



Office of Water Management
Indiana Department of
Environmental Management

W
A
T
E
R

C
O
L
U
M
N

SUMMER
1993
Vol. 5, No. 2

Highlights of the Fifth Indiana Lake Management Conference



This year's conference was held at the Shawnee Bluffs Family Camp on Lake Monroe.

One hundred and fifty-five people now know a lot more about watershed management as a result of attending the 5th Indiana Lake Management Conference at Lake Monroe recently. The theme of the conference, "Watershed Management: Working Together to Make a Difference" was echoed by the national and state experts who spoke at the conference. Cooperation and shared responsibility among governments and citizens alike, were mentioned frequently as important tools needed to effectively manage watersheds. Frank Lapensee, Chief of the US EPA Clean Lakes Program, challenged the participants to become involved locally in watershed management efforts (see article following).

Many successful watershed management approaches were featured, including programs at: University Lake, North Carolina; Chesapeake

(Continued on page 2)

Don Roberts from the US EPA Region V office demonstrates a watershed runoff physical[®] model during the conference.



(Water Conference. . .
Continued from page 1)

Bay, Maryland; Maumee River Basin (NE Indiana); Fish Creek (Steuben and DeKalb counties); Eel River (Whitley County); Lake Sullivan (Sullivan County); Cree and Shockopee lakes (Noble County); and Lake Monroe (Monroe County). These management efforts were financially supported by a variety of local, state, and national programs, as well as by private sponsors.

ILMS to Receive \$53,000 Grant

The Indiana Lakes Management Society (ILMS) will soon receive a \$53,000 grant from the U.S. Environmental Protection Agency. The ILMS award is part of a \$850,000 Congressional appropriation to EPA Region V states for citizen outreach programs. The North American Lake Management Society (NALMS) will administer the Midwest grant and will hire an outreach coordinator to provide guidance to the state societies.

The ILMS funds will be used for public education, to recruit members, and for administrative support. ILMS will have two years to spend the money. This is a great opportunity to enhance the base of citizens concerned about lake management in Indiana.

Other funds included in the Region V award will be used for regional workshops and education programs.

Shoreline/Streambank Erosion Control Demonstrations

Two shoreline/streambank erosion control demonstration sites were created in southern Indiana this spring. The Indiana DNR Division of Fish and Wildlife used willow posts to stabilize a steep, eroding bank of the White River at a site located five miles north of Martinsville on the west side of S.R. 37 at the White River bridge. In conjunction with the Fifth Indiana Lake Management Conference, the Indiana Department of Environmental Management and IDNR divisions of Soil Conservation and Reservoir Management worked cooperatively to install several shoreline erosion controls near the boat ramp at the Paynetown State Recreation Area on Lake Monroe near Bloomington. Measures installed at this site include: willow posts, articulated blocks, rip-rap, and erosion control blankets.

The willow post method uses 6-12-foot long dormant willow posts that are placed in holes driven into the lake bank or streambank, either by hand or with a powered ram. Banks with slopes steeper than 1:1 have been successfully protected with this technique. Willow posts are placed about four feet apart in rows and the ends of the posts must be below the water table. Within a few months, the posts regrow branches and root systems. The roots hold the bank in place and the posts reduce the erosive velocity of waves on the bank. Grasses or more desirable woody vegetation may be planted between the posts. This technique is much less expensive than rip-rap or retaining walls while at the same time it provides important riparian habitat for fish and other organisms.



Conference participants view shoreline erosion control demonstration site at the Paynetown boat ramp. Measures pictured are: willow posts (foreground), articulated blocks (right background), and erosion control blanket on seeded area (left background).

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

William W. Jones, Editor
Cynthia Mahigian Moorhead, Production Manager

Address all correspondence to:
SPEA 347
Indiana University
Bloomington, IN 47405

Phone: (812) 855-4556

New Publications Available

—*Proceedings of the Third and Fourth Indiana Lake Management Conferences*—nine papers presented at the 1991 and 1992 Indiana Lake Management Conferences. Includes reports on: wetlands restoration, aeration, T-by-2000 Lake Enhancement Program results, Shipshewana Lake, West Boggs Lake, and four Hoosier National Forest ponds. Published by the Indiana Department of Environmental Management Clean Lakes Program. Copies available from: Bill Jones, SPEA 347, Indiana University, Bloomington, IN 47405.

