

Office of Water Management
Indiana Department of
Environmental Management

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SUMMER 1989
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Lake Management Conference A Success

On April 22, 160 people from Indiana, Illinois, Ohio, Michigan, and Wisconsin attended the 1989 Indiana Lake Management Conference held in Warsaw, Indiana. Hoosiers from 27 different Indiana counties attended.

Speakers informed conference attendees about various state lake-related programs and the U.S. EPA Clean Lakes Program. Lake management activities at Lake Maxinkuckee (Marshall Co.) and Lake Lemon (Monroe Co.) were described by other speakers. An informative session on aquatic plant management and a citizen involvement workshop rounded out the program.

Conference attendees also had the opportunity to pick up brochures and other free information at display tables set up by the Indiana Department of Environmental Management, the Indiana Department of Natural Resources, and the North American Lake Management Society.

All-in-all, people went home with new ideas and information to help them better understand and manage their own lakes. Plans for the 1990 conference are in the works.

*Volunteers from the Kosciusko County Lake Preservation and Development Council help register conference attendees.
(See additional pictures on page 2.)*

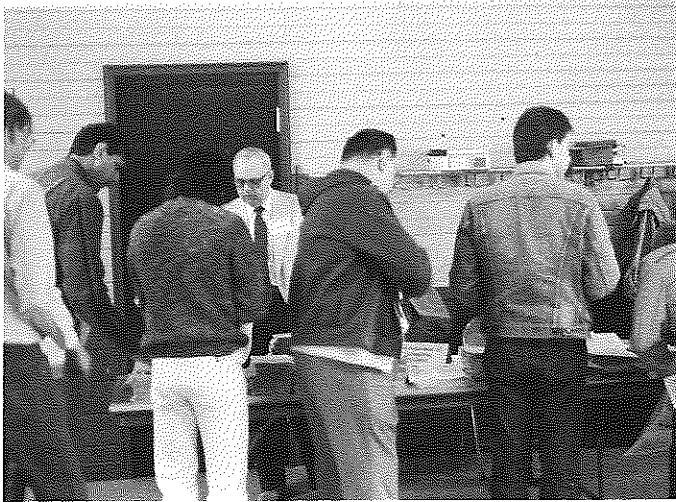


IDEM Receives New Electrofishing Equipment

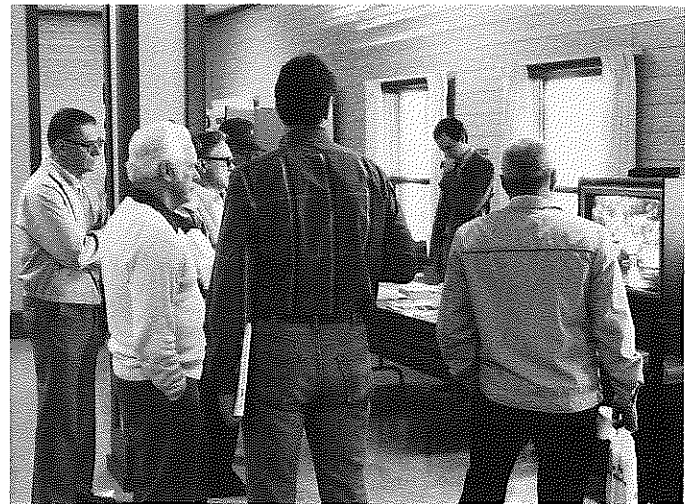
The Water Quality Surveillance and Standards Branch of the Indiana Department of Environmental Management recently took delivery of a new electrofishing boat. Unlike the existing units which were designed and assembled by branch staff, this new unit was professionally built and is considered state-of-the-art.

