



Office of Water Management
Indiana Department of
Environmental Management

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Lake and Watershed Monitoring Workshop

Approximately 50 people attended the "Lake and Watershed Monitoring Workshop" held on Saturday, September 20 at the Bremen Conservation Club on Lake of the Woods. The workshop was sponsored by the Indiana Lakes Management Society, DNR - Riverwatch Program and Lake & River Enhancement Program; and IDEM - Clean Lakes Program.

The purpose of the workshop was to enhance citizen knowledge about lakes and to increase participation in lake and watershed stewardship opportunities. Gwen White (DNR) started things off with a talk about lake ecology; Bill Jones (Indiana University) then discussed citizen lake monitoring; and Sarah Hippensteel (DNR) described citizen stream monitoring. Participants could then break into groups to hear either Bob Robertson (DNR) talk about fisheries management or Leslie Cunningham (Weed Patrol, Inc.) talk about aquatic plant management.

Another lake and watershed monitoring workshop is being considered for southern Indiana in the spring.

Group Focusing on Tournament Problems

A citizen's advisory group is moving closer to outlining steps needed to reduce conflicts associated with fishing tournaments on northern Indiana natural lakes.

Lake residents complained a year ago to Department of Natural Resources (DNR) officials about a lack of controls on tournament fishing activities. They claim tournament anglers crowd area lakes and boat ramps, lack courtesy and boating etiquette, and may hurt fishing. Tournament anglers say they create few problems and often get blamed for the actions of other lake users.

The Tournament Fishing Advisory Committee is looking at both sides of the issue. The group, organized by the DNR's Division of Fish and Wildlife, is comprised of 14 members, including representatives from various lake associations, fishing clubs, and individual anglers. At their initial meeting in August, they identified problems related to tournament fishing.

According to Gary Hudson, fisheries supervisor with the Division of Fish and Wildlife and coordinator of the group, the purpose of the most recent meeting was to focus on specific complaints and propose actions to address them. "We basically boiled the issue down to 12 problems and discussed each one," says Hudson. "We will now look into what can and should be done to resolve the issue."

Problems Associated with Fishing Tournaments

1. Lack of tournament schedule coordination.
2. Lack of toilets at public boat ramps.
3. Crowded parking at public boat ramps.
4. Restrictive rules at reservoirs force clubs to hold more tournaments on natural lakes.
5. Lack of courtesy and etiquette of lake users.
6. Open season during spawning attracts out-of-state anglers.
7. Lack of large size limits hurt bass populations.
8. Anglers fish too close to piers and damage personal property of lake residents.
9. Tournaments cause overcrowding on lakes.
10. Tournament anglers operate boats too fast.
11. Mortality of tournament-caught fish may be too high.
12. Shortage of conservation officers and other officials to enforce rules.

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(TOURNAMENTS . . .
continued from page 1)

"Some of the problems are going to be easier to address than others," says Hudson. "We're already looking into putting some portable toilets at heavily developed lakes and we'll discuss with the Division of Parks and Reservoirs the possibility of opening up more reservoirs to tournaments. We're also now taking a closer look at the impacts of tournaments on bass populations and the need to impose some bigger size limits."

Hudson says that some problems will be difficult to fix. "Overcrowding and lack of tournament coordination are tough. We can't single out tournaments without putting rules on other lake users," says Hudson.

Another meeting is planned later this fall when proposed action will be finalized. (IDNR, Division of Fish & Wildlife)

Fish and Wildlife Division Finalizes Lake Plan

The Division of Fish and Wildlife (DFW) recently issued a new management plan for northern Indiana's 452 natural lakes, as part of a statewide effort to incorporate comments from the public and direct the agency's efforts into the next century.

The plan will guide DFW activities to provide diverse fishing opportunities for Hoosier anglers and is based on an expected 3% increase in the number of days anglers will spend fishing on natural lakes. The DFW estimates fishermen currently fish 1.98 million days each year on Indiana natural lakes and believes the number will increase to 2.04 million by 2008. The DFW also hopes to increase the percentage of anglers who rate natural lakes fishing as good or excellent to 65% up from the current satisfaction level of 53%.