—*Organizing Lake Users: A Practical Guide* (update)—*Water Column* has learned that this booklet, described in our last issue, is available free from: TVA, Water Management Library, Haney Building, Chattanooga, TN 37402.

—*Restoring and Creating Wetlands: A Planning Guide for the Central States Region: Iowa, Kansas, Missouri, and Nebraska*. The illustrated booklet is intended to aid planners, local governments, businesses, and the general public in planning local restoration or creation projects. The free document is available from the U.S. EPA. Contact: Carl Bauer, U.S. EPA, Region VII, PLMG/ENRV/WETS, 726 Minnesota Ave., Kansas City, KS 66101, Phone: (913) 551-7569 (EPA news release).

Boat Safely this Summer

According to the National Safe Boating Council records, Indiana had 111 boating fatalities in 1992. Thirty-six percent of those were from boats capsizing, 29% were people falling overboard from a stationary boat, and 19% were collisions with another boat or object. The state has 176,000 registered boaters.

You can help reduce boating accidents by several simple actions: (1) make certain that all boat operators are trained in operating the particular boat, (2) be knowledgeable of and obey Indiana's safe boating regulations, (3) be courteous to other lake users, and (4) **DO NOT DRINK AND BOAT**.

Have a safe boating summer!

Think Globally, Act Locally

Frank Lapensee
Chief, Clean Lakes Program
U.S. Environmental Protection Agency
Washington, D.C.

[Editor's Note: This article is a transcript of remarks made by Mr. Lapensee at the Fifth Indiana Lake Management Conference. The remarks are so relevant that we chose to reproduce them here.]

Often we are overwhelmed by the apparent magnitude of what is required and what we will need to do to restore or protect the world's environment. For example, the potential for nuclear disaster in the former Soviet Union is well-known, and continual destruction of the rain forest causes great concern for its potential effect on the world's environment.

But there are signs of improvement: one recent report claims the hole in the ozone layer has begun to fill and it could be restored by the year 2000. The improvement seems to be the result of changes brought about by the Montreal Treaty of just a few years ago, which committed nations to reduce their dependency on aerosols and other products. That means that products that you and I used everyday contributed to the depletion of the ozone, and the discontinued use of these products is having a beneficial impact. This discontinued use is the result of changes in personal lifestyles and manufacturing changes.

A global problem is being affected by collective individual acts. The journey of a thousand miles began with the first step leading up to the Montreal Treaty.

Keep your eye on the big picture, be aware of global concerns, but keep your mind on the task before you. Think globally, act locally.

Local action is best achieved by developing partnerships at all levels. Partnerships grow out of mutual concerns and conflict, which is the first stage of developing a partnership. Conflict includes three elements:

1. *co-existence* (when we recognize that each member of the conflict exists),
2. *communication* (we begin to talk to each other), before one organization will exchange anything beyond niceties with another, a minimum level of trust must be established, and
3. *cooperation* (beginning of interaction), and requires recognition of a common interest.

(Continued on next page)

(LAPENSEE . . .
continued from previous page)

When we cooperate, we share information and interact to achieve a common goal. This completes the first stage of establishing a partnership.

Cooperation leads to coordination. This is the second stage of developing partnerships. Coordination occurs when organizations *share information and interact around specific tasks* to benefit their clients or to achieve a common goal. We agree on strategies that may modify the way we make decisions and how we do our job.

For example, if the independent groups or individuals were interested in holding a meeting or workshop, each would be responsible for specific tasks which would be completed independently of each other. After agreement to a time and place, each would assume a specific responsibility and would *coordinate* their efforts to accomplish the objective of conducting a meeting or workshop.

But once we start *coordinating*, the next step (and the final stages of developing partnerships) is *collaboration*. Collaboration requires a fundamental change in the way partner organizations function. A partnership is achieved when organizations recognize their common interests are long-term and are best served by re-examination of how we make decisions and how and why we do what we do.

Decisionmaking, resources, and planning are shared and participating organizations commit budget and other resources to be managed by a directorate that represents the partnership.

This part is very difficult. It requires change. People don't like change. We are creatures of habit and resist change.

For example, if individuals or groups are interested in conducting a workshop, in addition to agreement on a time, place, and workshop

objectives, each group or individual would contribute resources and allow a third party to plan and coordinate the workshop to achieve the agreed objectives.

We must keep in mind that partnerships are vulnerable to conflict and will be unable to do productive work until they:

1. Develop an identity as a partnership—"They" need to become a "We".
2. Successfully complete some simple tasks and gain some experience working together.
3. Establish a minimum level of trust with operating rules.
4. Develop a process for recognizing and resolving conflict.

