

Noah Help Us

by Dennis Escher

The residents of Little Elkhart Lake, a 60-acre seepage lake in Sheboygan County, had a choice: lower the water or build an ark.

The problem began in 1975 when the lake rose 21 inches above normal. Lake shore roads were 14 inches under water, and some septic systems and wells were inundated. Rhine Township pumped the lake to lower the level. That was only a temporary solution, however; the levels slowly rose again when pumping stopped. The lake's water was pumped two more times until 1985, when it was realized that a permanent solution was needed.

At the 1985 meeting of the Little Elkhart Lake Rehabilitation and Sanitary District No. 2, three solutions were presented: install an underground gravity flow pipeline, a siphoning system, or a permanent pumping system. The residents voted on the pipeline—the most expensive option, but the best long-term solution.

Groundwater flow in Little Elkhart Lake is from west to east. So in early 1986, an engineering profile of the landscape east of the lake was obtained. From this, a lake commissioner designed a 12-inch diameter pipeline including a riser, manhole, and cleanout tubes. Estimates for installation, construction, and materials were then obtained by the bid process.

Funds were sought by the persistence of a few key people. Rhine Township, at first reluctant, was eventually persuaded to partially fund the project. They agreed that the pipeline was a more permanent and satisfactory solution than rebuilding flooded roads to a higher level. Money was also obtained from the Sheboygan County Sports Club.

In May 1986, a special meeting was held to propose the design and budget to the residents. Included in the budget was a \$100.00 property tax special assessment. The proposal passed, and the project was on its way.

Through the efforts of dedicated individuals, public hearings were held; permits and easements for installation and maintenance were also obtained.



On October 8, 1986, after all the paperwork, meetings, and surveying, construction equipment arrived to work. Only eight days later, the first gallon of Little Elkhart Lake flowed through 1200 feet of pipe buried 23 feet underground. From its conception to completion, the project had taken only 12 months.

This kind of project is not cheap. Certainly, the lake district saved a lot by doing most of the work rather than hiring a firm to do everything. The final bill was as follows:

- \$8,800 Lake district special assessment
- 4,000 Lake district maintenance fund
- 8,000 Rhine Township
- 2,200 Sheboygan County Sports Club

\$23,000

Within one month of the pipeline installation, the levels of Little Elkhart Lake returned to normal. The lake residents no longer have flooding problems. The township doesn't have to pump the lake to keep the roads dry. In addition, the lake's water clarity has improved.

Even with all the headaches and red tape of the pipeline experience, the lake district wants to tackle other problems. At a special meeting in October 1987, lake residents passed a proposal to fund a portion of the DNR sewer study of the area. Our goal is to have a fully operational sewer system by 1990.

For more information concerning this project, contact: Dennis Escher, Rt. 4 Birch Point Road, Plymouth WI 53073 (414/893-5686).

Dennis Escher, of Little Elkhart Lake, was nominated for the Individual Lake Stewardship Award at the 1988 Wisconsin Lakes Convention.

What is that Green Stuff in my Lake?

Blue-green algae are often described with the terms "nuisance" or "noxious." This is because some can grow to enormous populations (blooms) that discolor lakes and ponds, form surface scums, and occasionally cause the death of fish and cattle. For most types, this reputation is undeserved. Some blue-greens are very beneficial to humans because they contribute nitrogen to soils. Only three species are responsible for most of the nuisance/noxious conditions, and their reputation for spoiling lakes and ponds is well deserved.

The three species are informally referred to by aquatic biologists as "Annie, Fannie, and Mike." To a botanist, they are Anabaena flos-aquae, Aphanizomenon flos-aquae, and Microcyctis aeruginosa, respectively.

What do Blue-Green Algae Look Like?

Blue-green algae are microscopic life forms that exhibit several different types of organization. Some species grow as single cells. Others organize into colonies of cells that are flattened, cubed, rounded, or elongated into filaments.

Although identification of blue-green algae requires microscopic examination, experienced aquatic biologists can usually recognize *Microcystis* and *Aphanizomenon* with the unaided eye. Colonies of "Mike" look like tiny grey-green clumps. Green, grass-like filaments are telltale signs of "Fannie." *Anabaena*, however, is not so readily identified at lakeside.

The blue-green color of algal cells is due to the combination of green chlorophyll pigment and a unique blue pigment known as phycocyanin. However, pigmentation in blue-greens is variable; there are yellowgreen, green, grey-green, grey-black, and even red specimens.