"We will face many challenges as we try to satisfy more fishermen," says Gary Hudson, DFW supervisor who has worked for the agency since 1966 and directed the natural lakes program since 1976. "Much of what we do will build on past success but we will also do some new things."

Hudson says the plan is basically divided into two parts: general lake management and specific fish management. "As biologists, we never have enough information on the changing status of fish populations," says Hudson. "Gathering more data on natural lake fish communities will still be a top priority."

Hudson says a lot of fisherman don't know how good fishing is in many Indiana natural lakes nor do they realize what the DFW does to manage fish populations. "We intend to get more information out to

the public," explains Hudson. "We want to increase awareness of natural lakes and would like to get more exposure on television and other electronic media."

The DFW will keep up its vigilance in protecting fish habitat and will look into new ways to reduce threats to habitat quality, such as increased shoreline protection, better watershed management, and reducing the impacts of boating and aquatic weed control.

The plan also addresses the need to slow the spread of exotic species, ensure the genetic integrity of native fish species, and protect unique nongame species.

"Lack of access to natural lakes limits angler use and satisfaction," says Hudson. "We want to keep up an aggressive effort to build more public boat ramps."

The plan identifies targets of angler-use and satisfaction for various fish species and outlines steps the DFW will take to manage them, including more restrictive fishing rules and fish stockings. (IDNR, Division of Fish & Wildlife)

Importance of Forested Riparian Buffers Emphasized in New Agreement

The Chesapeake Bay basin jurisdictions of Maryland, Virginia, Pennsylvania, and the District of Columbia; the U.S. Environmental Protection Agency Administrator Carol Browner, and the Chesapeake Bay Commission are planning to protect existing riparian forests and specifically to reforest 2,010 miles of bay tributaries over the next 13 years—the first goal of its kind in the nation.

"By setting this goal, we help improve water quality in the Chesapeake Bay, provide for accountability in government, and give the public an objective to work toward—2,010 by 2010," commented Virginia Governor George Allen, speaking on behalf of the Chesapeake Executive Council.

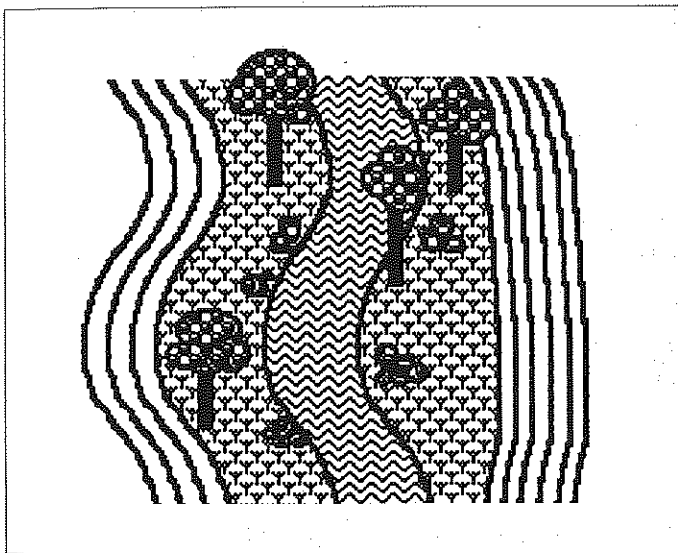
According to AL Todd, U.S. Forest Service liaison to the Chesapeake Bay Program Office, increasing the riparian forest buffer "may prevent half a million pounds of excess nitrogen from entering the Bay each year," and will directly improve the habitats of cold water and anadromous fish. The 2,010 miles of enhanced habitat will provide woody debris for shelter and an abundance of leafy material—the primary building block of the freshwater food web. "It will also help build a corridor of bird habitat," Todd explained.

The benefits of forested riparian buffers—streambank stabilization, habitat improvement, sediment and pollution filtering—are widely recognized and many watersheds have made riparian protection a priority. However, the initiative bears watching not only because it has set an ambitious goal

but also because it cuts across jurisdictional boundaries.

