

Office of Water Management
Indiana Department of
Environmental Management

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Clean Lakes Program Grants for 1994

The Indiana Department of Environmental Management (IDEM) is soliciting proposal ideas for the FY 1994 U.S. EPA Clean Lakes Program (Section 314) grants. Proposals are being considered for both Phase I and Phase II projects. A Phase I project would fund the preparation of a diagnostic/feasibility study for a lake. A Phase II project provides funds for the implementation of the recommendations shown by a completed diagnostic/feasibility study. A project request must be limited to \$100,000. This would consist of \$50,000 of federal funds and \$50,000 supplied by local matching funds. Only those lakes which have some type of access available to the public are eligible; private lakes are not. Proposals are due at the IDEM by December 24, 1993. Due to the short timeframe, please contact the IDEM immediately for further information if your organization is interested in submitting a proposal. Please direct any telephone calls to Mr. Steve Judith at (317) 243-5017.

Clean Lakes Program Data on Display at State Fair

Visitors to the Indiana Department of Environmental Management's display at the recent Indiana State Fair were able to use an interactive computer display to see current water quality data on more than 300 public lakes. The water quality assessment data were collected between 1989 and 1992 as part of IDEM's Indiana Clean Lakes Program. Data from this and future years will be added to the data base system as they become available.

People could view temperature and dissolved oxygen profiles, a complete water quality record, and trophic state summary for each lake in the data base. A printer with the display allowed visitors to print out the data to take with them.

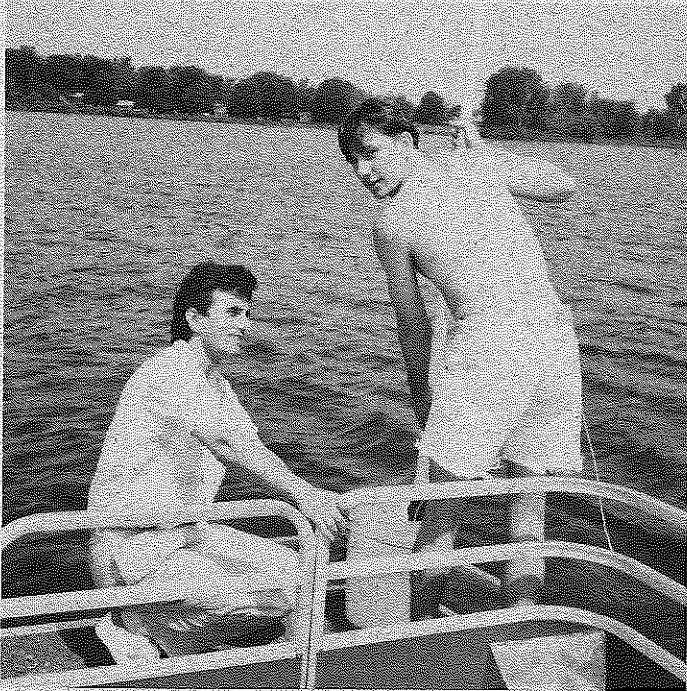
Other IDEM displays illustrated results of the Volunteer Lake Monitoring Program and allowed visitors to use Secchi disks in a "clear lake" and "turbid lake."

New Volunteers Added to Volunteer Lake Monitoring Program

Twelve new citizen volunteers signed up to monitor 16 additional Indiana lakes this summer. James Joerke, Volunteer Program Coordinator, trained each of the volunteers at their own lakes and gave them their Secchi disk and other supplies. The new volunteers are: Judy Ausderan (Big Cedar Lake, Whitley Co.); Bob Ginger (Waveland Lake, Montgomery Co.); Jim Goodwin (Bixler Lake, Noble Co.); David Heckman (Round and Little Cedar lakes, Whitley Co.); Dale Hibely (Knapp Lake, Noble Co.); Robert Mayer (Olin, Oliver and Martin lakes, Lagrange Co.); Paul Oakes (Ball Lake, Steuben Co.); Harvey Omstead (Lukens and Long lakes, Wabash Co.); Ed Reynolds (Lake Freeman, Carroll Co.); Dave and Lisa Taylor, Diamond Lake, Kosciusko Co.); and Tanya Whitaker (Stanton Lake, Kosciusko Co.).