What does this mean for lake management in Indiana and the *Indiana Lake Management Society*? Don't you have a solid partnership, effectively collaborating between the federal/state and local

governments? However, just because something is good doesn't mean it can't be better.

In building partnerships, I believe we need to do more in the area of community development. This means that in order to build a lasting, effective partnership, federal, state, and local agencies must work together, and facilitate the process by which communities assess their own needs and priorities, and define strategies and approaches to address them. The roots of a strong

partnership are found in empowering communities.

One of the problems we have as a nation, is that some of us working in Washington, D.C., think we have all the answers.

Some of us working in Indianapolis or Chicago think we have all the answers.

Many of us working for the county or city think we have all the answers.

My guess is that most of the time we don't even know the question.



Frank Lapensee addresses participants at the Fifth Indiana Lake Management Conference.

We have the *power and the money*, but the answer begins with the question. The question comes from the community. What are the community's needs, hopes, desires, and fears? How can we help them achieve their needs, hopes, desires, and depose of their fears?

To build a partnership with a community you can not assume the community has the same goals and objectives as you. Its goals may be short-term while yours may be long-term. But you must support its goals to build trust and to help it achieve the capability of managing its own resources (empowerment). We must help the community gain the ability to control its own resources and environment.

We must provide as much support, encouragement, resources, and information that may be necessary to help the communities maintain their efforts to take control and be responsible for their own destinies. Your support and involvement are two of the most critical resources needed.

What are some of the barriers to developing partnerships?

1. professionals with all the answers, and
2. leaders who fail to share power (information and resources).

What will nurture a partnership?

1. Keep focused on common goals.
2. Keep focused on tasks before the group.
3. Keep tasks achievable.
4. Be realistic—consider time, money, and politics.
5. Respect partners' time (with well-planned events).
6. Keep communication open and ongoing (keep group informed).
7. Build "ownership" at all levels.
8. Repeat #3, don't push beyond capabilities.
9. Respect the history and culture of the community.
10. Recruit your opposition (enemies included).
11. Never blame an individual, take group responsibility. (The process needs change, not the individual.)

If you follow the principles of community development, states will be asking communities the right questions, responding and empowering local governments. You need to be there to help provide the answers.

Federal agencies will be asking states the right questions, responding and empowering state governments to control their own environment. Our roles can be reduced to providing assistance,

encouragement, and support. Utopian? Nice, but not practical or realistic?

Let me point to the Clean Lakes Program. It can work, it has worked. You can build effective partnerships.

I encourage you to pay attention to the needs, hopes, desires, concerns, and fears of the community you serve. Build a strong and lasting partnership with your community for the protection of our environment. If we act locally, global concerns will be addressed.

The challenge to you is to take the tools and information you gain at this conference back to your communities and initiate action to build partnerships to solve your local lake and watershed problems.

I know everyone is busy, but if you don't take the time to take the first steps, then the journey won't begin, partnerships won't be formed, and the problem will still be there tomorrow and the next day and the next.

Take the lessons you learn from this conference, begin a partnership, start the journey. Good luck!

Armies of Zebra Mussels Eyeing St. Joseph River

Elkhart, Indiana. Two armies of pesky mollusks are converging on the St. Joseph River, and biologists say they appear to be marching on Elkhart. The tiny, troublesome zebra mussels that have swarmed the Great Lakes in recent years now are threatening waterways throughout northern Indiana, say two University of Notre Dame biologists. "I can see the time when we might have zebra mussels hanging on the walls of the East Raceway in South Bend and right there at Century Center," said Gary Lamberti, who along with David Lodge is heading a study on the zebra mussels' impact on the St. Joseph waterway. Lake Wawasee and Michigan's Eagle Lake, just north of the Indiana state line, are two of only five freshwater lakes in the nation where zebra mussels have been discovered. Water samples taken from Eagle Lake, near Edwardsburg, Michigan, show zebra mussel larvae numbers are high, said Paul Marangelo, coordinator for the Zebra Mussel Dispersal Study. The study is funded by the Michigan Sea Grant Program. "They're all over," Marangelo said, adding that spawning is well underway.

