



MICHIGAN NATURAL SHORELINE PARTNERSHIP

Promoting Natural Shoreline Landscaping to Protect Michigan's Inland Lakes

Volume IV Issue 3

The Michigan Natural Shoreline Partnership Newsletter

July 2014

News and Notes...

Compiled by Julia Kirkwood, MNSP Chair



*A lake is the landscape's most beautiful and expressive feature. It is earth's eye: looking into which the beholder measures the depth of his own nature. **Henry David Thoreau***

This quote by Thoreau says a lot in just a few words. And lakes don't lie. The health of this "eye of the earth" is a direct result of the actions of the "beholders" surrounding the lake. Biologists have the capability to determine what is healthy and what is not based on data collection. They know how the interactions of the different parts of the ecosystem connect. However, beauty is also in the "eye of the beholder" and people have differing perceptions. The contrast between biologists and property owners is apparent in the results of a Wisconsin social survey. The results indicated that there was a significant disconnect between the properties as categorized by a trained field biologist in terms of whether residents met shoreland protection requirements and how residents categorized their own properties. For example, while the biologist rated 50.9% of properties as being most in need of restoration, only 3.1% of respondents felt their property was highly manicured and maintained. While these weren't the same exact categories, it's clear that residents had different ideas of what constitutes a natural shoreline as compared to a biologist.

A Call for Pictures!

One of the suggestions to help people better understand what we are looking for in natural shorelines is to provide more pictures! We are looking for pictures that show one or more of the following components:

- 1) A natural shoreline with great views of the lake from the house.
- 2) A natural shoreline that has a "landscaped" feel to it.
- 3) Shorelines without seawalls that do not have turf grass up to the edge and still provide lake access,
- 4) Shorelines with seawalls that have plants in the water and on land up right next to the seawall.

Please send pictures to: Julia Kirkwood kirkwoodj@michigan.gov

CNSP Update

by Jane Herbert, Michigan State University Extension

CNSP 2014 held in northern lower

The classroom component of CNSP 2014 was held in Traverse City last February. On June 11 participants returned to Emmet County for their exam and field day (hosted by Emmet County Parks and Recreation). For details on this year's class and the natural shoreline demonstration site, constructed on Pickerel Lake near Alanson, [click here](#).

Natural shoreline CEU sessions big hit at inaugural Michigan Inland Lakes Convention

Two sessions on natural shorelines were offered on Saturday morning, May 3 – the last day of the 2014 Michigan Inland Lakes Convention in Boyne Falls. Fifty CNSPs attended the two sessions – each earning a total of four continuing education units for the morning. (Six CEUs are required every three years to maintain CNSP certification.) A session on *Phragmites* control was co-presented by Brian Majka, Cardno JFNew and by Kile Kucher, Michigan DNR. The natural shoreline research session was co-presented by Jane Herbert, MSUE, and Jim Bess, Michigan Technological University (see Bess' article on seeded coir logs on **page 8** of this newsletter.) [Click here](#) for links to these, and other, Saturday morning sessions.

Get all six CEUs in one day! Hands-on, field construction training RESCHEDULED!!



For those of you too busy to make it in June, you'll be happy to know that this CEU training had to be postponed and has been rescheduled to **Friday August 22, 2014**. Using BioD-Block prefabricated soil lift technology, we'll be rebuilding an eroded bank on the Jordan River (near Bellaire in Antrim County). See informational flyer and registration form on **page 7** of this newsletter. (Register now. Space is limited.)

Jane Herbert available for consultation on natural shoreline projects

Jane Herbert, Senior MSU Extension Educator and CNSP instructor, is now available statewide to assist *individual contractors* in planning and designing natural shoreline projects on inland lakes. Two types of service are available:

- On-site walk-through and consultation: \$1,000/day one-day minimum (up to 8 hours on-site)
 - * Additional consecutive day(s) on-site: \$500.00/day (up to 8 hours)
- Remote review of plans and drawings with phone/email consultation: \$55.00/hour

Contractors may arrange for Herbert's services through MSU Service Agreement. For more information, contact Jane Herbert at jherbert@anr.msu.edu or call 269-383-8852.