(See IDEM, continued on page 3)

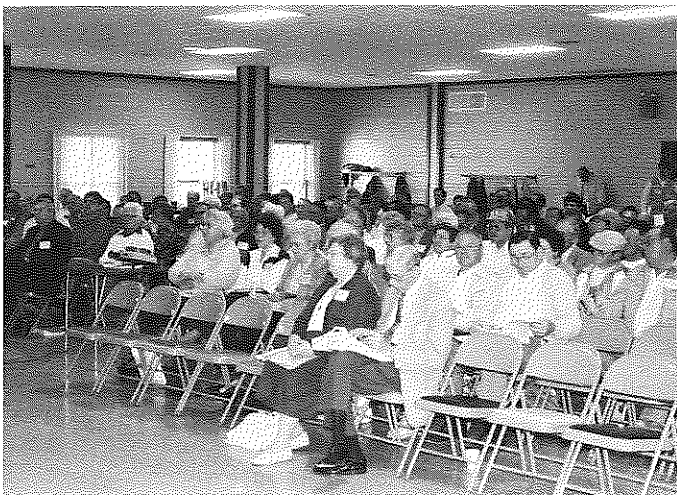
Other highlights from the Lake Management Conference . . .



Attendees pick up free information from John Winters at the IDEM display table.



A lake management video prepared by the North American Lake Management Society was a popular display.



A packed house at the Center Lake Pavilion listens intently to a speaker.



Tom Davenport, U.S. EPA Region 5 Non-Point Source Coordinator, explains federal Clean Lakes Program priorities.

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William W. Jones, Editor
Cynthia Mahlgian, Production Manager

Address all correspondence to:
SPEA 347

Indiana University
Bloomington, IN 47405

Phone: (812) 855-4556

Fish Consumption Information Now Available

A new brochure entitled *Preparing and Eating Fish Caught in Indiana Waters* is now available. This brochure is provided by the state to help Hoosier fishermen interpret information included in the fish consumption advisory issued each spring. Copies of both publications may be obtained by calling the Water Quality Surveillance and Standards Branch of IDEM at (317) 243-5012.

(IDEM . . . continued from page 1)

One feature of the new unit is a lighting system designed for electrofishing after dark. This will enable the staff to do a better job of sampling lakes and reservoirs since larger individuals of a number of game fish species stay in deep water during the day and only venture into shallow water at night to feed.

To receive free quarterly issues of WATER COLUMN, send your name and address to:
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More Money Available for Lake Enhancement

The concern that Hoosiers have for the protection and cleanup of our lakes was answered by the 1989 Indiana Legislature with the authorization of additional funding for the T by 2000 Lake Enhancement Program. During the first two years of the Division of Soil Conservation's lake work, there was only \$300,000 available for grants to lake groups. Starting in 1990 there will be new monies available from the new boat tax law change. Boaters will pay an additional \$5.00 that will be earmarked for the Lake Enhancement Program. It is estimated that this may amount to about one million dollars per year to improve our lakes.

The legislature also authorized other money for specific lake projects from the "Build Indiana Fund (state lottery)." Shafer and Sylvan Lakes will have \$100,000 each for design projects and Shipshewana will get \$2.4 million for total lake and watershed treatment.

These new monies will provide an expanded scope of work for the Lake Enhancement Program.



The local pride shows at the Lake Enhancement Program Project at Koontz Lake.

The State Soil Conservation Board, the policy-making body for the Division of Soil Conservation, is considering a total watershed approach for the expanded program. This could mean that cost-share money would be available to help solve the lake problems up in the watershed where most of the troubles start. Revised guidelines are now being drafted, however, specifics cannot be determined until the expected funds have actually been collected. That may be months off.

New Lake Enhancement Projects Awarded

Twelve new Lake Enhancement Projects have been awarded recently, including the first two construction projects. A total of 33 projects have now been funded by the program.