Lamberti believes zebra mussels will migrate from Lake Wawasee, about 30 miles south of

(Continued on next page)

(ZEBRA MUSSELS . . .
continued from previous page)

Elkhart, through Turtle Creek and the Elkhart River into the St. James River near downtown Elkhart. From the north, Lamberti expects the mollusks to move from Eagle Lake into other small lakes nearby, then into Christiana Creek and eventually into the St. Joseph, also in Elkhart. Zebra mussels have already virtually wiped out Lake Wawasee's freshwater clam population. The mollusks first were discovered in the United States in Lake St. Clair near Detroit in 1988. Scientists believe they were dumped in ballast waters of ships from Europe as the vessels entered the St. Lawrence Seaway. The mussels' population exploded and they spread rapidly through the Great Lakes, clinging to a variety of organisms and manmade surfaces and clogging water intakes throughout the region (AP news release).

Become a Volunteer Lake Monitor

Did you know that 70 *Water Column* readers are helping to protect Indiana's public lakes by monitoring their lake's water clarity? But there are still hundreds of public lakes that are not being monitored. Would you like to help?

All it takes is access to a boat and about 30-60 minutes of your time once every two weeks. You'll get your own Secchi disk to use and will be trained at your lake by an Indiana Clean Lakes Program staff member.

By becoming a Volunteer Lake Monitor, you'll not only be helping to protect Indiana's lakes, but you will also learn more about your lake and about lake ecology and management. And it's fun!

To find out more or to become a volunteer, write to or call:

Bill Jones
SPEA 347
Indiana University
Bloomington, IN 47405
(812) 855-4556

To receive free quarterly issues of *WATER COLUMN*, send your name and address to:
WATER COLUMN
SPEA 347
Indiana University
Bloomington, IN 47405

Monitoring Added As Cost-Sharable Watershed Land Treatment Practice

At its April meeting the State Soil Conservation Board approved a Division LARE staff recommendation that water quality monitoring be added to the list of practices eligible for cost-sharing in T-by-2000 watershed land treatment (WLT) projects. It also OK'd a further recommendation that up to 15% of each project grant be used by the sponsoring SWCD to defray monitoring program costs, such as consultant fees, equipment purchase, and/or volunteer administration.

Monitoring is needed in WLT projects to establish baseline data, identify problem areas, and detect water quality changes after practices have been installed. It will result in better practice placement and greater effectiveness.

The LARE staff feels that, at this point, two of US EPA's Rapid Bioassessment Protocols (RBPs) appear to be the best monitoring tools for most WLT projects. They're cost effective (i.e., require few people and inexpensive equipment) and yield quick, reliable results. RBP II can probably be used by properly trained volunteers; whereas RBP III, which requires more expertise and a lab, would be used by consultants. The LARE staff will coordinate volunteer-group monitoring programs and be responsible for quality assurance/control.

With the addition of monitoring as a WLT cost-shared practice, each of the eight current LARE projects (Wildcat, Barr, Blue, Upper Laughery, Otter, Cree/Schockopee, Ridinger, and Salinda) will be receiving 15% above their initial allocation for a monitoring component. Further information about monitoring protocols for WLT projects will be sent to SWCDs in the near future (*Topsoil*, No. 364).

Water and Your Diet

Oklahoma Water News brings us the following information from the Water Education Foundation by way of *U.S. Water News*. According to the Foundation, 1,200 gallons of water are needed to produce a typical 8-ounce beef steak, while 8 ounces of chicken requires 165 gallons, and 8 ounces of tofu requires 60 gallons. The same report says that a 4-ounce hamburger patty requires 600 gallons of water; a slice of white bread, 10.6 gallons; and a slice of wheat bread, 7.3 gallons.

The lettuce for your hamburger requires something less than 3 gallons to bring to the sandwich, but if you are going to make a

hamburger casserole, the pasta will require 35.9 gallons of water for a 2-ounce serving. Milk for the meal requires 48.3 gallons per 8-ounce serving, while a cup of yogurt runs to 87.6 gallons.

Maybe it's a good thing that we didn't choose the "water standard" when we went off the gold standard (*Oklahoma Water News*, Sept./Oct. 1992).

Soil Erosion

The impact of a raindrop on bare soil is like a small explosion on the surface that sends particles in all directions. As rain falls and soil becomes saturated, a thin layer of water moves along the surface. Raindrops hit the moving water as the soil particles suspended in the water flow downhill. *Sheet erosion* results from thin layers of soil that are removed by flowing water.

Rill erosion is the result of concentrated runoff being channeled into continuous surface depressions.