The regional agreement commits each jurisdiction to develop a riparian buffer implementation plan by June 1998. Each plan will spell out strategies to conserve existing riparian forest corridors, measures to coordinate state programs, and techniques for outreach and education. Each one will also specify exactly how many miles of forested buffer it will restore and how it will meet its goal. In addition to state and private lands, approximately 1.7 million acres of federal lands in the Chesapeake Bay will be included in the riparian buffer plans.

In Indiana, a recent zoning ordinance in Monroe County, designed to protect Monroe Reservoir, also recognizes the importance of vegetated riparian buffers in protecting water quality. Efforts are being made to cross jurisdictional boundaries and extend the buffer protection to adjoining counties which share the 410 square mile watershed of Monroe Reservoir. As in the Chesapeake Bay area, significant efforts are needed in public education and outreach before such a plan can be realized.



The 1997 Great American Secchi Dip-In

The summer of 1997 marked the fourth year of the Great American Secchi Dip-In. The Dip-In is an international effort in which volunteers produce a "snapshot" of transparency in lakes, reservoirs, estuaries, and rivers throughout North America. Sponsored by the North American Lake Management Society and the United States Environmental Protection Agency, the Dip-In is directed by Kent State biologists, Dr. Robert Carlson and Professor David

Waller, and KSU geographer, Dr. Jay Lee.

During the period from June 27 until July 13, 1997 more than 2,000 volunteers from volunteer monitoring programs in more than thirty states and Canadian provinces measured transparency in their favorite lake, river, or estuary. They use an instrument call a "Secchi disk", a flat, horizontal, black and white disk that is lowered from a rope into the water until it disappears. The disk itself is named after the Jesuit priest, Pietro Angelo Secchi, who developed the disk more than 150 years ago. The depth of disappearance is a measure of the transparency of the water. Transparency is affected by the color of the water and by particles of silt or clay or algae and therefore is a measure of some forms of pollution.

The previous three Dip-Ins have provided valuable information about transparency. The maps made each year have shown considerable regional differences in transparency. Lakes in the northern parts of the United States and in Canada typically have the clearest lakes, while lakes in agricultural regions have some of the smallest transparencies. The deepest transparency found so far during the Dip-In was 52 feet in a lake in Minnesota, while the same type of disk disappeared in one inch of water in a reservoir in Nebraska. As each year's data accumulates, it may be possible to see if the transparency of regions of the country is changing over time.

Equally valuable has been the information gleaned on the volunteer's perception of water quality. The Dip-In has found that opinion as to the meaning of water quality vary considerably from region to region. A person in Minnesota or Maine, for example, may think that a lake is degraded if the transparency is six feet while in other states, a lake with a transparency of only a foot may be considered beautiful. Some of these regional differences may reflect a lack of perspective because volunteers may know their own lakes best. Carlson suggests that people become accustomed to the quality that they see every day, and that small, subtle changes in water quality go unnoticed. Most sobering may be the possibility that everyone grows up thinking that their environment is normal. Fortunately, there are volunteer monitors who record these changes in water quality year after year. Without their observations, our environment may change unnoticed.

The volunteers have also changed our perception of what is considered to be a water quality problem. Typically, those who study lakes think of the problems as algal scums and weeds. Although volunteers think these biological nuisances are important, a group of human-related problems is also being found. Volunteers report that noise, boat congestion, rude boaters, and trash are important water quality problem in the United States. The volunteers' perceptions may not be a random sampling of water

users, but they do remind us that aesthetics are an important part of our environmental consciousness.

More information on the Great American Secchi Dip-In, including participating programs, is available on the World Wide Web at:

<http://humboldt.kent.edu/~dipin>

You can also contact:

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50-Year Flood Hits Southern Indiana

Hundreds of homes, many in the floodplain of the Ohio River, were destroyed or substantially damaged during spring floods this year. Floods beginning on February 28 adversely affected 13 Indiana counties along the Ohio River, prompting the federal government to declare a federal disaster on March 6.