Lake	County	Project ¹
Huntingburg	Dubois	F
Koontz	Marshall	C
Maxinkuckee	Marshall	C
Pike	Kosciusko	F
Ridinger	Kosciusko	F
Fish & Royer	LaGrange	F
Sullivan	Sullivan	F/D
Winona	Kosciusko	F/D
Little Barbee	Kosciusko	D
Skinner	Noble	S
Big & Little Turkey	LaGrange	F
Big Long, Pretty, Lake of the Woods	LaGrange	F

¹F = feasibility study, D = design study, S = special study, C = construction project

Questions from Readers

Q: Our lake sometimes has foam on the surface. Are these soap bubbles?

A. The bubbles you have seen look like soap bubbles but they aren't necessarily caused by detergents in the lake. The bubbles themselves are composed of long-chain organic molecules, likely derived from decomposing plant materials. These compounds are similar to soap and in fact, many soaps and detergents have natural plant compounds, such as wax from pine needles, as ingredients. Turbulence in the water from the wind or

boats cause these compounds to form bubbles. This is why the bubbles often form wind rows or pile up on the leeward shore of the lake.

While bubbles can form from pollutants dumped into lakes, they also occur naturally in remote lakes unimpacted by human activities. So don't despair, your lake may not be suffering from detergent pollution.

Q: Every now and then I see gas bubbling at the surface of my lake. I've always wondered what caused this. Is it from fish or is there a gas deposit under the lake?

A. The gas bubbles you've seen are common in lakes and may be caused by a number of things. As dead plants decompose on the lake bottom, the bacteria doing the decomposing can release methane gas as a by-product. The gas builds up in the sediments until there is enough to force it to bubble up. Methane gas formation is common in highly productive lakes and can also be released when boat oars or waders stir up mucky sediments.

Nitrogen gas can also be released by bacteria through a process called denitrification in which the nitrate form (NO_3) of nitrogen is biochemically reduced to nitrogen gas (N_2). Another gas, carbon dioxide, can be released into lakes by natural springs or seeps on the lake bottom.

*If you have any lake-related questions, send them to WATER COLUMN and we will do our best to answer them.

Aquatic Vegetation—Part II: Management Techniques

In Part I of this article, we talked about the many benefits of rooted aquatic plants in lakes. However, in some instances aquatic plants may become so dense that lake uses are seriously impaired. In these cases some control is needed, but where do you start? The key to successful aquatic plant management is a sound management plan. A sound plan is built on four principles (Nichols, et al., 1988, *Aquatics*, 10[3]:10-19):

- define the problem;
- understand plant ecology;
- consider all techniques;
- monitor the results.

By following these principles, the lake manager will control only those species and areas that require control and will be able to document

which techniques either worked or didn't work.

Lake users and managers must work together to define the problem. Is the entire lake choked with rooted aquatic plants or are they a problem only in shallow areas around docks, piers, and beaches? Draw areas of plant cover on a lake map to help locate problem areas. How are the plants a problem and are some species

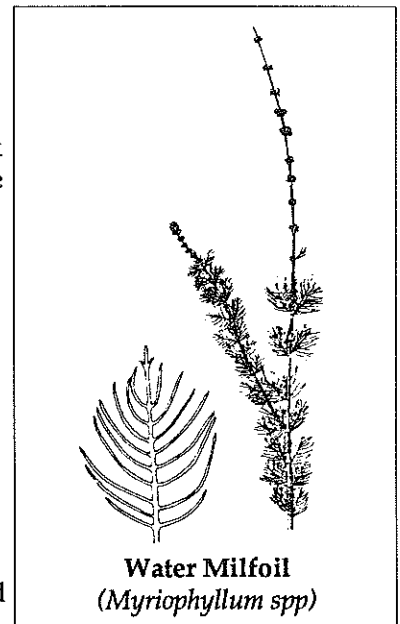
more of a problem than others? Has the District Fisheries Manager determined that the dense vegetation growth is contributing to stunted fish or is the lake's fisheries in good shape? By answering these questions you will be better prepared to efficiently manage rooted aquatic plants.