Blue-greens that appear to be red contain a high concentration of another pigment called phycoerythrin. The Red Sea derives its name from occasional blooms of blue-green filamentous algae that produce large quantities of phycoerythrin. Also, the pink color of flamingo feathers is derived from photosynthetic pigments in blue-green algae, which the flamingos consume in vast numbers as they swing their beaks back and forth across the water surface.

How do Blue-Green Algae Adapt?

Blue-greens require sunlight and grow best when the water is warm. Hot, stagnant weather is particularly conducive to their growth and reproduction.

The nuisance blue-greens possess adaptations that promote their prolific growth. One adaptation is buoyancy. Species rise to the lake surface during calm conditions, seeking sunlight and carbon dioxide from the atmosphere. When midday sunlight becomes too intense, the algae sink. They rise again when mild conditions return.

Nitrogen fixation is an adaptation exhibited by a few species of bacteria, as well as some of the blue-green algae. It is an important process that converts unusable nitrogen gas in the atmosphere into ammonium ions usable as a nutrient.

Are Some Blue-Greens Poisonous?

Poisonous blue-green algae occur in ponds and lakes throughout the world. In North America, toxic blooms occur coast-to-coast, but are confined mostly to the upper Midwest and the prairie provinces of Canada.

Human death due to ingestion of water containing poisonous algae has not been documented. However, you should avoid drinking water that is teeming with blue-greens. Poisoning by these algae has caused the death of cattle and other animals that drink from ponds and lakes.

Humans are sometimes affected by noxious algae when they recreate in water during a bloom. Typical symptoms include redness and itching of the skin around the eyes; sore, red throat; headache; diarrhea; vomiting; and nausea. Since similar symptoms can be produced by other bacteria or viruses, one should consult a physician.

What Can be Done to Control and Prevent Blue-Green Blooms?

Historically, control of blue-greens involves the application of copper sulfate (CuSO4). This treatment is temporary, and repeated applications are often necessary. A major drawback to this approach is the accumulation of copper, a toxic heavy metal, in the sediments.

Prevention is a much wiser course of action. It treats the problem rather than the symptom. Most often, the problem is too much phosphorus. Thus, phosphorus sources must be identified and corrected. Such correction, however, may be difficult and time consuming.

For more information on toxic blue-green algae, readers should refer to the booklet listed below:

"Preventing Livestock Deaths from Blue-green Algae Poisoning." Wayne W. Carmichael and L. Dwight Schwartz. 1984. US Department of Agriculture, Farmers' Bulletin No. 2275. 11 pages. Out of print, but single copies can be obtained from Dr. Wayne W. Carmichael, Department of Biological Sciences, Wright State University, Dayton OH 45435.

Editors Note: Adapted from a draft article being prepared for the North American Lake Management Society by Robert Hayes.

1988 Lake Stewardship Awards Presented

The Lake Puckaway Improvement Association and the Lake Puckaway Protection and Rehabilitation District have jointly received the 1988 Lake Stewardship Award. This award is presented annually at the Wisconsin Lakes Convention. The convention also recognizes the outstanding individual contribution to lake stewardship. The 1988 recipient is Kathy Aron of Wind Lake. Both awards were presented by Mario Hegewald of the U.S. Environmental Protection Agency.



The Lake Puckaway organizations were recognized for their success in transforming a 5500-acre, shallow, carp-dominated lake into an attractive, balanced ecosystem with a good fishery. The Improvement Association, recognizing that additional legal and financial powers were necessary to carry out local lake management, petitioned the Green Lake County Board for creation of a lake district in 1977. In 1978, several hundred property owners on the Marquette County side of the lake were attached without a single objection.

The community has controlled carp through a subsidy for a commercial fisherman and spot chemical treatment during spawning. Rip-rap has reduced shoreline erosion, and breakwaters have been constructed to allow for re-establishment of the aquatic vegetation destroyed by the carp. Wild celery tubers have been planted to attract wildlife, provide fish cover, and stabilize the lake bottom. Additional efforts include fish spawning reefs, a Forster's tern recovery project, and public access improvements.

Most of the projects have been undertaken with local funds and local volunteers. DNR fish managers have provided some funds and a great deal of assistance. The Green Lake County Extension Office has provided general education, organizational support, and a local newsletter service. Rudy Winther accepted the Lake Puckaway Award on behalf of the Improvement Association and Lake District.

Kathy Aron has only lived in Wisconsin since 1985. In 1986, she was elected to the newly-formed Wind Lake Management District Board of Commissioners. She was immediately chosen to chair the commission—a position she still holds. During her short tenure, the lake district has undertaken a major study (\$39,000) of the lake in order to develop a long-range plan. She has succeeded in convincing the town board to ban glass on the lake because of the problem of broken glass. A weed harvesting program has also been initiated.

