Photo Credit: Matt Smar, DNRE

MICHIGAN COASTAL NEWS

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COASTAL PROGRAM STAFF

Virginia Berry
berryv@michigan.gov

Christy Fox Weaver
foxc2@michigan.gov

Alisa Gonzales-Pennington
gonzalesa@michigan.gov

Lynda Krupansky
krupanskyl@michigan.gov

Matt Smar, Acting Chief
smarm@michigan.gov

Matt Warner
warnerm1@michigan.gov

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Great Lakes-Wide Coastal Wetland Monitoring Program Set to Begin

An unprecedented effort to collect comprehensive, consistent sampling data from coastal wetlands throughout the Great Lakes system is set to launch this fall, with Great Lakes Restoration Initiative funding provided by the U.S. Environmental Protection Agency (EPA). Several years in the making, the monitoring program is the current phase of a long-running endeavor to classify and map Great Lakes coastal wetlands, and assess and track their health. The $10 million program will take five years to complete and involve scores of researchers and resource management agency staff from the U.S. and Canada, working at several hundred sites. Central Michigan University is coordinating the program, and the Michigan Department of Natural Resources and Environment (DNRE) is one of many program partners.

The coastal wetland monitoring program implements an EPA-funded monitoring plan finalized by the Great Lakes Coastal Wetlands Consortium in 2008, following almost seven years of research and development. The building blocks of the monitoring plan are five sets of indicators addressing major components of coastal wetland condition, specifically, water chemistry, vegetation, invertebrates, fish, and amphibian and bird communities. The plan prescribes a suite of standard measurements and data collection protocols for assessing each set of indicators. Over the next five years, researchers will collect sampling data for these indicators from every Great Lakes coastal wetland at least 10 acres in area. A subset of the sites sampled one year will be resampled the following year to determine trends in wetland health. The project team will hold training sessions in the last year of the project for agencies and organizations interested in continuing the monitoring program locally. The EPA's Great Lakes National Program Office will then take over monitoring effort coordination.

The information generated will be of considerable interest to coastal communities, resource management agencies, conservation and sportsmen's organizations, and others with a stake in keeping coastal wetlands in good condition. Healthy coastal wetlands help maintain the quality of near-shore waters used for recreation, industry, and public water supplies. They buffer shorelines from erosion damage, and retain sediments that otherwise fill in navigation channels. By providing feeding and nursery habitat for many sport fish, waterfowl, and non-game wildlife species, the wetlands help stoke the tourism-based economic engines of many coastal communities. The DNRE Wetland Program will convene a regional wetland monitoring workgroup to implement a strategy for disseminating the massive volume of monitoring data and developing useful information products tailored to various stakeholders. For additional information contact Peg Bostwick, DNRE Wetland Program Chief, at **(517) 335-3470** or **bostwickp@michigan.gov**.


Photo Credit: Alan Bean, Spicer Group, Inc.

Project Spotlight: Walkable Coastal Communities

Communities aligning their development with Smart Growth principles strive to support a variety of transportation modes, including options for pedestrians and cyclists. Providing safe, convenient, and continuous pathways and trails gives residents the choice to move between homes, shops, schools, and jobs by bicycle or on foot, and creates the opportunity for greater social interaction, more physical activity, and reduced vehicle emissions. For coastal "walkable" communities, well-planned pathway and trail systems also connect people to the greatest local asset – the water. One Michigan township recently used a Coastal Zone Management grant to develop a nationally-recognized plan for a walkable community.

The Charter Township of Oscoda in Iosco County is a popular summer destination for outdoor recreation enthusiasts, with more than six miles of Lake Huron shoreline, state and federal forestland with hiking and equestrian trails, and the Au Sable River, site of the renowned Au Sable River Canoe Marathon, an annual, 120-mile nonstop canoe race from Grayling to Lake Huron. The downtown is at the crossroads of the US-23 Huron Shores Heritage Route, which parallels the Lake Huron coast, and the River Road National Scenic Byway, which follows the Au Sable River. A few miles northwest of downtown the former Wurtsmith Air Force Base, decommissioned in 1993, is a thriving residential neighborhood and business park anchored by a large air freight company.