All of us at the Indiana Clean Lakes Program would like to welcome these new volunteers and hope that they find volunteering for Indiana lakes as rewarding as the 68 other Indiana citizens who have been active volunteers in this program.

Volunteer Lake Monitoring with an International Flavor



Mark Snodgrass (right), a forestry student at Purdue University, and a Clean Lakes Program volunteer lake monitor on Center Lake in Warsaw, demonstrates the use of an integrated water sampler to Ean Dan (left) a Romanian banker interning at a Warsaw bank. Photo by Neal Carlson.

Volunteer Monitoring Goes to the Classroom

In an effort to bring real-world experience into the classroom, Bob Ginger has enlisted his Southmont High School environmental science class as the latest volunteers in the Indiana Volunteer Lake Monitoring Program. Mr. Ginger's class, consisting of 18 juniors and seniors, will monitor transparency, total phosphorus, and chlorophyll in Waveland Lake in southwest Montgomery County. The students are very enthusiastic about their involvement in the program and their role in protecting the water quality of Waveland Lake. The results of their monitoring efforts will also help them understand more about water quality and lakes.

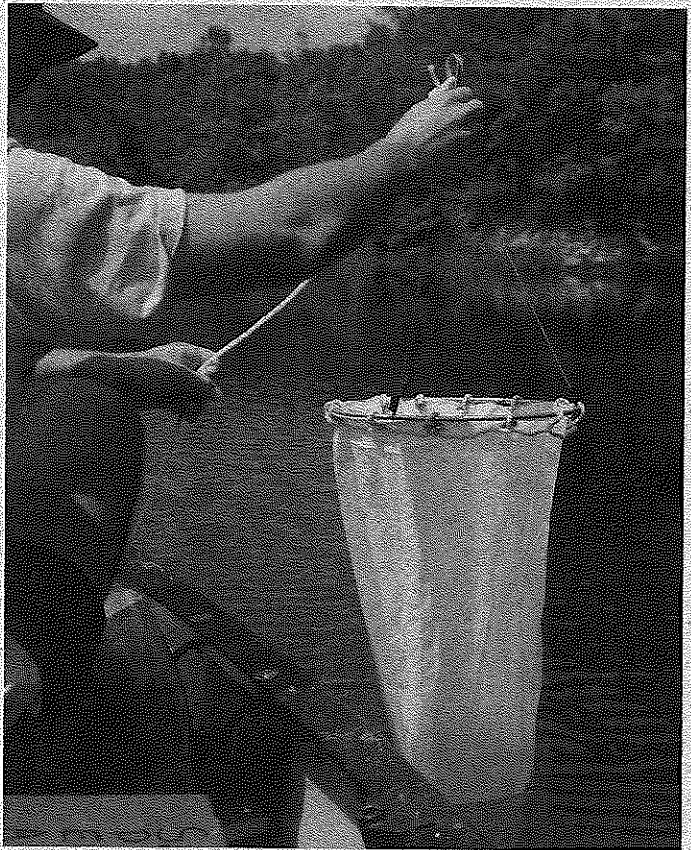
Southmont High School is the first Indiana school actively participating in the Volunteer Lake Monitoring Program. We invite other teachers and schools in Indiana to get involved in this worthwhile and educational program.

Successful Summer of Sampling for Indiana Clean Lakes Program

Students and staff from Indiana University's School of Public and Environmental Affairs (SPEA) conducted comprehensive water quality assessments this past summer on 84 Indiana public lakes. This was the fifth year of the program which is funded, in part, by a grant from the U.S. Environmental Protection Agency.

A goal of the program is to regularly monitor water quality and productivity on all Indiana public lakes. Most lakes will be monitored once every four to five years. IDEM uses the results of the program to evaluate long-term changes in lake water quality and to evaluate the effects of state water pollution control efforts.

Lakes in Lagrange and Noble counties were targeted this past summer. Additional lakes in Brown, DeKalb, Decatur, Elkhart, Fulton, Marshall, and Monroe counties were also sampled.



Clean Lakes Program staff member Rob Price samples plankton in Clear Creek Lake (Brown County) using a plankton tow net.

