



Office of Water Management  
 Indiana Department of  
 Environmental Management

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Winter  
 1997  
 Vol. 9, No. 1

## Indiana is First State to Approve New Rules

Indiana was the first of eight states to adopt rules to enforce the Great Lakes Initiative (GLI), a set of minimum standards proposed by the US EPA to protect the lakes from toxic chemicals.

US EPA regulators set a 3/97 deadline for compliance with GLI guidelines, but most of the states involved—Illinois, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin—did not make the date.

Tim Eder, manager of water-quality programs for the National Wildlife Federation and a member of EPA's GLI advisory board, said that only Michigan, Wisconsin and Minnesota are close to completing rules. But Ohio EPA spokesperson Jennifer Day said she expects Ohio will receive extra time to comply because it is the only state that requires regulators to weigh the potential costs of new regulations as part of the rule-making process.

## Insect Control Approved for Purple Loosestrife in Indiana

Purple loosestrife (*Lythrum salicaria*) is a plant which came over from Europe without its natural enemies. It has been spreading through natural wetlands, pushing out native plants and wildlife. A few landowners and lakes associations contact the Department of Natural Resources (DNA) each year wondering what they can do about the purple loosestrife around their lake. In the past there has not been much they could do. If there were only a few plants they could be

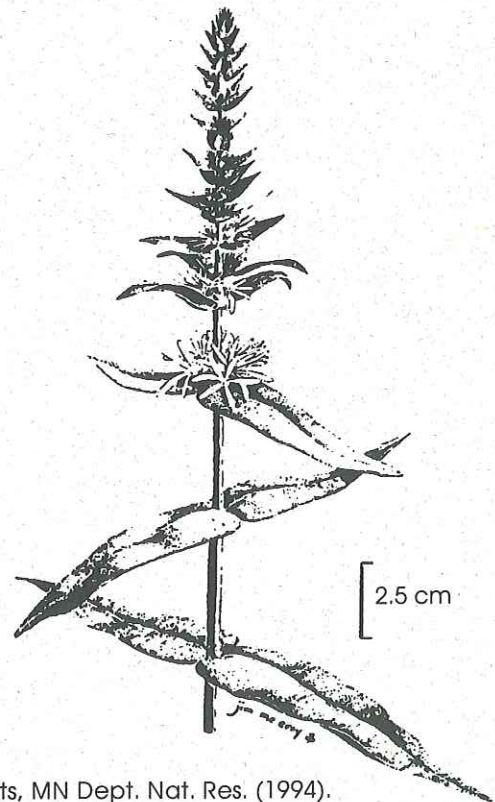
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Purple Loosestrife  
 (*Lythrum salicaria*)

Location: Wetlands, lakeshores, streams, river banks, ditches.

Description: Grows to heights of 4 to 10 feet; blooms from early July to early September; stems die back each fall.

Hints to identify: A long flower spike at the top of the plant containing many purple-magenta flowers; has 5 to 6 petals per flower; stems are rigid and four-sided; opposite leaf arrangement is on the stem. Purple loosestrife is sometimes confused with blazing star, fireweed, and blue vervain.



Source: A Guide to Aquatic Plants, MN Dept. Nat. Res. (1994).

## PURPLE LOOSTRIFE . . .

*continued from page 1*

pulled. Slightly larger infestations could be sprayed with herbicide, but that required special herbicides and training, and it was hard work. If purple loosestrife was well established even spraying was not very successful at controlling it.

A new strategy, biological control, may be the solution. For several years the DNR's Division of Nature Preserves and Division of Entomology and Plant Pathology have been working with biologists in federal agencies, universities, and state agencies across North America to introduce insects which specialize in eating purple loosestrife. These insects are so specialized that they would rather starve looking for loosestrife, than feed on other plants. They cannot complete a single life cycle on any other plant, which prevents them from evolving into pests.

Using insects to control purple loosestrife has a number of advantages. They do not damage native plants the way herbicides can. They can survive over winters so that the same area does not have to be treated year after year. As the number of insects builds up they will spread to surrounding wetlands, seeking out new infestations of purple loosestrife.