The National Weather Service reported 11 inches of rain with up to 14 inches in isolated areas in Ohio, Kentucky, and Indiana. The Ohio River rose an amazing 25 feet in 24 hours at Louisville. This large amount of rainfall resulted in a 50-year flood event—the magnitude of which occurs approximately once in 50 years.

Rainfall totals in other areas of Indiana were also higher than normal in the early spring. April was generally drier than normal but May again was wetter. Rainfall totals recorded at Indiana airport locations were all higher than normal for the first six months of 1997, except at South Bend which was 2.5 inches below normal. (*Waterlines*, IDNR)

Location	Jan	Feb	Mar	Apr	May	June	Totals
South Bend	2.63	3.86	2.02	1.02	3.25	3.05	15.83
	2.23	1.90	3.10	3.65	3.38	3.97	18.23
Fort Wayne	2.22	3.75	3.32	1.04	5.19	4.16	19.68
	1.87	1.91	2.90	3.38	3.50	3.49	17.05
Indianapolis	4.47	3.92	4.59	1.97	4.37	2.70	22.02
	2.32	2.46	3.79	3.70	3.96	3.54	19.77
Louisville, KY	3.35	3.39	12.58	2.01	4.73	7.84	33.90
	2.86	3.30	4.66	4.23	4.62	3.46	23.13

Key: ACTUAL (INCHES)
 NORMAL (INCHES)

Your Lake in Fall

by: Bill Jones

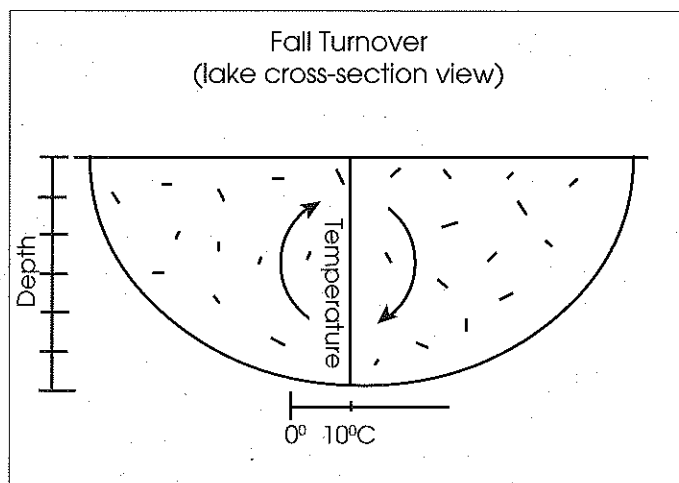
Fall is the season of change. Daylight diminishes as the sun's daily path begins to migrate south toward the equator, trees begin to flush with color, and waterfowl and other birds begin their annual migrations. Fall is also a season of change for Indiana lakes.

All summer long, our stratified lakes have been capped with a layer of solar-heated warm water. This warm layer (the *epilimnion*) helps isolate the cool, dense water at the lake's bottom (the *hypolimnion*) during the summer months. As the surface water cools in the Fall, the density difference between the epilimnion and hypolimnion lessens and eventually a strong wind can mix the entire water column, from top to bottom, during what is called *fall turnover*.

Hypolimnetic water, isolated all summer, now circulates with the surface water. Many changes have taken place in the hypolimnion during the summer and its water quality is now very different than it was at the beginning of stratification in early summer. The hypolimnion collects whatever settles down into it - dead algae, rooted plants and fish; as well as materials washed into the lake from inlet streams. The activities of bacteria and insects in the sediments may consume the available oxygen and introduce waste products into the hypolimnion.

Because of this, it is not uncommon for lakes to experience a temporary decrease in transparency and dissolved oxygen levels at the onset of fall turnover. Some lakes may appear clear one day and turbid the next. This a sign that fall turnover is occurring.

