Helping Hands

Volunteers Play Vital Role in Lake Monitoring Programs

If you live on a lake, you may have noticed one or more of your neighbors conducting some curious activities while on the water. A closer look may reveal that the activities support ongoing water quality research. Collecting water samples, measuring water clarity and taking temperature readings—once in the realm of scientists—are now part of a regular routine for dedicated individuals around the state.

These volunteers exercise stewardship by caring for the state’s freshwater resources, and the water quality data they collect serves an important purpose. Monitoring nutrients such as phosphorus, for example, can help lakefront property owners take steps to prevent algae blooms in inland lakes. Long-term, routine monitoring data, such as water clarity and temperature, can be a valuable component of scientific research. Following are four lake monitoring programs in Michigan that rely largely on volunteers. Three of the programs are supported in part by Michigan Sea Grant.

Superior Lakewatch

As many as three times each week during the summer, charter boat captain Jim Jackman ferries divers from the Keweenaw Peninsula out into the cold waters of Lake Superior. While the divers disappear below to explore shipwrecks, Jackman stays topside and gets busy.

After recording wind and wave conditions, Jackman uses a digital instrument to measure water temperature. Next, he lowers a small white disk (called a Secchi disk) into the water by its attached polyester line until it can no longer be seen. Raising the disk, Jackman records the depth at which it becomes visible in the water as indicated by markings on the rope—a low-tech way to measure water clarity.

Jackman is one of about 50 volunteers from Michigan, Wisconsin, Minnesota and Ontario who take lake measurements as part of the Superior Lakewatch Program. The international program began in 1990 as a cost-effective way to help scientists collect data on Lake Superior.
The primary objective of Superior Lakewatch is to develop a database that can be used by researchers to document current water quality conditions and evaluate trends over time.

Volunteers who collect the data form a diverse group that includes fishermen, recreational boaters using sailboats, powerboats and kayaks, national park personnel, DNR fisheries specialists and dive boat captains like Jackman. The volunteers have all received basic training in the correct way to take the measurements.

“I think it’s important information, and it’s being put to good use,” said Jackman. “It’s no trouble since I’m out there anyway.”

Superior Lakewatch is coordinated by the Lake Superior Center in Duluth, Minnesota, and the program has four regional coordinators who train volunteers and collect data.

"Without volunteers, it would cost millions of dollars to collect the data at a time when most research and management budgets are tighter than ever,” said Michigan Sea Grant Extension Agent Ron Kinnunen, who serves as Michigan’s Lakewatch coordinator. New volunteers are welcome, said Kinnunen, particularly those who are on the lake several times during the summer.

Interested people may contact Kinnunen at (906) 228-4830 or email kinnunen@msue.msu.edu.

Last year, residents on Crockery Lake near Grand Haven passed an ordinance that put restrictions on the use of lawn fertilizer: they could no longer use fertilizer containing phosphorus. The self-imposed ordinance was the direct result of volunteer water sampling that revealed high levels of phosphorus, which can stimulate algae blooms.

Several Crockery Lake residents began sampling their lake in 1996, as part of a citizen monitoring program initiated by Michigan Sea Grant in Ottawa County. In addition to Crockery Lake, volunteers on Spring Lake, Lloyd’s Bayou and Pigeon Lake also conduct monitoring. “It started as an awareness program,” said Frank Drexler, a Sea Grant Extension Program Associate, who oversees the program. “Over time, the monitoring has encouraged some of the volunteers to become more involved in protecting their lakes.”

The no-phosphorus ordinance on Crockery Lake would be hard to initiate on a larger lake, said Drexler, but the routine sampling has led to other voluntary efforts in the area to use non-phosphorus fertilizer, switch to city sewer systems (to prevent overflows), and plant vegetative lake borders to increase shoreline stability.

The volunteer monitors, who have all received basic training, record data on temperature and water clarity and collect water samples that are tested for phosphorus, chlorophyll, and E. coli bacteria. Volunteers take measurements once a month from May to November. Water samples are analyzed at the Great Lakes Environmental Research Laboratory in Muskegon and Ann Arbor, and results are passed on to volunteers.

Other organizations that assist in the lake monitoring program in Ottawa County include the Ottawa County Environmental Health Department, Crockery Lake Association, Chester Township, and local businesses. This year, Drexler will help volunteers begin sampling on Reeds Lake in Kent County.