Kathy understands that lake management extends beyond the immediate community. In 1987, she attended 85 meetings relating to planning, waste management, and growth management. Kathy was nominated by a member of the Racine County Board who also serves on the Planning and Development Committee and Wind Lake Management District Commission. In recognition of her broad interest in lake management, Kathy Aron was recently appointed to the state-wide board of the Wisconsin Association of Lake Districts.



The Wisconsin Lakes Convention and the Lake Stewardship awards are sponsored by the University of Wisconsin Extension, Wisconsin Association of Lake Districts, Wisconsin Department of Natural Resources, and Wisconsin Federation of Lakes. Nominations for either the community or individual category can be made by sending a letter and supporting material to any of the co-sponsors.

The 1988 Convention was held March 25-26 on the campus of the University of Wisconsin Stevens Point. Three hundred and fifty people participated in the convention, representing about 150 lake communities.

State Public Access Policy

by Terry Daulton

Almost every outdoor enthusiast has enjoyed Wisconsin's lakes. Whether your preference is water skiing, a quiet paddle across a bay, or luring an elusive walleye out of a weedbed, the freedom to use and enjoy Wisconsin waterways is prized. If you have enjoyed these opportunities, it is likely that you have also used a public access. Access takes on a variety of forms, from a walk-in path to a blacktop parking area with a concrete ramp on the lake bottom.

Wisconsin has over 15,000 lakes of varying sizes and characteristics. Yet, in recent years, access to them has become increasingly controversial. By state law, citizens are guaranteed the right to use state waters, but are not guaranteed the right of access.

As recreational demand on lakes expands, property owners, recreationists, and resource managers have argued over use of Wisconsin's lakes and streams. Due to significant increases in funding and insuing conflicts, the DNR is developing a public access policy which will guide future access developments and will ultimately influence the nature of Wisconsin's lakes.

Historically, access policies in Wisconsin have encouraged local control of access sitings and decisions. Federal and state funding programs were set up in the '60s and '70s to allow local governments to allocate their recreation dollars. Part of these funds were used for public access. In 1979, Wisconsin passed the Recreational Boating Facilities Program designating a percentage of state gasoline tax funds for boating ramps, docks, or other facilities. Since then, the state has spent \$8,262,000 through this program.

Another funding source for access development came through a 1986 amendment to the federal Dingell-Johnson Act. This Act was originally passed in 1951 as a tax on sport fishing equipment to be used for fish management purposes. The amendment now requires that ten percent of the funds received by the state be spent on access for motorboats. In 1986, Wisconsin spent \$600,000 on motorboat access and received another \$300,000 for non-boating access through this source.

With these significant dollar increases earmarked for access, many new projects have been funded. Because Wisconsin policy is based on local control, there has not been much state guidance or direction regarding public access. Recently, the DNR recognized the need for comprehensive planning and formed the McCutcheon Committee to draft a new state policy.

The goal of the draft policy is "To provide and maintain adequate public access to all of Wisconsin's lakes and rivers consistent with demand and the ability of the resource to provide recreational opportunities." To date, the draft policy addresses what types of access are appropriate for various lake characteristics, how lakes will be prioritized for access development, what role the DNR will play, how access developments will be financed, and how sites will be selected. All these components have the potential for influencing the character of Wisconsin's lakes and streams.

In March, the draft policy was submitted to DNR Secretary Besadny for approval. A subcommittee was formed to consider the policy recommendations and to make revisions where necessary. After these revisions are completed, it will again be submitted to Secretary Besadny for approval. If the policy includes changes in the Administrative Code, public hearings and approval by the DNR Board will be required. Citizens interested in more information on this public access policy can contact the office of Secretary Besadny at PO Box 7921, Madison WI 53707.

Hopefully, approval of a public access policy for Wisconsin will insure consistency and forethought in future decisions and a balance between recreational pursuits and the resource capabilities of Wisconsin's lakes and streams.

Terry Daulton recently received her master's degree in natural resources from UW-Stevens Point.



Insurance

Phil Brereton of Bliss-McKnight is in the process of developing a liability package to insure lake districts. They have extensive experience with other units of government. Phil can be reached at W10320 County Line Road, Lodi WI 53555 (608/592-5752).

Editors Note: This material is provided for information only and does not constitute an endorsement of any kind.