You must also know the aquatic plants you are trying to manage. Which plants provide important benefits to your lake? How do the plants spread? For example, small fragments of water milfoil can take root and grow into new plants, so it can be spread throughout the lake by motor boats cruising through milfoil beds or by harvesting the plants and leaving the cuttings in the lake.

Investigate all feasible aquatic plant management techniques and select the one most suited to your lake and to your problem plants. Many techniques are species-specific—they may control some species but not others. Of the available aquatic plant management techniques, harvesting, chemical herbicides, screens, and drawdown are discussed below.

Harvesting. Aquatic plant harvesting can be accomplished by large mechanical harvesting machines, hand cutters, or manual pulling. In addition to removing unwanted plant biomass from the surface waters, harvesting also stresses some aquatic plants, reducing their vigor. Cutting the plants close to their roots is the most stressful to them and two or more harvests per year, especially a late season harvest, can provide residual control the following season.

Regardless of the harvesting technique used, the cut plant biomass must be collected and removed from the water. Harvested plant material quickly releases stored phosphorus and nitrogen as it begins to decay, and decaying plant biomass consumes oxygen. Thus, the removal of harvested

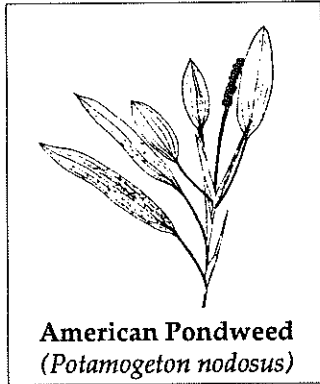


biomass removes both nutrients and biochemical oxygen demand (BOD) from the lake.

Herbicides. Chemical herbicides can be used selectively to control aquatic macrophytes because plants differ in susceptibility to herbicides. For example, the herbicide Endothal is effective against coontail (*Ceratophyllum demersum*) but not against spatterdock (*Nuphar variegatum*). Unfortunately, herbicides may adversely affect non-target organisms and may require water use restrictions following treatment. Remember: a permit from the Indiana DNR is required before

applying aquatic herbicides to Indiana waters.

Screening. In small areas around docks, piers, and the beach, bottom screening material has been effective in restricting macrophyte growth. Non-corrosive mesh screening, under a number of product names, has been tested by the Wisconsin Department of Natural



American Pondweed
(*Potamogeton nodosus*)

Resources and such screens have been used on lakes and ponds in many states. When rolled onto a lake bed in spring or draped over plants in summer, the weighted screens reduce sunlight and hasten decomposition of underlying vegetation. Shorelines, pier areas, and boating lanes can remain free of vegetation all summer if screens are used. The screens are easily removed in the fall for cleaning and can be reused the following years. Since screening material is rather

expensive (\$140 per 7' x 100' roll) it is most cost-effectively used in small areas.

Drawdown. Water level drawdown during the winter months can help control aquatic macrophytes in nearshore areas if the sediments are able to dry out and freeze. Exposure and desiccation following by freezing, stresses certain macrophyte species and can provide control the following growing season. This is a rather inexpensive management technique to implement in lakes having an outlet structure with drawdown capability.

Finally, monitor the results of your management efforts. Careful monitoring will tell you how effective or ineffective your management program is and can help keep you from repeating past mistakes.

For more information on rooted aquatic plant management, write to WATER COLUMN.

Meetings

October 2-3, 1989—Minnesota Lake Management Conference, Hyatt Regency, Minneapolis, Minnesota. Contact Steve Heiskary, (612) 296-7217.

October 7, 1989—Wisconsin Federation of Lakes Fall Meeting, Midway Motor Lodge, Green Bay, Wisconsin. Contact Elmer Goetsch, (715) 546-2340.

November 7-11—9th International Symposium, North American Lake Management Society (NALMS), Stouffers Hotel, Austin, Texas. Contact NALMS Office (202) 466-8550.

WATER COLUMN
School of Public and Environmental Affairs
Room 347
Indiana University
Bloomington, IN 47405

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