs that are shading out the park's lakeplain prairies and oak openings. Workdays are July 12, August 2 and 23. Contact Laurel Malvitz-Draper to register at (248) 359-9057 or malvitzl@michigan.gov.