Township officials saw the potential in unifying the downtown area with the outlying neighborhoods and businesses, coastal parks and public beaches, and extensive state and national forest trail system under a grand non-motorized transportation plan. With the help of a local planning firm, the Township consulted with a broad spectrum of stakeholders to work their interests and goals into the project. Existing plans incorporated into components of the Township's bicycle and trail plan included the *Oscoda Cool Cities Blueprints Plan*, *Safe Routes to School Plan*, *Oscoda Township Parks and Recreation Master Plan*, and *River Road Scenic Byway Corridor Management Plan*. Several public meetings over the course of the project allowed citizens and visitors to add their perspectives and ideas. This collaborative approach to plan development spread the enthusiasm, support, responsibility, and resources for its implementation among a broad base.

The final *Oscoda Charter Township Bicycle and Non-Motorized Pathway Plan* points the way toward stronger, walkable connections between neighborhoods and schools, forest trails and Lake Huron, and downtown and the old air force base. It proposes 40 miles of pathways divided among ten discrete future projects. Because of its innovation, public involvement, transferability, use of Smart Growth principles, and other qualities, it won the American Planning Association's 2010 Small Town and Rural (STAR) Planning Award for an Outstanding Comprehensive Plan or Special Project Plan. For additional information contact Ann Richards, Charter Township of Oscoda Community Development Coordinator, at (**989) 739-6999** or **oed@oscodatwp.com**.

Michigan Coastal Program Seeks Preproposals for Land Acquisition Projects

In anticipation of an upcoming federal funding competition, the Michigan Coastal Management Program (MCMP) invites coastal communities, conservation districts, state agencies, and universities to submit brief preproposals for acquisition of coastal lands or conservation easements by September 3, 2010. Program staff will review the submittals and conduct site visits for the projects this fall. This will allow staff to provide feedback and technical assistance to prospective applicants before next spring, when full applications will be due. Up to $3 million per acquisition project is available through the Coastal and Estuarine Land Conservation Program (CELCP), administered at the federal level by the National Oceanic and Atmospheric Administration. CELCP funds require dollar-for-dollar, non-federal match in the form of cash or in-kind contributions, such as the value of donated lands or interests in lands.

In Michigan, CELCP funds support acquisition of coastal lands with significant ecological values, to be held in public ownership and protected in perpetuity. Ecologically valuable sites that also provide historic, aesthetic, conservation, and low-impact recreation values are of particular interest. To be eligible for funding, acquisition projects must be entirely within the CELCP boundary as defined in Michigan's Draft CELCP Plan. Generally, inland parcels should contain state-designated Critical Dunes, other rare natural communities, or other priority areas listed in the draft plan to score favorably against acquisition projects directly on the Great Lakes or connecting channels. Michigan's Draft CELCP Plan is linked to the MCMP webpage at **www.michigan.gov/coastalmanagement**. For more information contact Matt Warner at **(517) 335-3449** or **warnerm1@michigan.gov** for Upper Peninsula CELCP projects, and Alisa Gonzales-Pennington at **(517) 241-8280** or **gonzalesa@michigan.gov** for Lower Peninsula projects.

Plastic litter is harmful to wildlife in freshwater systems as well as in the oceans. This freshwater turtle spent an estimated four years entangled in a plastic six-pack ring prior to rescue.

September 25th Marks 25 Years of Global Beach Clean-Ups

On Saturday, September 25th, the Alliance for the Great Lakes and the Ocean Conservancy invite you to join hundreds of thousands of volunteers worldwide in cleaning up beaches and shorelines and recording data on the trash you find. The 2010 International Coastal Cleanup will mark the 25th anniversary of the annual event world-wide and 20th anniversary of Michigan's participation. The Michigan event is coordinated by the Alliance for the Great Lakes and supported by the Michigan Coastal Management Program. Information gathered during the clean-ups is used to identify trends in shoreline debris pollution and develop pollution prevention and education projects to improve our coastal areas.