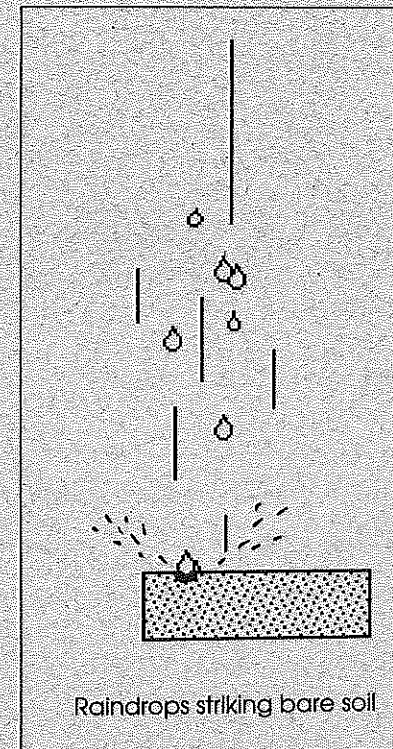
Gully erosion develops in areas where runoff becomes concentrated and the fast-flowing water scours the soil, forming large and deep ditches.

While sheet erosion is difficult to see, rill and gully erosion are highly visible. Rills can be erased by cultivation and crossed by farm machinery, but gullies are obstructions to machinery.

The rate of soil loss depends on the characteristics of the soil, cropping systems, topography, management practices, and rainfall.

Management practices can reduce erosion by shortening slope length and protecting the soil surface with vegetation or residues. Reduction of soil erosion improves the quality of surface water.

Soil can be both a water pollutant and a carrier of other pollutants. Erosion carries away soil resources and produces large quantities of



Raindrops striking bare soil

sediment that degrade water. Soil washed off the land may carry pesticides, toxins, and nutrients into surface waters.

Sediment in streams and reservoirs reduces their capacity to hold water and increases water treatment costs. Sediment suspended in the water also destroys fish habitat. Fortunately, erosion and sediment can be reduced at much less than the cost of repairing the damage.

Soil erosion can be controlled on urban land as well as farm land with the use of conservation practices. For information or help in planning erosion and sediment control contact the Soil Conservation Service (Monroe County SWCD *Annual Report*).

ILMS Elects New Officers for 1993

The Indiana Lakes Management Society (ILMS) elected new officers for 1993 at their annual business meeting held during the Fifth Indiana Lake Management Conference held at Lake Monroe. The following slate was elected:

President	Dr. Joe D. Richardson
President-elect	John J. Johnson
Secretary	Dr. William Hill
Treasurer	George A. Bruce
Director	Hank Baker
Director	Mark Young
Past President	Roy W. Mann

To become involved in this important organization requires only a \$10 annual membership fee. Write to ILMS at: 909 W. Maumee, Angola, IN 46703.

Relating Land Use and Buffer Areas to In-Stream Water Quality

The Jan.-Feb. 1993 issue of *EPA NPS News-Notes* reports that researchers at the Illinois State Natural History Survey have developed a prototype computer program that allows local decisionmakers in the central corn belt plains to evaluate and compare the effects of various land use changes on

(Continued on next page)

(ZEBRA MUSSELS . . .
continued from previous page)

the quality of local waters, and to see how the use of riparian buffers can mitigate these potential impacts. With this prototype, an operator enters the current land use configuration and the proposed land use changes, and the system estimates the water quality impacts that are likely to occur at any location within the watershed as a result of changes in nutrient loading.

The model, which uses Geographic Information System technology, was developed using the Salt

Fork watershed, a 500-square mile drainage to the Vermilion River. In a simulation run in which 100 acres of agricultural land was converted into urban land, the model predicted an almost negligible change in in-stream soluble reactive phosphorus (SRP) and nitrate concentrations when a buffer zone greater than 1000 feet wide was used. When the riparian buffer zone was less than 100 feet, the model predicted a 180% increase in SRP and 140% increase in nitrate loading. For more information, contact: Lewis L. Osborne, Aquatic Biology Section, Illinois State Water Natural History Survey, 607 E. Peabody Drive, Champaign, IL 61820.

PERSPECTIVES

Water attracts me as women attract men, as cherries attract blackbirds. I fall for it every time. Water has some kind of powerful mystery about it. Still waters, moving waters, dark waters: the words themselves have a mysterious, almost dying fall.

—H.E. Bates



WATER COLUMN

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

NON-PROFIT ORG.
U.S. POSTAGE
PAID
Bloomington, IN
Permit No. 2