

Indiana ANS Plan Approved by Federal Task Force

The federal ANS Task Force met in the Washington, DC, area and unanimously approved the Indiana Aquatic Nuisance Species (ANS) Management Plan without modification in November, along with state plans from Hawaii and Wisconsin. Indiana is now eligible to apply for federal funding.

The Indiana Aquatic Nuisance Species Management Plan was recently completed under the guidance of the Indiana Department of Natural Resources, facilitator D.J. Case & Associates of Mishawaka, and the ANS Work Group. Representatives from agencies, universities, industries, nongovernmental organizations, and citizens with an interest in ANS management met three times to provide input and review for the plan.

The Indiana ANS plan addresses ecological and economic impacts of aquatic exotic species invasions in the waterways of Indiana and their potential threat to Lake Michigan, Lake Erie, and Ohio River basins.

The plan development followed guidance prepared by staff from the



Curlyleaf pondweed

Great Lakes Commission ANS Panel and Illinois-Indiana Sea Grant. This helped to ensure that Indiana's plan is integrated with other regional efforts by the other seven states and Canadian provinces within the basin. Now that Indiana's ANS Plan is approved, the state is eligible to receive federal funding. Typically, federal funding for implementing state plans is available at

around \$100,000 annually with a requirement for a 25% state cost-share. Funding can be used for program development, staff salaries, and management actions.

At the Washington, DC, meeting, there was a federal task force member from the American Water Works Association (a professional society for drinking water utilities) who was impressed that drinking water issues (specifically the invasive, blue-green alga *Cylindrospermopsis*) were included in Indiana's plan. The representative from EPA had the same response. Wisconsin's plan also mentioned *Cylindrospermopsis*. Task force members complimented the plan in general.

The final Indiana Aquatic Nuisance Species Management Plan can be accessed on-line at: <http://www.in.gov/dnr/invasivespecies/inansmanagementplan.html>.

Round Gobi



The Sixth Annual Fishing with P.R.I.D.E. Event

In late September, 20 young people arrived at Bradford Woods, an outdoor education facility north of Martinsville, bundled-up against the cold, but eager to participate in the "Sixth Annual Fishing with P.R.I.D.E." kids' fishing invitational. "P.R.I.D.E." stands for "People Respecting Individuality and Diversity in Everyone." The group was formed in 1998 to foster better understanding among young people of different backgrounds and cultures. Among the goals of P.R.I.D.E. is to promote tolerance and respect for all, by all.

Mentors had arrived early to assemble the rods and fill bait containers to avoid any delay in getting lines in the water.

Fishing was slow at first but picked up as the temperature increased and the kids found the "honey holes." As it turned out, each participant caught at least one fish and several caught five or six of what would be considered "keepers" by most fishermen. The catch included bluegill, red-eared sunfish, rock bass, largemouth bass, and catfish.

In addition to fishing, the kids were taught conservation (catch and release), safety, outdoor etiquette (pick up trash), and fish identification.

Even though they were reluctant to stop fishing, the kids were eventually unable to resist the

lure of a hot lunch that included deep-fried fish sandwiches, hot dogs, potato chips, apples, and orange drinks.

After a drawing for four fishing poles, the kids were given certificates of participation with their names and pictures printed on them. This was a big hit with the kids and their parents alike.

The kids expressed appreciation for the opportunity to participate in the event and all want to return next year.

Indiana Hog Farmer Loses Right to Operate due to Continuing Pollution Problems

A Montgomery County, IN hog farmer with a history of allowing manure to pollute Hoosier waters will no longer be allowed to operate in the state, according to a settlement reached in October by three state agencies and Klaus Pohlmann.

Editor's Note: Although the holidays are now past, I wanted to share this with you.

'Twas The Night Before Christmas, and All Through the Watershed

by Rebecca Buerkett, Editor,
F.X. Browne Inc.'s, *Lake and Watershed News*
(with apologies to Clement C. Moore,
and anyone who is overly concerned with rhyme and meter)

'Twas the night before Christmas, and all through the watershed
Not a creature was stirring, they'd all gone to bed
The river was nestled all snug in her banks
Not a sign of erosion, most definitely thanks
To the citizens who spent their time planting the trees
And the native wildflowers that attracted the bees

When out near the lake there arose such a clatter
A deer raised its head to see what was the matter
It was merely a dog barking to get loose
And chase away a resident Canada goose.

The lake, how it shimmered.
The water, how clean.
Its hypolimnion well-aerated
The TSI value a dream.

When what to my wondering eyes should appear,
But signs all around me of people who care.
Shoreline homeowners maintaining their septics
Farmers ensuring their streambanks have fences.
Well-maintained buffers planted with trees
Townships installing their own BMPs.

Infiltration! Bioretention!
Sand filters and more,
To keep the stormwater
From reaching the shore!
With a staff gage in place at the monitoring station,
And the permits acquired for wetland restoration.