Benefits to Michigan's fish species in relation to natural shorelines

By Brett Riser, Aquatic Biologist
Calhoun Conservation District and MNSP Educator

Natural shorelines are not only visually appealing but directly benefit many fish species in Michigan. Michigan has more than 11,000 lakes, tens of thousands miles of rivers and streams and 43 percent of the Great Lakes waters within its borders. Within this vast resource live many fish species that are important to our recreational fisheries. Recreational fisheries are a huge economic engine for the state and provide the largest and highest-value use of Michigan's aquatic resources as documented in the recently released U.S. Fish and Wildlife report (2011 National Survey of Fishing, Hunting and Wildlife-Associated Recreation) and the Department of Natural Resources 2013-2017 Fisheries Division Strategic Plan, "Charting the Course: Fisheries Division's Framework for Managing Aquatic Resources.". In addition to the economic benefits of our fisheries, fish populations are often one of several indicators that determine the aquatic health of our water systems.

Critical littoral habitat, riparian habitat, and ecosystem function are altered as a result of shoreline residential development (Engel & Pederson 1998; Francis & Shindler 2009) and many of Michigan's shorelines have been altered as a result of residential development. Landowners often clear large trees and remove dead trees from the water. Fallen trees in littoral zones, can serve as important refuge for fish (Roth et al. 2007) and complex littoral vegetation comprised of emergent, submerged and free-floating macrophytes (aquatic plants) along the shoreline provide structural complexity that mediates predator-prey interactions by providing refuge for small fishes (Sass et al. 2006).

Michigan's sunfish species belonging to the family Centrachidae are extremely important to inland fisheries in Michigan and very popular with anglers. The sunfish species are significantly impacted by shoreline development – or the removal of natural shorelines. There are 12 species of Centrachidae in the state and of these: bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), largemouth bass (*Micropterus salmoides*), and black crappie (*Pomoxis nigromaculatus*) are examples of species of significant importance to Michigan's sport fishery that are negatively impacted from shoreline development. These species are abundant in many Michigan lakes and rivers providing residents and visitors many successful angling opportunities.

Effects of development on shorelines extend into the water body itself, and may lead to large shifts in fish communities (Roth et al. 2007). Within developed lakes, black crappie nest adjacent to undeveloped sections of shoreline and associate with macrophytes which are less abundant in developed shorelines (Reed & Pereira 2009). The same trend has been identified for largemouth bass (Scheuerell & Shindler 2004) and bluegill growth rates negatively correlate with shoreline development (Schindler et al. 2000). Largemouth bass in highly developed lakes take longer to enter the fishery and may reach trophy lengths more rapidly in undeveloped systems (Gaeta et al. 2010). Natural shorelines containing vegetation provide needed habitat for the reproduction and survival of these fish species and result in larger fish produced faster within these natural shoreline systems.

(Continued on page 4)

(Continued from page 3)

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These studies indicate an adverse trend in shoreline residential development and its effects on fish communities, especially the Centrachidae (sunfish) family, in Michigan's lakes and streams. These consequences can be hard to observe over time; and for the riparian landowner to witness how residential development of a shoreline can ultimately negatively affect the ecology of many fish communities is a challenge.

We have observed how natural shorelines benefit many species of wildlife and help to reduce soil erosion along our rivers and lakes. The benefits of natural shorelines extend well into surface waters where this highly desired habitat is extremely valuable, and depended upon, by many of Michigan's fish species.

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Management and Protection of Lakes Featured at Inland Lakes Convention

by Lois Wolfson, Michigan State University

The inaugural Michigan Inland Lakes Convention proved to be a successful venture with a plenary session featuring two keynote speakers, ten workshops, twenty concurrent sessions, over thirty commercial and non-profit exhibitors and approximately 400 people in attendance over the three day period. The Convention, held May 1-3, 2014 at Boyne Mountain Resort, was sponsored by the Michigan Inland Lakes Partnership, an umbrella organization for key lake organizations, educational institutions, state government agencies, non-profit organizations, and businesses across Michigan. The Michigan Natural Shoreline Partnership (MNSP) was one of the co-sponsoring organizations.