These insects have been released at a number of wetlands across northern Indiana, but there have not been enough of them to target individual lakes and wetlands. Now the insects are being raised in larger quantities so that there may be enough for individual lake associations to put them to work. If you are interested in releasing insects to control purple loosestrife around your lake you should contact Gayle Jansen at the Division of Entomology and Plant Pathology, 402 W. Washington, Rm. W290, Indianapolis, IN 46204, phone 317/232-4120. If demand for insects is high enough, a financial contribution may be required in order to help the organizations producing the insects to meet the demand.

Biological control has the potential to do a good job of controlling purple loosestrife, but there are a number of things it will not do. It will not eliminate purple loosestrife. Purple loosestrife will still be present, but it will be reduced enough to let native plants compete and thrive. We expect that only scattered plants will be found in wetlands, instead of dense stands. Biological control will not work overnight. Purple loosestrife has been spreading through wetlands for many years. It will take a number of years for insect numbers to build up to the point where they can control loosestrife. How long may depend on the size of the infestation. Biological control may not work equally well in all wetlands. There may be some habitats where the insects will be less effective. Because these insects

only eat purple loosestrife they will not reduce other plants growing in wetlands around your lake. In fact we hope that native wetland plants will increase as purple loosestrife decreases. This should lead to more diverse natural wetlands, and better homes for native wildlife around Indiana's lakes. (Rich Dunbar, Regional Ecologist, Division of Nature Preserves—IDNR)

## June 7-8 is Free Fishing Weekend

The Division of Fish and Wildlife offers "Free Fishing Weekend," June 7-8. During this weekend, Indiana residents may fish without a state fishing license in Indiana waters. The weekend was created by the Indiana General Assembly in 1995 and is designated by the director of the Department of Natural Resources to promote angling as a recreational activity.

As part of Free Fishing Weekend, the DNR hosts free fishing activities for kids on Saturday, June 7, 1997. This youth program aims at teaching Hoosiers how to fish. Fishing activities are conducted at various state fish and wildlife areas, state parks and reservoirs around the state. Specific locations and times are announced in May.

## Zebra Mussels Identified in More Indiana Lakes

Zebra mussels, a thumbnail-sized clam originally found in Europe, have now been identified in six additional northern Indiana natural lakes this year. Previously, the aquatic pests were identified in nine Indiana lakes along with Lake Michigan and the Ohio River.

Five of the new sightings from this year have been confirmed. These new lake sightings are Clear, Gage, George, Waubee and Freeman. An unconfirmed sighting in Jimmerson Lake will likely be verified because of its popularity and proximity to other lakes already containing zebra mussels. A sixth location on the St. Joseph River near the St. Joseph and Elkhart county line was added this year.

Named for their light and dark wavy bands resembling the striped pattern of a zebra, zebra mussels were first discovered in Indiana waters in 1991 at Lake Wawasee, the state's largest natural lake. Zebra mussels are now present in Dewart, Kuhn, Tippecanoe and Syracuse lakes near Warsaw and in Lake Maxinkuckee in Marshall County.

Zebra mussels are especially troublesome due to their prolific reproductive capabilities. These



mussels collect in large numbers on water intake systems of power plants and municipal water supplies, slowing and eventually clogging the systems.

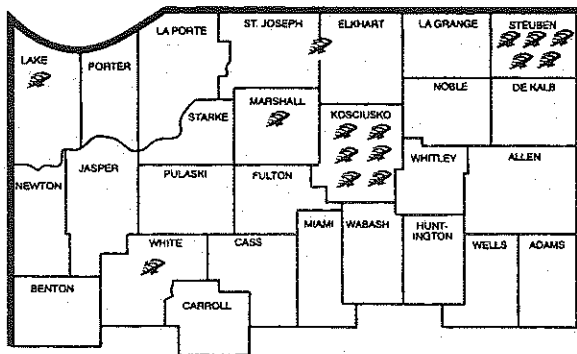
A University of Michigan researcher discovered three of the new infestations detected this summer. The fourth zebra mussel find was by John Rouch, a volunteer member of the Indiana Department of Environmental Management's clean lake monitoring program.

As the number of infested lakes increases, the risk to other lakes will increase.