I marveled to myself, as I surveyed at the scene
Thank goodness, no algae will turn THIS lake green!



Pohlmann, owner of the Montgomery County-based Pohlmann Farms, will also set aside at least 106 acres of his more-than-1750-acre farm as protected areas to compensate the state for some of the damage caused by past releases to the environment. In addition, he will pay \$74,000 in civil penalties to the state and \$11,000 for water-monitoring equipment for the Montgomery County Health Department.

"IDEM has been working for years under our administrative process to force Mr. Pohlmann to manage his property well, as most Indiana farmers do," said IDEM Commissioner Lori F. Kaplan. "Those remedies, which generally are effective, did not work in this case, so we sought court action. This agreement settles that litigation in a manner that will allow us to place attention where it is needed most—to restoring and maintaining the health of Little Sugar Creek, and to creating a permanently protected area of Montgomery County."

"Three linear miles totaling 106 acres along Little Sugar Creek and its tributaries will be taken out of agricultural production and returned to nature," said John Goss, DNR Director. "Swales and wetlands will be re-established on this acreage to improve wildlife habitat and contain normal drainage from the farm field before it gets to Little Sugar Creek. That will improve water quality and enable the fishery in the creek to recover and bring new life to one of Indiana's most remarkable streams."

Goss said the value of the easement area, which encompasses 11 parcels of land, is about \$291,500, or about \$2,750 per acre.

The settlement agreement resolves claims against Pohlmann for two manure spills in March and April 2003. The March spill, in which improperly discharged manure entered Little Sugar Creek, resulted in the death of more than 3,000 fish. Since November 1989,

Pohlmann Farms improperly discharged hog manure into the creek in nine separate incidents, harming water quality and killing more than 56,000 fish. In the first seven violations, Pohlmann paid a total of \$41,000 in civil penalties and more than \$51,000 in restitution to DNR for the destruction of natural resources.

The latest spill, in April, occurred just days after the state successfully petitioned the county court to order Pohlmann to cease hog operations at the facility. In that action, the court ordered Pohlmann to reduce his hog inventory to zero by July 15, 2003, and implement corrective action to ensure no further spills occurred, among other stipulations. Livestock were removed from the facility by the deadline. Outside contractors were also hired by Pohlmann, as required by the court, to manage existing manure at the facility under close IDEM supervision.

Volunteer Monitoring: It Makes Cents

Let's paint a common scenario: Perhaps you are a member of a small lake association. The lake association consists of people who live on or near the lake, who use the lake for recreation, and who care very much about the health of the lake. Members of the group have noticed that the condition of the lake has been deteriorating in recent years—algae blooms have become more frequent, people aren't catching fish like they used to, and aquatic weeds are becoming more prevalent around the lakeshore. Someone suggests hiring a professional lake manager to help keep an eye on the lake water quality and everyone agrees wholeheartedly that the quality of the lake is critical to property values and continued enjoyment of the lake. Now comes the sticking point . . . the cost. All of a sudden, even some of the staunchest proponents of improving the

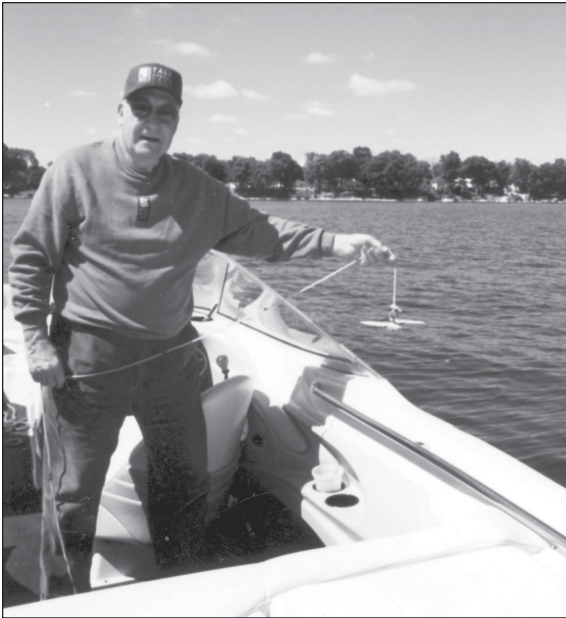
health of the lake are looking the other way. Sound familiar? Well, it doesn't have to be that way. Developing a volunteer lake monitoring program can significantly reduce the costs of lake management.

Many lake associations can't afford to pay a limnologist to collect water samples on a regular basis throughout the summer. But recording the status of water quality parameters over the course of the growing season and documenting trends from year to year provide a far more accurate assessment of lake health than a one-time sampling event. By using volunteers to perform water quality monitoring, the costs of a lake study can be significantly reduced, and more data can be made available for analysis by the lake management professional.

