



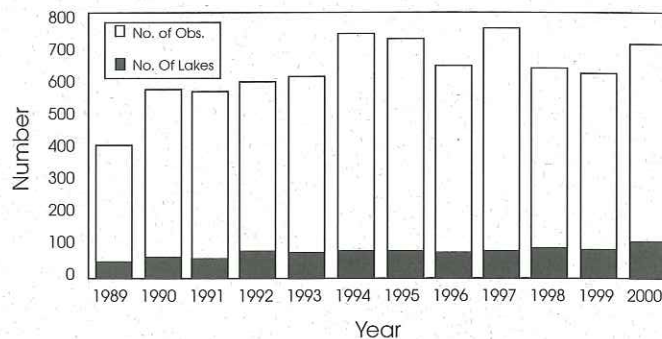
Office of Water Management
Indiana Department of
Environmental Management

W A T E R	C O L U M N
Fall 2000 Vol. 12, No. 4	

Volunteer Lake Monitoring Program Finishes Another Successful Year

This year saw a record number of lakes monitored in the Indiana Volunteer Lake Monitoring Program. Volunteers monitored a record 114 lakes in 2000 and took 595 Secchi disk measurements. In addition, volunteers on 35 of these lakes collected 120 samples for total phosphorus and chlorophyll *a* analyses.

Growth of Volunteer Lake Monitoring Program
Secchi Disk Measurements



Nationwide, almost 56% of adult Americans volunteered their time for a cause or organization. Based on the latest data available on the average hourly

wage for nonagricultural workers as published in the *Economic Report of the President*, the assigned hourly wage for volunteers is \$14.83. Using this rate, we calculated the value of volunteer efforts on behalf of Indiana lakes through participation in the Volunteer Lake Monitoring Program. For this past year, the value of the volunteer's efforts in making transparency measurements was over \$8,800. For the life of the Program, volunteers have contributed nearly \$100,000 of time to Indiana lakes—that's some contribution!

Final Storm Water Phase II Rules Approved; Implementation Scheduled Through 2008

After more than four years of stakeholder meetings and consideration of public comments, EPA has issued the final version of storm water regulations for small, urbanized areas and construction sites covering less than five acres. The Storm Water Phase II Rule will bring municipal separate storm sewer systems (MS4s) serving fewer than 100,000 people and small construction sites into the National Pollutant Discharge Elimination System (NPDES) permitting program by March 2003.

Implementation of municipal storm water programs outlined in the NPDES permits will be phased in by 2008. Phase II small construction site regulations require NPDES permits and compliance with best management practices to minimize pollutant runoff on sites disturbing from one to five acres.

Building on the Clean Water Act

Congress required regulations for storm water discharges that affect water quality under the Clean Water Act amendments of 1987. EPA dealt with the largest urbanized areas and large construction sites

(continued next page...)

under the initial phase of the storm water program, adopted in 1990. Phase I required NPDES discharge permits for medium and large MS4s (populations greater than 100,000), 11 categories of industrial sites, and construction activities on five or more acres (known as Rule 5).

The Construction Industry and Phase II

Phase II targeted construction sites because they significantly impact water quality. Research over the past three decades has found that erosion rates from construction sites are ten times higher than those measured on row croplands and more than 100 times higher than erosion rates on well-vegetated lands. Soil loss from new development can range from 20 to 150 tons per acre, per year. The national average for soil erosion from cropland is about 8 tons per year.

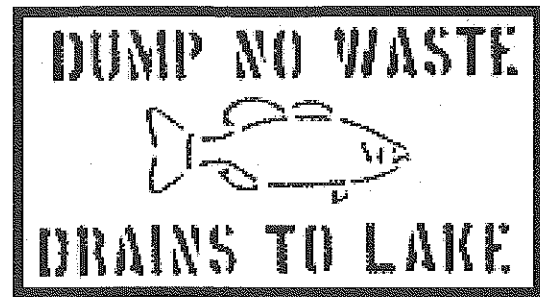
A 1997 study conducted by the Virginia Water Resources Research Center revealed that sedimentation of streams and rivers from road construction in northern Virginia reduced aquatic insect and fish communities by up to 85 and 40 percent, respectively. Other research in the Patuxent River basin found that 3 to 3.5 miles of stream reaches below construction sites were adversely affected by construction-related sediment loading. Siltation is the second leading cause of impaired water quality in rivers and lakes nationally.