Last year, the Alliance organized 2,800 volunteers who removed and catalogued 116,000 individual items of trash - more than 6,400 pounds of litter - at 110 Michigan coastal locations. Beneath the waves, 23 divers retrieved 260 pounds of junk. To see the Michigan results for 2009, visit **www.greatlakes.org** and follow the Adopt-a-Beach™ sun.

The Ocean Conservancy's 2010 Annual Report on the world-wide event, *Trash Travels*, indicates that 60% to 80% of marine litter originates on land, and wind and river currents can bear lightweight, durable plastic items discarded hundreds of miles inland to our coastal areas. Once these items are in the Great Lakes, surface currents transport floating trash to our beaches and shorelines. Litter on Great Lakes beaches is not only unsightly, it can be lethal to fish and wildlife that become entangled in such items as wayward balloons with strings attached, and fishing line. During the Michigan event last year volunteers recovered 2,200 balloons and 249 pieces of fishing line. Shoreline litter can also have a negative impact on beach health and water quality. In 2009, 48% of all items collected during the Michigan clean-ups were beverage containers, food wrappers, and other food-related trash. Food waste on our beaches draws high numbers of gulls and other scavengers, and their droppings contribute to the type of bacterial pollution that triggers beach closings.

To volunteer for the September 25th event (dates may vary depending on location), known in Michigan as the September Adopt-A-Beach™ Event, contact Jamie Cross with the Alliance for the Great Lakes at **(616) 850-0745 extension 12** or **jcross@greatlakes.org**. The Alliance also coordinates a year-round Adopt-a-Beach™ program. Last year, more than 9,000 volunteers in five Great Lakes states participated.

Research Shows Some LID-Based Stormwater Management Systems are Long-Term Performers

This spring, the University of New Hampshire Stormwater Center (UNHSC) released its 2009 Biannual Data Report, indicating that certain Low Impact Development (LID) stormwater management approaches provide consistent, four-season water quality treatment and water quantity control after several years of testing. The UNHSC is a component of the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET). A partnership of the National Oceanic and Atmospheric Administration and the University of New Hampshire, CICEET is dedicated to providing tools and knowledge for clean water and healthy coastal environments nationwide.

Since 2004, UNHSC researchers have monitored the year-to-year performance of almost two dozen stormwater management systems in the field, and measured the capacity of these systems to treat pollution and reduce the volume of runoff. The Center's field site is uniquely designed to allow researchers to evaluate a range of stormwater treatment systems, from LID approaches to manufactured devices, in side-by-side settings under strictly controlled conditions. Data generated by these ongoing comparisons provide a foundation for the type of independent, science-based information coastal community officials and developers need to make stormwater management decisions.

Instead of depending on expensive, community-wide storm sewer systems to manage runoff, the decentralized LID approach takes advantage of the natural drainage patterns of the site and the natural capacity of soil to absorb and infiltrate stormwater. Among the LID techniques evaluated by UNHSC researchers, porous asphalt and porous concrete paving provided excellent water quality treatment and exceptional water quantity control year-round. The need for winter salt application is significantly reduced for both types of porous pavement in comparison to conventional pavements. Subsurface gravel wetlands and bioretention systems also received high marks for all-weather water quality improvement and water volume reduction.

The report contains details on catchment area and other specifications, costs, maintenance considerations, and other information associated with each system tested. It is available on-line at **http://ciceet.unh.edu/news/releases/unhsc_report_2009/report.pdf**. Call **(603) 862-3676** to request a free hardcopy from CICEET.

Michigan Sea Grant Website Assists K-12 Educators in *Teaching with Great Lakes Data*

Elizabeth LaPorte, Director of Communications and Education Services, Michigan Sea Grant

Michigan Sea Grant has developed a new web portal for K-12 educators called *Teaching with Great Lakes Data,* at **www.greatlakeslessons.com**. This free, comprehensive web portal is designed to serve educators in the Great Lakes region and includes physical and biological data sets, lessons, a glossary, and pedagogical tools.

There are three primary components to the *Teaching with Great Lakes Data* website:

Great Lakes Water data sets: Hydrology; Physical and Chemical Properties; Weather and Climate; Species Diversity; and Aquatic Invasive Species.