Volunteer monitors associated with the Indiana Volunteer Monitoring Program (<http://www.spea.indiana.edu/clp/Volunter%20Monitoring.htm>) can collect bottles of lake water for analysis of such parameters as total phosphorus and chlorophyll *a*. These parameters are sent to Bloomington for analysis at the School of Public and Environmental Affairs (SPEA) in a certified lab that specializes in water quality studies. Most commercial chemical analysis kits do not measure these parameters. Volunteers with the Indiana program can also measure Secchi disk transparency, water color, and dissolved oxygen and temperature profiles.

Volunteer stream monitors in the Hoosier Riverwatch Program (<http://www.in.gov/dnr/soilcons/riverwatch/>) can collect water samples, measure stream flows, and collect aquatic macroinvertebrates.

Another area where volunteers can be extremely useful is watershed investigations for nonpoint source pollution problems. This kind of monitoring involves volunteers traveling around the watershed and documenting the locations of



Volunteer lake monitor Bob Meyers.

streambank erosion, failing septic systems, agricultural problems (cows in streams, uncontained manure piles, areas in need of riparian buffers, etc.), or places where stormwater runoff is causing erosion or being directly channeled into waterways. Once problem areas are detected, professional lake and watershed managers can visit specific sites in order to provide recommendations for improvement.

The use of volunteer monitors can pay off in other ways. State and federal agencies that provide funding for watershed and water quality projects usually prefer to fund projects where there is documented stakeholder

Hooser Riverwatch volunteers.



involvement and community support. A volunteer monitoring program is a good example of such support. Also, volunteer hours can in some cases count as in-kind services toward funding match requirements. Finally, volunteer monitors are the best people to provide constant, on-the-ground supervision of a lake or watershed. A professional lake manager, unless s/he happens to live near the lake, will not be as likely to notice subtle changes in the lake—for example, an increase in waterfowl populations, a specific sewer odor after a large

storm, an illegal trash dump by the lakeshore, or even a short-lived algae bloom that occurs between monitoring events.

Lake and river volunteers in Indiana are trained by professionals. Training includes hands-on use of the sampling equipment; a volunteer can't be handed a page of written instructions and a bucket of gear and expect to know what to do. One of the biggest problems with volunteer monitoring results tends to be problems with calibrating the equipment and miscommunications with respect to sampling instructions. Decisions about lake management are only as good as the data upon which they are based, so it is crucial that lake managers communicate well with volunteers and follow up on any problems appropriately. Good coordination between volunteer monitors and professional lake managers is the perfect combination for lake monitoring and restoration success.

Adapted, in part, from: F.X. Browne

Another Reason to Be Careful With Live Bait: Invasion of the Killer Worms

DULUTH, Minn. The bluebead lily and red baneberry plants were few, the forest floor nearly denuded and still. When the solution of pulverized mustard seed and water seeped in, though, the ground began to churn.

Up came the worms, wriggling and writhing, *lumbricus terrestris* and *lumbricus rubellus* frantically trying to evade the homemade skin irritant, only to find themselves in the clutches of Cindy Hale and science.

The worms, it seems, those hermaphroditic wonders of expeditious composting and ecologically friendly farming, are responsible for the paucity of native plants and creatures on this hillside in Tettegouche State Park. While good for many things, earthworms appear to be stripping some North American forests of their most essential feature: the decomposing leaves and other forest litter called "duff," which provides nutrients and sanctuary to new generations of trees, plants, and animals.

In much of North America, worms are not the ancient natives many people assume. They are exotic and relatively recent invaders. North of a line that stretches from Washington State to New York, with a dip below the Great Lakes, native earthworms vanished about 10,000 years ago, scientists think, swept away by the receding glaciers of the last ice age.

The first nonnative worms were brought to the region by early explorers, in the soil-ballast of their ships, the manure of their horses. Others were loosed in forests more recently by woodland homeowners planting greenery whose potted soil contained worms and, perhaps most dramatically, by fishermen dumping bait at the end of the day.

"There's Mic Mac Lodge," Hale, a doctoral student at the University of Minnesota, said, pointing to a collection of huts dating from the 1950s. "The leading edge of the invasion runs right through here." Now a small campsite, Mic Mac was once a fishing lodge on the shores of the small canoe haven of Lake Mic Mac. It is also the epicenter, scientists think, of one worm invasion that spreads for nearly half a mile in every direction.

Inside the area occupied by worms, yellow birch, white spruce and oak trees still stand tall, but few smaller plants remain in what scientists call the "understory," and the duff is all but gone. Beyond the worms' front line, the duff is thick and soft, the thimbleberry shrubs, spurred gentian flowers, and dozens of other plants so dense they tangle in your bootlaces.