Eric Eckl presenting his keynote address.

The first day was devoted to specialty half or full day workshops. The Michigan Department of Environmental Quality sponsored one on Lake Protection Tools for Local Governments focusing on Wetlands, including their functions, how to identify them, the State's legal framework for protecting wetlands, and options for local protection. Another workshop was hosted by Eric Eckl, one of the keynote speakers and a communications expert and founder of "Water Words that Work." Eckl provided an entertaining and interactive session focusing on environmental messaging and how an organization can turn its clientele from environmental awareness into environmental action.

One workshop, co-sponsored by the MNSP, was directed toward inland lake property owners and focused on protecting the shoreline. Speakers included **Bindu Bhakta, MSUE; Jim Brueck, North Oakland Chapter, Wild Ones; Laura Zigmanth, North Oakland Chapter, Wild Ones; Jen Gelb, Tip of the Mitt Watershed; Heidi Shaffer, Antrim Conservation District and Roxanne Merrick, Michigan DEQ.** The workshop used the MNSP Shoreline Educator Network toolkit and covered topics from the book, "*Natural Shoreline Landscapes on Michigan's Inland Lakes: A Guidebook for Property Owners,*" a product of the MNSP.

Other workshops focused on managing aquatic plants, septic systems, water education for youth, and volunteer monitoring as part of the Cooperative Lakes Monitoring Program. A tour to the Oden State Fish Hatchery was also offered.

The following two days were devoted to the Plenary session, featuring Eric Eckl and **Dennis Schornack, Senior Policy Advisor For Governor Rick Snyder** as well as multiple concurrent sessions. MNSP co-sponsored two concurrent sessions: Natural shoreline research findings and Phragmites Control Updates for

(Continued on page 6)

(Continued from page 5)



Display table of MNSP at the Inland Lakes Convention

Managers and Landowners. In the Research Findings session, **Jim Bess from Michigan Technological University** and **Jane Herbert from Michigan State University Extension** reviewed research on the use and performance of native plant seeds in two types of encapsulated soil lifts. Jim presented work on the restoration of Lake Superior coastal wetlands in Michigan's Keweenaw Peninsula at two sites. The research involved utilizing native wetland plant seeds, mixed with milled peat moss to test for effects on seed germination and seedling establishment and percent cover of wetland

vegetation and plant diversity in peat and non-peat plots. Results of the project indicated that seeds can be used for coastal restorations, even when wave action is high; that certain species work better than others in establishing vegetation; that coir logs are useful in lessening wave action and reducing erosion, and that cyclical lake level variation have a major influence on how successful the restoration will be. (Editors Note: See Jim Bess' article regarding this project on **page 8** of this newsletter.) The second research project occurred on Gull Lake and compared traditional and prefabricated encapsulated soil lifts. Forty feet of each were constructed side-by-side and seeded with native plants. The site was monitored over three years and comparisons were made on the establishment of plants, invasion by native and nonnative plants, and each site's ability to withstand wind, waves and ice action. No significant difference was found for these factors between the traditionally-built soil lifts and the prefabricated encapsulated soil lifts.

The other concurrent session on Phragmites featured **Kile Kucher of the Michigan Department of Natural Resources** and **Brian Majka of Cardno JFNew**, who gave their perspectives on Phragmites control and options available to prevent its establishment and growth. The presentation included information on how to distinguish invasive Phragmites from both the native form and other similar looking plants. The native species has reddish-purple and shiny stem nodes, while the invasive form is tan-green and dull. The invasive Phragmites also has darker bluish-gray green leaves while the native species has lighter yellowish green leaves. Several other differences with the sheath, ligule, habit, and seedhead were also explained. No one control method was recommended, but rather a combination of multiple techniques, depending on available resources, the proximity of desirable vegetation, plant growth form, site accessibility, hydrology, or other factors. An integrative vegetative management approach included combining herbicide treatment with mechanical methods such as cutting or burning.