Inquiry-based teaching methods: Tools for guided inquiry projects to help develop higher-level thinking skills through the use of real-world data, collected by Great Lakes scientists.

Structured Lessons:

Dead Zones (Water Properties, Lake Layers, Temperature, and Dissolved Oxygen);
Fish Finders (Surface Water Temperatures, Fish Populations, and Fish Habitat);
Storm Surges and Seiches (Wind and Water, and Lake Level Changes); and
Climate and Weather (Water and Heat, Microclimates and Agriculture).

Spread the Word

You can assist with promoting this resource by contacting educators and ask them take a virtual "test drive" using *Teaching with Great Lakes Data.* **All the materials are free.** This resource provides the tools to:

- Encourage students to develop higher-level thinking skills using real data.
- Enhance teaching skills through guided-inquiry methods.
- Explore dead zones, climate and weather, invasive species, and fish habitat in the Great Lakes.

All lesson materials are aligned to content expectations and education standards/benchmarks. Also included are real data sets about the Great Lakes and tools to support inquiry-based teaching methods for K-12 educators.

Teaching with Great Lakes Data is supported by the Great Lakes Observing System, Michigan Sea Grant, the National Oceanic and Atmospheric Administration Great Lakes Environmental Laboratory, and Eastern Michigan University.

Data Set: No Ballast On Board (NOBOB)

Great Lakes Water Data Sets for Teachers, www.greatlakeslessons.com

Residual Sediment Data	Average volume per ship = 15 metric tonnes		
Source	Salinity ‰	Total Animals ind-kg $^{-1}$	Freshwater/Brackish Animals ind-kg $^{-1}$
Great Lakes	4.0	98.0	11.0
North Sea	5.0	465.0	19.5
Baltic	8.0	178.5	2.0
Mediterranean and Black Sea	15.5	9955.5	0.0
North-west Pacific	24.3	90.8	0.3
West-Central Atlantic	35.3	45.0	0.0
Other	25.3	55.2	1.3

Residual Water Data	Average volume per ship = 47 metric tonnes		
Source	Salinity ‰	Total Animals ind-L $^{-1}$	Freshwater/Brackish Animals ind-L $^{-1}$
Great Lakes	5.0	8.2	6.6
North Sea	7.0	1.1	0.1
Baltic	4.3	2.1	0.3
Mediterranean and Black Sea	8.0	0.1	0.0
North-west Pacific	32.2	0.1	0.0
West-Central Atlantic	27.8	0.4	0.1
Other	28.8	0.0	0.0

Data Source: NOAA Great Lakes Environmental Research Laboratory
Credit: Great Lakes Water Data Sets for Teachers; Great Lakes Lessons, Teaching with Great Lakes Data, Michigan Sea
See: www.greatlakeslessons.com

Figure 1. Sample Data Set

Calling All Researchers

Figure 1 shows a sample data set drawn from research on aquatic invasive species in ocean-going cargo ship ballast tanks. Although there are currently 14 data sets on the *Teaching with Great Lakes Data* website, Sea Grant welcomes the submission of more data sets, particularly data from Lakes Huron and Superior. If you are interested in contributing data, please contact Elizabeth LaPorte, Michigan Sea Grant Director of Communications and Education Services, at **(734) 647-0767** or **elzblap@umich.edu**.

Volunteer for Michigan's Coast!

St. Clair and Monroe Counties - State Park Stewardship Workdays. The DNRE Recreation Division needs volunteers to help cut and stack invasive shrubs encroaching on oak openings and lakeplain prairie at Algonac State Park in St. Clair County, and to plant native lakeplain prairie grasses and wildflowers at Sterling State Park in Monroe County. These natural communities used to be common along the southeast Michigan coast, but wildfire suppression, drainage projects, and development have made them very rare. Workdays at Algonac are on July 11, August 7, and September 11. The workday at Sterling is on September 25 – National Public Lands Day. Contact Laurel Malvitz-Draper for directions and other information at **(248) 359-9057** or **malvitzl@michigan.gov**.