The Phase II Rule requires operators of regulated construction sites where more than one acre is disturbed to obtain an NPDES permit and implement management practices to minimize pollutant runoff, including erosion. Waivers are available under Phase II for small construction sites (less than 5 acres) in areas with negligible or low predicted rainfall, low predicted soil loss (less than 2 tons/acre/year), or Total Maximum Daily Loads (TMDLs) or comprehensive watershed plans that already address pollutants of concern.

Source: *NPS News and Notes*, U.S. EPA

Storm Drain Stenciling: How You Can Prevent Water Pollution

Did you know that every city street is like waterfront property? It's true! Just take a walk along a street. Before long, you'll come to a storm drain along the street. Any water that runs down



this drain flows directly into a nearby waterway—lake or stream. It does not pass through the sanitary sewer system and it does not receive any kind of treatment.

This means that whatever we put down these storm drains winds up in the lakes and streams where we go fishing, boating, and swimming.

People who would never dream of polluting a lake or stream might pour antifreeze, fertilizer, paint, or used motor oil, or toss pet waste, cigarette butts, or lawn waste down storm drains. You can let your neighbors know that anything dumped in the street winds up in our waterways by stenciling a "Dump No Waste" or similar message next to storm drains.

Storm drain stenciling is a great project or activity for all types of organizations to become involved with—from lake associations to scout groups. By participating, the members of your group will become more aware of the close link between our streets and waterways. And you will leave behind a reminder for others.

Remember these tips:

- Get permission from the local street or highway department
- Organize your teams
- Prepare a news release and invite local newspapers and radio or television stations to cover your event
- Paint in dry, warm weather to insure satisfactory results
- Practice safety along the roadways—wear safety vests or bright clothing

Here are some sample messages that you could stencil on or alongside storm drains in your community:

- Dumping Here Pollutes Our Lake
- Dump No Waste—Drains to Lake (or include specific lake name)
- Dump No Waste—Drains to Stream
- Do Not Dump—Drains to Lake

More information can be found on the web. Just type in "Storm Drain Stencil" on a search engine. Or, check out the following site: < <http://www.earthwater-stencils.com/why.html> >.

Managing Shoreline Property to Protect Water Quality— Storm water Runoff Management

If you live on lake or stream property, you have a special responsibility to prevent pollutants from entering the water. Pollutants coming from shoreline areas have less chance of being filtered before reaching the water. Homes are often closer together along lakeshores and native plants and wetlands have often been replaced with lawns, beaches or seawalls.

Since many activities you do around your property can impact water quality, you can significantly improve what happens along the shore in front of your home. Use the table below to assess your risk from storm water runoff and erosion on your lakeshore property. What can you do to reduce the risk of runoff from your property?

Reducing Risks form Shoreline Sotrm Water RUNoff and Erosion

	<i>1. Low Risk</i>	<i>2. Medium Risk</i>	<i>3. High Risk</i>	<i>Your Risk</i>
		<i>Potential Hazard</i>	<i>Unsafe Situation</i>	
<i>Walkways</i>	Meandering walkway made of porous paving blocks.	Paved walkway meandering to follow natural contours.	Paved walkway leading straight to lake without regard to slope	
<i>Seawalls</i>	Shoreline with original slope and native vegetation to water's edge.	Shoreline stabilized with rock rip-rap following natural contour.	Abrupt concrete or wood seawall.	
<i>Storm runoff</i>	Runoff filtered through wetland or allowed to seep into the ground.	Runoff flows into temporary pond and allowed to drain slowly into the lake.	Runoff flows directly into lake.	

Source: Home*A*Syst, Michigan State University

A Name to Remember

(Associated Press) Its blue waters and sparkling shoreline have been attracting vacationers for generations, but it's the sheer length of its name that has put Lake Chargoggagoggmanchauggagoggchaubunagungamaugg on the map.