Aquatic Nuisance Control Program Studied

Recently, the DNR completed an environmental assessment for its aquatic nuisance control (ANC) program. The assessment studied the ecological implications of chemical control of algae, aquatic plants, and other aquatic organisms, as well as alternative methods of control. The present permit fee structure was also studied. As a result of the assessment, some changes can be expected in Chapter NR 107 of the Wisconsin Administrative Code, which governs the ANC program.

The DNR hopes to have the assessment ready for release by early June. They will hold informational meetings on the assessment around the state in July (see Calendar). If revisions to the permit program are needed, a public hearing on proposed revisions will take place, possibly as early as mid-August.

Household Hazards

by Terry Daulton

Those who use lakes for recreation or own lake property should be especially conscious of disposal methods for household hazardous wastes. Improper disposal can contaminate lakes, streams, and groundwater supplies. In the past, disposal has often meant dumping toxics down storm sewers or into roadside ditches, pouring them down sinks or toilets, or placing partially-used containers in the garbage without adequate protection. Pesticides and herbicides also enter the water system through runoff or leaching. These disposal methods have often led to the mixing of dangerous chemical soups in septic systems or landfills, loading sewage treatment facilities with chemicals they were not designed to treat, or simply have allowed wastes to run directly into lakes and streams. Most Americans are familiar with some big-name toxics such as DDT, dieldren, mercury, lead, or radioactive wastes. While these hazardous wastes are extremely toxic, many commonly-used household products are also dangerous. Household hazardous wastes are usually found in small quantities, but can have high levels of toxicity. Because of their widespread use throughout the population, the effects of improper disposal can have far-reaching effects on our water supplies and health.

Septic systems and sewage treatment plants do not remove hazardous chemicals—these move directly to the groundwater or surface water.

Household toxics fall into five basic categories: products containing caustic chemicals, products containing solvents, aerosol sprays, pesticides and herbicides, and chemical fertilizers. Of particular importance to lake health are pesticides and herbicides, which multiply up the food chain, and chemical fertilizers, which may be caustic and which contribute to lake fertility.



When considering what household products to use and how to store and dispose of them, there are a number of key rules:

1. Watch out for signal words such as CAUTION, DANGER, or WARNING.

- 2. Buy just enough of the product to do the job.
- 3. Look for non-hazardous or less-hazardous products.
- 4. Recycle used motor oil.

5. Properly dispose of leftover products and containers.

- 6. Keep leftover products in original containers.
- 7. Share unused products.

In addition to following the seven rules for household hazardous wastes, you can help insure the health of your local water systems by organizing a "Clean Sweep" in your community. "Clean Sweep" programs are initiated on a local level and provide communities with safe methods for disposing of toxic wastes. For information on "Clean Sweeps" and household toxics, contact Elaine Andrews, UWEX Environmental Resources Center, 1450 Linden Drive. Rm. 216, Madison WI 53706.

The Lake Country Sports Expo

On September 23-25, you will want to be in Antigo. Antigo will have its usual Colorama, but other places have beautiful maples too. Antigo will feature its Langlade County hospitality, but other communities put out the welcome mat too.

But no other community can offer you the 4-Season Lake Country Sports Expo-music, food, outdoor skill contests, sports equipment, wildlife artists, literature tables, and educational films. DNR and university experts will be available to answer your questions regarding lake problems or other outdoor interests. The Expo is sponsored by the Wisconsin Association of Lake Districts.

To register as an exhibitor, contact:

Antigo Chamber of Commerce Superior Street Antigo WI 54409 (715/623-4134)

For other information, contact: Leon Rose, General Chairman Lake Country Sports Show Star Route, Pearson WI 54465 (715/484-3305).

Best of all-just show up!

Aquatic Resources Education

by Theresa Stabo

Aesthetic, economic, and recreational values drawn from Wisconsin's aquatic resources contribute to our high quality of life. Effective stewardship of these resources is critical. But land and water use ethics are not innate qualities—they must be learned. The Wisconsin Aquatic Resources Education program cultivates a sense of stewardship by generating a greater awareness and understanding of aquatic ecosystems.

The program is operated by DNR and funded via the federal Dingell-Johnson Sport Fish Restoration Act. This act authorizes collections of excise taxes on fishing tackle, boats, motors, and marine fuels to be used for sport fishing programs and access development. The Wallop-Breaux amendment to this act provides for 10 percent of those funds to be used for aquatic resources educational programs.

The Wisconsin Aquatic Resources Education program has five basic components:

- 1. Skills
- 2. School and Youth
- 3. Interpretive Displays
- 4. Adult Education
- 5. Printed Material.