For more information on the Ottawa County program, contact Frank Drexler at (616) 846-8250 or by email at drexlerf@msue.msu.edu.
Tracking the Spread of Zebra Mussels

Every year, zebra mussels spread to new inland lakes in Michigan, and known infestations now total 100. Before adult zebra mussels are spotted, however, significant numbers of larvae or veligers are present. On several lakes around the state, volunteers assist resource managers in sampling for veligers.

Volunteer Del Sipes has monitored Paw Paw Lake since 1992 and several other lakes in southwestern Michigan. Formerly president of the Paw Paw Lake Association, Sipes said the monitoring provides him with an environmental awareness.

The sampling itself requires an attention to detail, he added, but can be learned easily. “I’ve taught three different people how to take samples,” Sipes noted.

Water samples are sent to a Sea Grant lab, where biologists analyze them for veligers. In the past five years, Sea Grant has received reports from volunteers on 186 lakes around the state.

The monitoring process allows scientists to track the spread of zebra mussels through Michigan’s inland waterways. “We rely on volunteers to let their neighbors know what’s going on,” said Michigan Sea Grant Extension Associate Mike Klepinger. “If zebra mussels are discovered, local networks help get the word out, which helps slow the spread.”

Boaters can play an important role by cleaning boats, removing aquatic weeds, flushing live wells and emptying bait buckets before leaving launch areas.

The zebra mussel monitoring program began in the spring of 1993 as a joint effort of Michigan Sea Grant, the Michigan Department of Natural Resources, and Michigan Lake and Stream Associations, Inc.

For more information, contact Mike Klepinger at (517) 353-5508.

For a list of lakes infested by zebra mussels, visit www.msue.msu.edu/seagrant/sgezmans.html on the Web.

Cooperative Lakes Monitoring Program

Excessive plant growth, algal blooms, and mucky bottom sediments are the most common problems cited by inland lake residents, according to the Michigan Lake and Stream Associations, Inc. and the Michigan Department of Environmental Quality. Together the two groups manage Michigan’s oldest citizen lake monitoring program, which began in 1974 and now involves about 250 people.

Many of the volunteers are lake residents, and some of them have been in the program since the beginning, according to Pearl Bonnell, who serves as program treasurer and director of operations. Volunteers test more than 100 of Michigan’s inland lakes for water clarity, spring and summer phosphorus, and monthly chlorophyll a levels. Some volunteers also identify and map aquatic plants.

These factors can lead to increased lake fertility or productivity. Productivity refers to the amount of plant and animal life that can be produced within a lake. According to program literature, excessive productivity can significantly shorten the life of a lake:

“The gradual increase of lake productivity over time is a natural process called eutrophication, or lake aging. A primary objective of most lake management plans is to slow down eutrophication by reducing the input of plant nutrients, such as phosphorus, and sediments to the lakes.”

Analysis of water samples allows volunteers to assess a lake’s productivity, or trophic state, on a numerical scale and identify trends.

The Cooperative Lakes Monitoring Program provides training for volunteers, workshops, technical support, quality control and laboratory assistance. To learn more about the program, contact the ML&SA at (517) 257-3583.

Visit the ML&SA Web site at: www.mlswa.org

by Carol Swinehart and Joyce J Akubiak
Lake Michigan’s Yellow Perch

WILL ‘99 BE A GOOD YEAR?

The yellow perch population in Lake Michigan collapsed in the early 1990s, and today the once-popular sportfish remains scarce despite encouraging findings in 1998.

More perch hatched last June than in previous years in some areas around the lake, according to researchers, but the increase alone won’t stimulate a recovery.

Researchers from Michigan, Wisconsin, Illinois and Indiana discussed the findings at a recent meeting of the Lake Michigan Committee’s multi-state Yellow Perch Task Group. The meeting was held in Muskegon March 26-28 and was sponsored by Michigan Sea Grant.

For the population to recover, yellow perch around the lake need to reproduce successfully for several consecutive years, according to biologist David Clapp of the Michigan Department of Natural Resources. Clapp serves as chairperson of the Yellow Perch Task Group. This summer, Clapp said, management agencies around the lake will again sample for larval yellow perch to gauge reproductive success and monitor juveniles to see how well last year’s survivors made it through the winter.