More information on these presentations as well as the other presentations given during the Convention are posted on the Michigan Inland Lakes Partnership website at: <http://michiganlakes.msue.msu.edu/convention>.

**ANTRIM
CONSERVATION DISTRICT**

4820 Stover Road
Bellaire, MI 49615
Phone: 231-533-8363 Fax: 533-6388

PAYMENT AUTHORIZATION FORM

Date _____

Registration closes August 15, 2014 (space is limited)

**Jordan River Bank Restoration
CERTIFIED NATURAL SHORELINE PROFESSIONALS
CEU Construction Project**

This one-day, continuing education opportunity will provide *Certified Natural Shoreline Professionals* with hands-on experience constructing encapsulated soil lifts using the prefabricated, BioD-Block soil lift system. The project will repair an eroding bank on the Jordan River in Antrim County near East Jordan, MI. This training is hosted by the Antrim Conservation District and taught by active members of the Michigan Natural Shoreline Partnership.

Registration fee: \$70 payable to the Antrim Conservation District, 4820 Stover Road, Bellaire, MI 49615 (includes lunch)

Mail, fax, or email form with payment
Fax: 231-533-6388
Email to: heidishaffer3@yahoo.com



**Friday August 22, 2014
8:30 am – 4:00 pm**

Meet at the Jordan River Watershed Center
101 Union Street, East Jordan, MI 49727

NUMBER OF PEOPLE ATTENDING: _____ x \$70 = _____ amount owed
For services rendered. Not to exceed the amount shown.

NAME as it appears ON CARD: _____

ADDRESS associated with card: _____

EMAIL ADDRESS: _____ PHONE #: _____

CASH: \$ _____ CHECK: # _____

CREDIT CARD TYPE: _____ CREDIT CARD #: _____

I _____ authorize **Antrim Conservation District** to charge my credit card.
(PRINT NAME)

CREDIT CARD CV2 #: _____ EXPIRATION DATE: ____/____/____

**6 CEUs: must attend ALL DAY!!!!!!
NO EXCEPTIONS**



A Novel Approach to Establishing Coastal Wetlands on the South Shore of Lake Superior

By James Bess

School of Forest Resources and Environmental Science, Michigan Technological University
Houghton, Michigan

In 2009, I began a coastal wetland restoration project on Lake Superior in Michigan's Keweenaw Peninsula as part of my PhD research. Whereas all other freshwater coastal wetland restoration projects to date had used nursery stock or cuttings to quickly establish vegetative cover, I wanted to see if seeds could be used as an economical alternative. To hold the seeds in place while they germinated and took root a combination of natural fiber geo-textiles were used, coir (coconut fiber) erosion control matting and jute matting. Seeds from 47 local wetland plant species were hand collected and weighed into individual seed mixes for each of my two sites, Sand Point and the Marsin Center.

The sections of coastline to be restored were divided into 3 zones; emergent, wet meadow and shrub. The emergent and shrub zones consisted of 10, 10-foot long by 1-foot wide coir "logs" made from rolled-up coir erosion matting (**Photos 1-2**). The 10 by 10-foot sections of matting were laid out flat and then rolled into a log, with seeds placed inside the last (outer) layers of matting. Milled peat moss was added to half of the logs and wet meadow plots to test effects on seed retention, germination and seedling establishment.



Photo 1. Close-up of the coir-jute matting log, prior to rolling. Note added peat moss for seed retention.



Photo 2. Coir log after rolling and prior to placement of seeds. Note finished logs along waterline.

(Continued on page 9)

(Continued from page 8)

The wet meadow zone consisted of 10, 10 by 10-foot restoration plots, covered with a dual layer of coir and jute matting (Photos 3 and 4). Germination and establishment of wetland vegetation was



Photo 3. Laying out jute and coir matting for wet meadow plots.