#### Control zebra mussels:

- ✓ Drain water and debris from your boat's bait buckets, bilges and live wells before leaving a landing.
- ✓ Never transfer water from one lake or river to another.
- ✓ Report sightings of zebra mussels to a local district biologist or the Indianapolis office by writing to Division of Fish and Wildlife, 402 W. Washington St., Room W273, Indianapolis, IN 46204; or by calling 317/232-4080.

Number of Lakes in Northern Indiana Counties with Zebra Mussel Sightings



## Your Lake In Spring

Spring is a very turbulent time for our lakes. Once the icy winter cover melts, lakes literally "awaken" to the new opportunities that spring brings. As the surface water warms up from 0° C, the temperature-dependent density differences that separated the water into horizontal layers (*stratification*) weaken. When the surface water temperatures approach those of the bottom waters (about 4-5° C), the density differences are so small that a good wind can cause the entire lake to mix from top to bottom. This is called *spring turnover*.

Spring turnover and active lake circulation may last 4 to 6 weeks, depending on how quickly the weather warms. If we have a very warm spring, the period of turnover may be short. Cool spring weather results in a longer period of turnover.

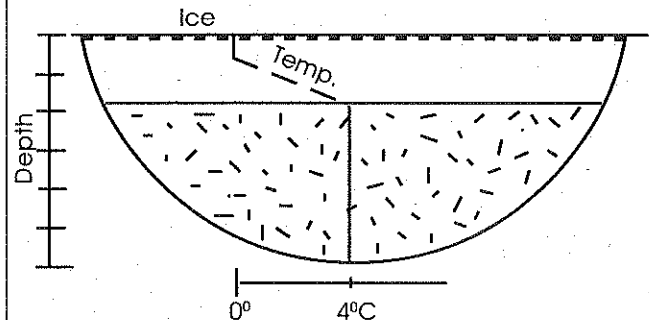
Because most lakes mix completely during periods of turnover, bottom waters rich in settled nutrients and organic matter from the previous autumn, may now be brought up to the surface. In some lakes, the water is noticeably more turbid (less transparency) during turnover. But don't worry, these suspended materials usually settle out again quickly.

In fact, the period following spring turnover and settling is often referred to as the "spring clear water phase" because lakes often have their deepest transparency at this time. This is because it is too early for algae to begin growing and add to transparency problems.

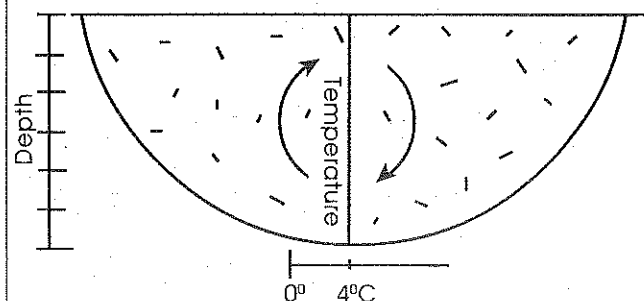
With the warming water, fish and other aquatic organisms that were made sluggish by the cold winter water, begin to become more active again. Fish forage for food to replenish reserves depleted

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Late Winter Thermal Stratification  
(lake cross-section view)



Spring Turnover  
(lake cross-section view)



YOUR LAKE IN SPRING . . .  
continued from page 3

during the winter. They also begin nesting activity and you can often see bluegills and other sunfish guarding their nests in shallow waters along the lake margins. Aquatic insect larvae that have overwintered on the lake bottom or in leaf masses begin to emerge into adults.

So, enjoy your lake as it wakes up from its long winter's nap!

### Did You Know:

Used automobile motor oil is the largest single source of oil pollution in our lakes and streams. Each year, shade-tree mechanics illegally dump 120 million gallons of oil. (*Env. Engineering News*, Purdue University, Vol. 53 [#7& 8])

### WATER COLUMN

Published quarterly by the  
Indiana Clean Lakes Program as a medium  
for open exchange of information regarding lake  
and watershed management in Indiana

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## PERSPECTIVES

*History is replete with the sagas of armies that fought over water, of monarchs and priests who worshipped it and health workers who have blessed it, of civilizations that dwindled after losing or mismanaging it, of people who died because of it.*

—Abel Wolman, *Water* (Life Science Library, 1966)

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