As the researchers collect information, a number of questions remain, according to David Jude, a task force member and Sea Grant funded researcher at the University of Michigan:

- Was the strong 1998 year class an isolated event fostered by El Nino, which helped to create warm spring waters and an extended summer?
- Can the decline in zooplankton, a primary food source for larval yellow perch, be attributed to the filtering action of zebra mussels in southern Lake Michigan?
- How important are alewife in the decline of yellow perch? Alewife feed on zooplankton as well as larval yellow perch.
- What effect will the decline in nutrients such as phosphorus have on perch survival?

These factors create an uncertain future for the population.

“Unprecedented changes are occurring in some of the Great Lakes,” Jude said. “We don’t know how perch are affected by these changes and that makes predictions difficult.”

The yellow perch study is a multi-state cooperative effort that involves researchers from DNR agencies in Michigan, Illinois, Indiana, and Wisconsin, the U.S. Fish and Wildlife Service, Sea Grant programs from Michigan, Illinois-IIndiana and Wisconsin, and other university researchers.
Low Water Levels Raise Questions

Shoreline homeowners along the Great Lakes may have noticed wider beaches and higher docks recently. According to the U.S. Army Corps of Engineers, water levels this spring were well below levels one year ago due to below-average precipitation. In comparison to long-term data, however, Lake Erie and Lake St. Clair water levels were about average in April, while levels in lakes Superior, Ontario and Michigan-Huron were 5-8 inches below average, according to Corps data.

All the Great Lakes experience annual water cycles, with levels generally higher during the summer. Still, this spring’s drop was dramatic, said Michigan Sea Grant Extension Agent John McKinney of Traverse City, who has fielded questions about the potential effects.

Midwest Students Compete in Ocean Bowl

Eleven high school teams participated in the second annual Midwest Ocean Sciences Bowl held February 27 in Ann Arbor.

The Midwest competition is one of 18 regional events held across the country to promote literacy in science and mathematics through improved understanding of the world’s oceans. Questions in the academic “quiz bowl” competition tested students’ knowledge of ocean science topics including physics, chemistry, biology, geology, social sciences and technology.

Huron High School of Ann Arbor took top honors at the Midwest competition and traveled to Washington, DC in April to compete in the national finals. Birmingham Groves High School from Beverly Hills, Michigan, took second place at the regional competition. Third place winner was Sterling Heights High School from Sterling Heights, Michigan, and fourth place went to Dexter High School from Dexter, Michigan.

Co-hosts and sponsors of the regional event included NOAA’s Great Lakes Environmental Research Laboratory, the Michigan Sea Grant Program, the University of Michigan’s Cooperative Institute for Limnology and Ecosystems Research, the University of Michigan’s Center for Great Lakes and Aquatic Sciences and ERIM International Inc.

For information on next year’s Midwest event, contact Mike Quigley at 734/741-2149.

Saginaw Bay Project Wins National Award

The Saginaw Bay Watershed Initiative Network (WIN) recently received a National Award for Sustainability given by the environmental nonprofit Renew America and the President’s Council on Sustainable Development. The awards were given to 24 programs throughout the nation that demonstrate leadership and excellence in integrating environmental, economic and community sustainability. An award ceremony took place at the National Town Meeting for a Sustainable America held in Detroit May 2-5.

Formed in 1996, WIN is the collaborative effort of communities, conservationists, farmers, foundations and businesses to establish a unique partnership to enhance the Saginaw Bay Watershed and create a more sustainable future for those who live, work and recreate in the region. Visit the WIN Web site at: www.saginawbaywin.org

For more information on Great Lakes water levels, visit: www.lre.usace.army.mil on the Web.

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“Boaters will have to be very cautious this season in areas where they know the lakes are shallow,” said McKinney. He also suggested that low lake levels are generally a good time for homeowners to repair shoreline structures such as seawalls and rock revetments. He cautioned, however, that some shoreline activities require state or local approval.

Shoreline residents should also be alert during adverse weather conditions, according to the Corps of Engineers, as these conditions could cause rapid short-term rises in water levels.

For more information on Great Lakes water levels, visit: www.lre.usace.army.mil on the Web.

IJC GREAT LAKES WATER QUALITY FORUM

The International Joint Commission’s 1999 Great Lakes Water Quality Forum will be held Sept. 24-26 in Milwaukee, Wisconsin.

The meeting will feature public hearings, reports from IJC advisory boards, government reports on progress to restore and protect the Great Lakes ecosystem, and more than 20 workshops and sessions on a range of Great Lakes topics.