Photo 4. Completed coastal restoration installation.

successful at both sites and the wet meadows in particular were heavily vegetated with a diverse mix of wetland plant species (**Photos 5-6**). Fluctuating water levels had a negative effect on the emergent and



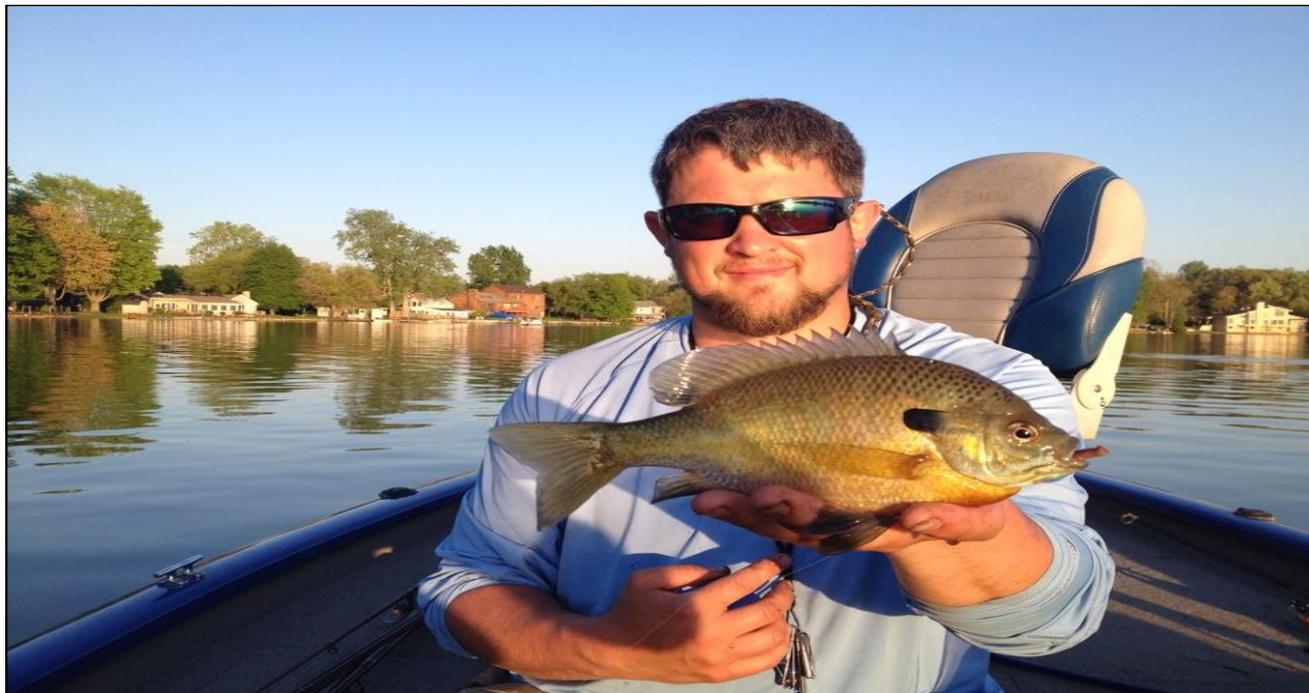
Photo 5. Vegetation at the Sand Pont site (2013).



Photo 6. Vegetation at the Marsin Center site (2013).

shrub zone logs and this is discussed in my dissertation, along with recommendations for future projects using this technique.

For further details and preliminary data, [click here](#) to see the talk I gave at the 2014 Michigan Inland Lakes Convention. I can be reached at jabess@charter.net.



Calhoun County Conservation District Aquatic Biologist Brett Riser proudly exhibits a nice bluegill (*Lepomis macrochirus*) caught in an undisclosed Michigan inland lake. Be sure to read Brett's outstanding article on page 3 of this newsletter where he explores the important relationship between natural shorelines and healthy inland lake fisheries.

Michigan Natural Shoreline Partnership

Promoting natural shoreline landscaping to protect Michigan's inland lakes

www.mishorelinepartnership.org

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