Biological Rototillers

Following the ice age, forests evolved without worms into ecosystems that exchange nutrients slowly. Worms operate in the opposite manner, eating and returning nutrients to the soil through castings very quickly.

When a tree leaf falls in an uninfested deciduous forest, it typically takes three to five years for the fungi and microbes of the duff layer to work it into decomposition. If night crawlers are in the duff, the leaf can vanish in as little as four weeks, according to one study.

At the same time, stowaway and throwaway worms find a feast of millennial proportions in the once-glaciated forests. "Exotic worms have this food layer that has been untouched for thousands of years," said Cornell University researcher John Maerz. "With all this food, the worm populations just explode."

In the parts of North America that escaped most of the glaciers, there are about 100 native worm species. About two dozen invasive species are now found throughout North America.

As scientists suspected they would, invasive plant species have been found in the wakes of worms, with fast-growing exotics such as garlic mustard pushing out slower-growing natives like trillium and wild ginger.

How to Quell Invasion?

The question now is what should, and can, be done about invasive earthworms in forests?

The U.S. Department of Agriculture monitors the import of worms, but it is not illegal to bring in the exotics so long as they are packaged and handled properly. It is impossible, however, to stop all of those who don't meet criteria or are inadvertently brought ashore just as the first European worms were four centuries ago.

James was called in to investigate when a Massachusetts nursery discovered an especially hungry and fast-breeding Japanese variety in the roots of its wares. The worms, James found, had slipped into the country in the soil of potted plants. They had made their way from Japan, to the nursery, to the forests along a stretch of the Connecticut River after buyers had replanted them at home.

The Minnesota Department of Natural Resources has taken perhaps the most dramatic step in limiting the introduction of new worms, posting fliers at bait shops throughout the state and delivering notes with each fishing license detailing the

problem and asking fishermen not to dump their worms.

The most effective countermeasures at this point may be to quarantine infected forest areas to keep the worms from spreading, as well as avoid new introductions, scientists say. And then study what happens in the affected habitats.

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Perspectives

Choices

An elderly Cherokee was teaching his grandchildren about life.

He said to them, "A fight is going on inside me, it is a terrible fight and it is between two wolves. One wolf is evil—he is fear, anger, envy, sorrow, regret, greed, arrogance, self-pity, guilt, resentment, lies, false pride, inferiority, competition, superiority, and ego. The other is good—he is joy, peace, love, hope, sharing, serenity, humility, kindness, benevolence, friendship, empathy, generosity, truth, compassion, and faith. This same fight is going on inside you, and inside every other person, too."

They thought about it for a minute and then one child slowly turned to his grandfather, "Which wolf will win?"

The old Cherokee simply replied, "The one you feed."

Meetings

February 16-20, 2004. International Erosion Control Association (IECA) 35th Annual Conference & Expo, Pennsylvania Convention Center & Philadelphia Marriott—Philadelphia, PA. Phone: (970) 879-3010; Fax: (864) 287-9641; Web page: www.ieca.org

March 6-8, 2004. 24th Annual Midwest Aquatic Plant Management Society Conference, Hyatt Regency Oak Brook—Oak Brook, Illinois. Phone: (630) 573-1909; Fax: (630) 573-1909.

March 7-9, 2004. 13th Annual Southeastern Lake Management Conference "Working Together—Sharing Resources," Wild Dunes Resort—Isle of Palms, South Carolina. Contact: Suzanne Thomas-Cole, Phone: (864) 287-3297; Fax: (864) 287-9641; e-mail: suzycole@msn.com.



April 2-3, 2004. Indiana Lake Management Society Conference 2004, "Caring For and Appreciating Indiana Lakes," Pokagon State Park—Angola, Indiana. Contact: Mark Mongin, Phone: (317) 216-8312; e-mail: markm@sepro.com.

April 20-23, 2004. 17th Annual National Conference on Enhancing the States' Lake Management Programs, Effective Monitoring Programs for Lakes and Reservoirs. Congress Plaza Hotel—Chicago, Illinois. Contact: Bob Kirschner, e-mail: bkirschn@chicagobotanic.org, Web page: <http://www.nalms.org/symposia/chicago/index.htm>.



Where was the Largest Snowfall Recorded in North America?

The most snow recorded in 24 hours was 76 inches (about 193 cm)—or more than 6 feet. It blanketed Silver Lake, Colorado, on April 14-15, 1921. The most snow recorded during one season was 1,140 inches (about 2,896 cm). It fell at Mt. Baker in Washington State in 1998-1999. The largest hailstone ever found in the US was documented in Aurora, Nebraska on June 22, 2003. It was 7 inches (17.8 cm) in diameter, 18.75 inches (47.6 cm) in circumference.

<http://www.infoplease.com/weather.html#extremes>

Got a question about your lake? Or lakes in general? Or about something you've read? Write to us at the Water Column and we will do our best to answer it.

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