The name completely encircles window decals and fire truck doors and requires three wide traffic lanes to spell out at the entrance to the Massachusetts town's beach and boat ramp.

The official town version has 45 letters, making it the longest lake name in the United States and one of the world's longest place names, according to the U.S. Geological Survey.

Ethel Merman and Ray Bolger paid homage to it in a song with a tom-tom beat in the 1920s. And calls come in to Town Hall from all over the world, demanding to know if it really exists and how to spell it. Tong-tied tourists and printers of small

maps can always opt for its colorless alias: "Lake Webster."

The name means "the fishing place at the boundaries and neutral meeting grounds," according to Wise Owl, chief of the Chaubunagungamaug band of Nipmucks, who were the first to fish there.

The lake is now a place of water skiers, dock parties, and—in the winter—ice boat races.

Still, in the sleepy rhythm of a summer's day, visitors can sometimes hear an old recording of Merman and Bolger crooning:

Oh, we took a walk one evening and we sat down on a log,
By Lake Char-gogg-a-gogg-man-chaugg-a-gogg-chau-
bun-a-gun-ga-maugg.
There we told loves old sweet story and we listened to a frog,
In Lake Char-gogg-a-gogg-man-chaugg-a-gogg-chau-
bun-a-gun-ga-maugg.

News From the Lakes

(compiled from lake association newsletters)

Lake Wawasee

- Over 900 donors have contributed \$141,597 to install lake hydrants around Lake Wawasee. Fourteen of the 15 lake hydrants are now in place and operational. Lake hydrants are permanent pipes that are submersed in the water at the lake end and have a fire department hose fitting on the land end. Fire truck pumpers can connect to lake hydrants to draw the water necessary to fight fires in areas without rural water systems. Many lake properties in Indiana have suffered significant fire damage due to the lack of available water for fire fighting.
- A public boat pumping facility has been constructed adjacent to the public boat ramp on Lake Wawasee. The facility, funded by IDEM (75%) and the Wawasee Property Owners Association (25%), was made possible with the cooperation of IDNR and the Syracuse District Sewer Board. The facility includes a 60-foot pier for docking, pump equipment for permanent marine heads and a dumping station for porta-potties. The station will be public with no charges for use. Collected wastes are piped directly into the sewer collection system.

Lake of the Woods (Marshall County)

- A local judge has ruled that agricultural interests are more important than public safety in denying a petition to maintain a single, higher lake level on Lake of the Woods throughout the year. Under the judge's ruling, the lake level is lowered one foot in the fall to allow drainage of farmland. However, local fire departments testified that with the lower lake level, their equipment couldn't reach out far enough from shore to draft water needed to fight fires.

Do you have news from your lake that you would like to share with others who might benefit from it? If so, send your newsletter or new items to us and we will do our best to include it in the next issue of the Water Column.

Weather Changes Cause Problems for Fish—Natural Cooling in West Boggs Lake Reduces Oxygen

Cooler weather is a welcome change for most Indiana residents, but the change can be rough on fish. A rapid temperature drop in September cooled several Indiana lakes' surface water to the point where the lakes turned over. Fall turnover is natural and occurs when suddenly cooler surface water sinks to the bottom of the lake while oxygen poor water from the lake bottom rises.

In some lakes the decrease in dissolved oxygen will last several days and can suffocate fish, especially when combined with algae die-offs also associated with the weather. Natural fall turnover

has already caused a small fish die-off in the north cove at West Boggs Lake in Daviess County.

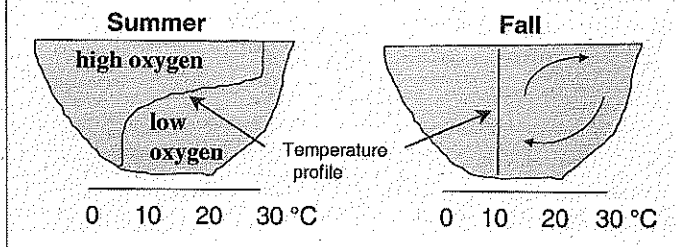
IDNR biologists found an estimated 500 suffocated fish in a cove at West Boggs Lake—a cove where biologists had recorded low oxygen levels. The die-off was confined to a small area and should have no long-term effect on the overall health of the fish population. Fish will re-colonize the area as conditions improve. Biologists found mostly large bass, bluegill, and redear sunfish. Large fish require more oxygen than smaller fish.