These events also affect fish behavior. The cooler water makes fish sluggish and the poor water clarity may decrease their feeding activity. In addition, with



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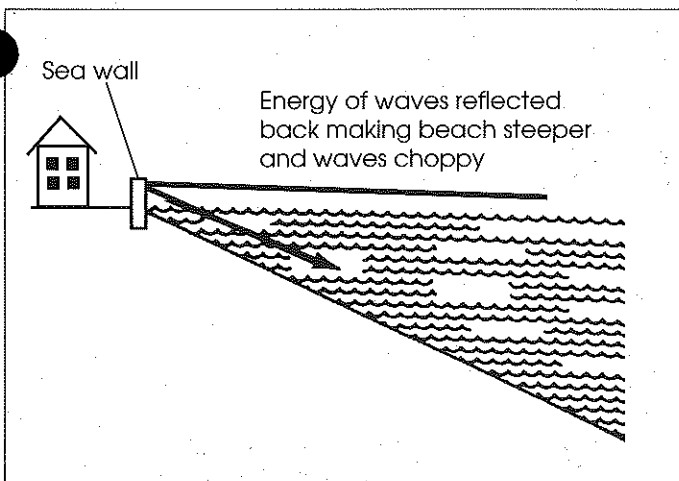
(YOUR LAKE IN FALL...
continued from page 4)

Temperature and oxygen more uniform throughout the lake, fish disperse and are no longer concentrated in their former summer "hideouts." However, once the lake settles down, fish often feed heavily and aggressively. A few sunny, warm days may also bring game fish to the surface to feed and offer good fall fishing opportunities.

So take some time to enjoy your lake in the fall. Summer vacationers are gone. The lake is less crowded. The leaves form a colorful boundary around the lakes. Winter will be here before you know it!

Lake Wawasee Seawall Study

The cause of choppy water on Lake Wawasee has been studied by the Wawasee Area Conservancy Foundation and their results might surprise you. The rough water is not necessarily due to too many boats or too much wind. The recent study has concluded that Lake Wawasee's choppy water is the result of an almost continuous perimeter of concrete seawalls



around that lake, Indiana's largest. Waves, created by wind or boats, reflect off seawalls without losing their energy. The reflected wave energy can: wash out rooted plants, erode the shallows making them steeper, and create chopiness.

The WACF Seawall Committee has extensively studied the issue of reflected wave action and has been instrumental in suggesting to the Indiana Department of Natural Resources that changes be made to seawall permit procedures. Such changes are now in a draft form and will be considered for future applications to all Indiana lakes.

IDNR policy encourages the use of glacial stone

(also known as rip-rap) to protect eroded shorelines. Glacial stone is abundant in northern Indiana and leaves the shoreline with a more natural appearance. The stone helps dissipate wave energy because waves wash into spaces between the stones and energy is transferred to the stones as they move slightly. In addition, the spaces between the glacial stones provides habitat for small fish, invertebrates and other aquatic organisms.

Proper placement of glacial stone requires no more than a 1:2 shoreline slope (1 foot rise for a 2 foot lateral distance) and the use of a filter fabric under the stones to prevent soil particles from washing through the spaces.

For areas with existing concrete seawalls, glacial stone may be placed at the base of the seawall to help dissipate wave energy and prevent shoreline scouring.

Finally, by maintaining existing natural vegetation and stones along your lake shoreline, you can prevent erosion and avoid the need for glacial stone or seawall construction in the first place.

PERSPECTIVES

*The future of civilization depends on water.
I beg you all to understand this.*

—Jacques Cousteau

Meetings

December 2-6, 1997. 17th Annual International Symposium of the North American Lake Management Society, Hyatt Regency Hotel, Houston, Texas. Contact: Robert Doyle @ (972) 436-2215 or check out the conference web site at (<http://www.nalms.org/symposia/hotel.htm>)

January 26-28, 1998. Natural Buffer Technology Conference, San Antonio, Texas. Contact: CTIC @ (765) 494-9555 or check the web site (<http://www.ctic.purdue.edu>)

April 17-18, 1998. 10th Annual Indiana Lake Management Conference, LaPorte, Indiana. Sponsored by the Indiana Lakes Management Society and the Indiana Department of Environmental Management. Contact: Everett Lienhart @ (219) 264-2883.

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