As part of the **Skills Program**, a Free Fishing Day was held Saturday, June 18, in conjunction with the State Parks Open House. Fishing licenses were not needed and park entrance fees were waived for the day. Local fishing club members were at many of the parks to provide free instruction.

Additionally, the Skills Program will include beginning and advanced fishing clinics. The advanced level will be subdivided into three units emphasizing lake, stream, and ice fishing. All units will include lessons on aquatic ecology, ethics, management, fish habits, and fishing techniques. Instructor training will begin in the fall.



School and Youth Programs involve teachers and youth leaders in the dissemination of Aquatic Project WILD. This program is an extension of the nationallyproduced and widely-used wildlife education curriculum, Project WILD. It is a set of 40 activities and lessons emphasizing aquatic wildlife and ecosystems that can be infused into all secondary school subjects. Aquatic Project WILD materials may be received by attending a formal workshop. You can get involved in Aquatic Project WILD by:

-becoming a fishing skills volunteer instructor
-becoming a Project WILD instructor by attending a free DNR workshop (608/266-0870)
-volunteering at a Free Fishing Day
-calling a local fish manager to find out if your group can help in fish management work.



There are three other components to look forward to as they develop. **Interpretive Displays** will increase the value of state fish hatcheries and other properties as educational sites. The DNR will be adding and improving exhibits on fisheries throughout the state. **Adult Education** will focus on management training, clinic instructor training, and landowner relations. **Printed Material** services all components with publications, videos, and slide-tape programs.

For further information contact:

Tammy Peterson, Coordinator, Wis. Aquatic Education Program, DNR Bureau of Fish Management, Box 7921, Madison WI 53707.

Theresa Stabo is Aquatic Resources Education Assistant with the DNR.

Calendar

Aquatic Nuisance Control Environmental Assessment Informational Meetings will be held throughout the state. Lake districts will receive a notice from DNR, or contact Danielle Valvassori (608/266-0140).

Early July (dates are being set at time of press)

Third International Conference on the Conservation and Management of Lakes, Balaton '88. Keszthely, Hungary.

September 11-17

Lake Country Sports Expo. Langlade County Fairgrounds, Antigo, Wisconsin. September 23-25

Wisconsin Federation of Lakes Annual Meeting. Midway Motel, Green Bay, Wisconsin. October 1

American Water Resources Association Conference and Symposium. Milwaukee, Wisconsin. November 6-11

Applied Lake and Watershed Management: Managing Non-point Sources for Lake and Reservoir Quality. Symposium and North American Lake Management Society (NALMS) meetings, St. Louis, Missouri. November 15-19

1989 Wisconsin Lakes Convention. Holiday Inn,
Stevens Point, Wisconsin. Rooms are available at convention rates: \$48 single, \$55 double, \$59 triple, \$63 quad. Call 715/341-1340 and ask for the Wis.
Lakes Convention block. — MARK YOUR
CALENDARS and RESERVE YOUR ROOM — April 7-8, 1989

Jargon Busters

Chemical Oxygen Demand (COD): Nonbiological uptake of molecular oxygen by organic and inorganic compounds in water.

Chlorophyll: A green pigment in algae and other green plants that is essential for the conversion of sunlight, carbon dioxide, and water to sugar. Sugar is then converted to starch, proteins, fats, and other organic molecules.

Chlorophyll-a: A type of chlorophyll present in all types of algae, sometimes in direct proportion to the biomass of algae.

Cluster development: Placement of housing and other buildings of a development in groups to provide larger areas of open space.

Consumers: Animals that cannot produce their own food through photosynthesis and must consume plants or animals for energy.

from US EPA's Lake and Reservoir Manual (see below).

Publications

Aquatic Plant Guide. A plant field guide to various Wisconsin plants in and around lakes. Available from DNR Lake Managment Program, WR/2, PO Box 7921, Madison WI 53707.

The Lake and Reservoir Restoration Guidance Manual. US EPA, Wash. D.C., Feb. 1988. Limited copies available from Lake Tides.



Reflections

"...Every raincloud, however fleeting, leaves its mark, not only on trees and flowers whose pulses are quickened, and on the replenished streams and lakes, but also on the rocks are its marks engraved whether we can see them or not..."

John Muir: To Yosemite and Beyond, ed. by Robert Engberg and Donald Wesling.

Editor's Note: John Muir's 150th birthday was April 21, 1988. Raised in Wisconsin, he was the founder of the Sierra Club and an explorer of numerous western wildernesses including Yosemite.

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LAKETIDES



A newsletter for people interested in Wisconsin lakes

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- Lake Stewardship Awards
- Blue-green Algae
- Public Access Policy -

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