Biologists report some ponds could have similar problems. A few pond owners have already reported fish die-offs to the DNR.

Most lakes stratify during the summer. The warmer surface water and cooler, denser water at the bottom does not mix. In many ponds and lakes,

Thermal Stratification and Fall Turnover

- Cold, dense water settles to the lake bottom (hypolimnion) and resists wind mixing during the summer months
- In productive lakes, these bottom waters may have little oxygen
- When the warm, less dense surface water cools in the fall, water density changes between the layers are slight and the entire lake can now be mixed by the wind
- Low oxygen waters from the deep get mixed in with surface waters



the bottom layer of water becomes anoxic (lacking oxygen). As the air cools in the fall, the top layers of water cool. Since warm water is lighter than cool water, this cooler water sinks. These two layers mix suddenly resulting in an overall decrease in dissolved oxygen levels. Fall turnover is a natural occurrence in stratified ponds and lakes.

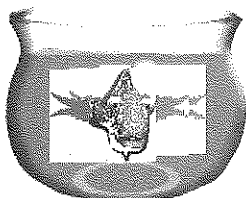
Source: DNR News Release

Bring a Fish to Work Day

The American Pet Product Manufacturers Association (APPMA) proclaimed Wednesday, October 25 as Bring a Fish to Work Day. A careful reading of their news release suggests that they're not talking about tuna between two slices of bread, or a trophy bass on a wooden plaque. What they're talking about is a live fish in an aquarium or at least a bowl.

APPMA is acting on it, too. Those lucky enough to be going to work at the Empire State Building in New York City will be handed a free "fish and starter kit," APPMA says.

What it's all about is APPMA trying to "inspire companies to think about the soothing benefits of fish in the workplace for employees." According to APPMA, Alan Beck, director of the Center for the Human-Animal Bond at Purdue University, said that "studies show the relaxing



benefits of aquariums have a long-lasting effect, allowing employees to be more focused on their jobs"

The fish tank "cues us in to the good feelings associated with the outdoors, something often missing from the work space."

PERSPECTIVES



*The green below and the blue above.
The waves caressing the shores they love;
Sails in haven and sails afar,
And faint as the water lilies are
In inlets haunted of willow wands,
Listless rowers, and trailing hands,
With spray to gem them and tan to glove—
The green below and the blue above.*

*The blue above and the green below.
Would that the world was always so—
Always summer and warmth and light,
With mirth and melody day and night;
Birds in the boughs of the beckoning trees,
Chirr of locusts, and whiffs of breeze—
World old roses that bud and blow—
The blue above and the green below.*

"Tribute to Lake Maxinkuckee"
by James Whitcomb Riley

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MEETINGS

March 10-12, 2001. *21st Annual MAPMS Conference.* Grand Rapids, MI. Midwest Aquatic Plant Management Society. Contact: Ray Van Goethem, Conference Chair, 3930 Perry Holt Road, West Branch, MI 48661. Phone: (517) 345-7574, E-mail: nmiaquatics@voyager.net.

March 21-23, 2001. *10th Annual Southeastern Lakes Management Conference.* Hyatt Regency Hotel—Knoxville, TN. North American Lake Management Society (NALMS). Contact: Sue Robertson, Tennessee Valley Authority, 1101 Market Street, CST 17D, Chattanooga, TN 37402-2801. Phone: (423) 751-7347. E-mail: srrobertson@tva.gov, Web Page: www.don-anderson.com/senalms2001/.

April 18-20, 2001. *14th Annual National Conference: Enhancing the States' Lake Management Programs.* Congress Plaza Hotel—Chicago, IL. Contact: Bob Kirschner, Chicago Botanic Garden, 1000 Lake Cook Road, Glencoe, IL 60022. Phone: (847) 835-6837, Fax: (847) 835-1635, E-mail: bkirschn@chicagobotanic.org.

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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