Individuals, government officials, researchers, industry representatives and others concerned with Great Lakes issues are invited to attend. Registration deadline is Sept. 1, 1999. For more information, contact Doug Bondy at (519) 257-6735 or visit the IJC Web site at www.ijc.org
Mapping Purple Loosestrife

Volunteers Help Locate the Invasive Plant in Michigan

About 1,500 people from around Michigan returned postcards last year in response to the Loosestrife Locator survey conducted by the Purple Loosestrife Project at Michigan State University. Senders used the cards to report the size and location of loosestrife stands in their areas. Based on the results, project coordinators have plotted 455 purple loosestrife infestations larger than one acre.

"Most of the infestation reports came from the southern half of the lower peninsula," said Michigan Sea Grant Extension Associate Mike Klepinger, who helps coordinate the project. "We were surprised by the number of large sites."

Large stands of purple loosestrife are a problem because the nonindigenous plant replaces native cattails and other vegetation that provide food and habitat for wildlife.

Coordinators will share the results of the loosestrife survey with project volunteers at cooperative biological control (CBC) sites around the state. The network of CBC sites raises Galerucella beetles, which feed exclusively on purple loosestrife. It is hoped that the tiny beetles will help reduce loosestrife abundance in many wetlands in the Midwest. CBC site leaders work with local groups to survey large stands of purple loosestrife in their areas and formulate control plans.

The Purple Loosestrife Project at Michigan State University is a cooperative biological control program funded in part by Michigan Sea Grant.

Visit the Purple Pages web site at: www.msue.msu.edu/seagrant/pp

Michigan Sea Grant on the Web

Same Location, New Information!

Michigan Sea Grant's revised web site is up and running and can be found at:
www.engin.umich.edu/seagrant/

Check the web site to . . .

- Stay abreast of important upcoming events and news from Michigan Sea Grant
- Browse selected publications and place orders online
- Explore popular Sea Grant programs and services— including summer youth camp, Coastwatch, the Purple Loosestrife Project at MSU, and the Great Lakes Education Program
- Locate your nearest Sea Grant Extension Agent
- Discover funding opportunities for students and researchers
- Learn about current Sea Grant research projects in the Great Lakes
- Contact staff members and administrative offices
- Read Michigan Sea Grant’s 5-year Strategic Plan
Off the Press

PURPLE LOOSESTRIFE COOPERATOR’S HANDBOOK
Teachers and others interested in participating in the Purple Loosestrife Project now have a publication to guide them—the Cooperator’s Handbook. Its learning activities focus on wetland stewardship, habitat protection, and biological control of invasive nuisance species. The Cooperator’s Handbook features six sections, including a supplemental wetland handbook for landowners.

- Cooperator Essentials. An introduction to the Purple Loosestrife Project.
- Rearing and Releasing Natural Enemies to Control Purple Loosestrife. Provides instructions and materials lists.
- Upper Elementary Lessons—Student Workbook. For grades 4-6.
- Living With Michigan’s Wetlands: A Landowner’s Guide. Explains the importance of wetlands, how to identify and assess wetlands, and develop a conservation management strategy.

Sections of the Cooperator’s Handbook can be purchased individually for $5 or as a complete set for $30. To order sections, contact:

Michigan Sea Grant Publications
University of Michigan
2200 Bonisteel Blvd.
Ann Arbor, MI 48109-2099
Phone: (734) 764-1118

Sand Dune Book Wins Awards

For a copy of the report, write to:
Office of the Great Lakes
Michigan Dept. of Environmental Quality
PO Box 30473
Lansing, MI 48909-7973

STATE OF THE GREAT LAKES 1998 ANNUAL REPORT
This 44-page report focuses on the successes and challenges of managing the resources of the Great Lakes basin. Featured articles by guest contributors cover such topics as the Binational Toxics Strategy, water quality, lake levels and water diversions, fisheries management, exotic species and contaminated sediments.

To order Discovering Great Lakes Dunes for $4.95, contact Michigan Sea Grant at 734/764-1118 or email msgpubs@umich.edu

Lake Superior Recreation and Weather: A Four Season Guide
MSG-94-705
A perfect vacation companion, this quick-reference guide describes attractions, recreational opportunities and weather for each season. 94 pp. $3.95

A Field Guide to Great Lakes Coastal Wetlands
MSG-98-506
Explains the ecology of coastal wetlands and provides illustrated descriptions of 134 wetland plants. 165 pp. $9.95

Lightning and Boats
MSG-94-900
Learn how to install an onboard lightning protection system to lessen the chances of harm during a storm. $.50

Get a Grip on Ocean Motion
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