Volunteer Lake Monitoring in the Midwest

A recent survey (using 1992 data) of state volunteer lake monitoring programs in the Midwest shows that Indiana's program compares favorably with more-established programs. Although Indiana's Volunteer Lake Monitoring Program is relatively new and our state has fewer lakes than other Midwestern states, citizen participation is excellent and we monitor more water quality parameters than all other states except Wisconsin. The 80 lakes monitored in Indiana represent approximately 16% of all lakes in the state.

Farmers in Rural Wisconsin Keep Cows Out of the Creek and Fish Return

When is a trout stream not a trout stream? Eagle Creek in Buffalo County provides one answer.

Winding through a steep valley in western Wisconsin, Eagle Creek is classified as a trout stream. But in recent years, cattle traffic has broken down the banks and destroyed streambank habitat. Silt from the eroding banks and churned-up bottom has clouded the water, filled the deep pools, and covered the gravel bottom that trout need for spawning. While Eagle Creek has

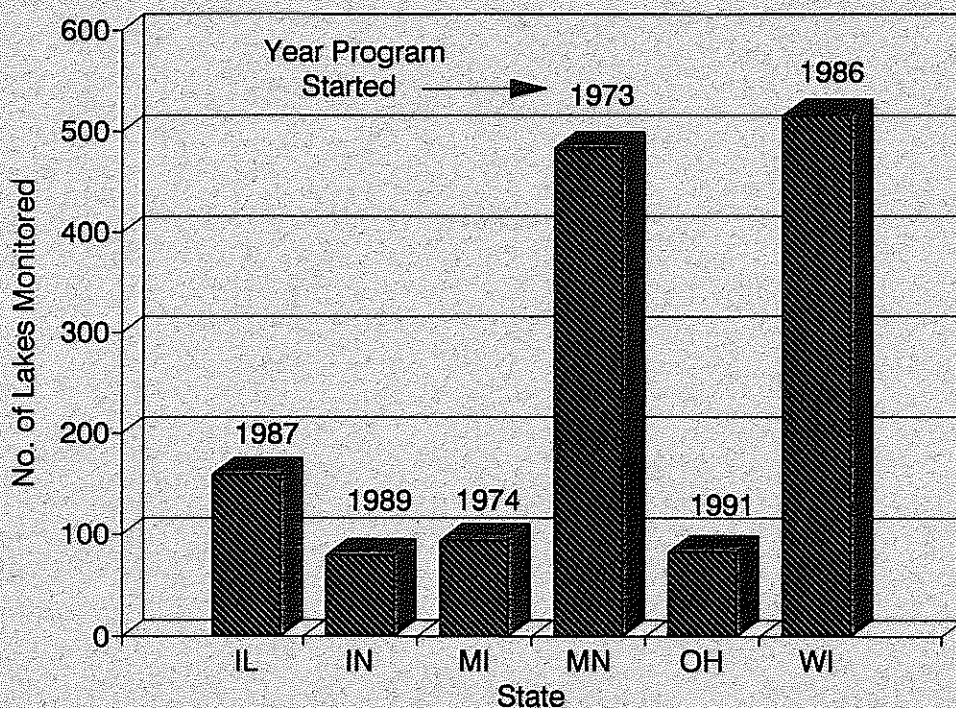
remained a trout stream on paper, in reality, trout have become scarce, and forage fish such as white suckers and creek chubs have multiplied.

Now, however, the creek is taking a turn for the better, thanks to landowners like Russell Fetting, who is participating in the Waumandee Creek Watershed Project. Fetting operates his dairy farm along Eagle Creek. Last year, with cost-sharing from the watershed project, he installed a cattle crossing and restricted cattle access to about 250 yards of the creek with an inexpensive, single-wire electric fence. The results were dramatic. A few months after the fencing, state biologists saw substantial reductions in bank erosion, renewed growth of streambank vegetation, and reestablishment of the creek's gravel bottom.

Fish counts taken after the banks were fenced show that the creek is headed in a healthier direction. Researchers noted a doubling in the total fish population and, more important, the presence of fish typically found in good

(Continued on next page)

Midwest States with Volunteer Programs



LAKE PARAMETERS MEASURED BY MIDWEST VOLUNTEER MONITORING PROGRAMS

	ILLINOIS	INDIANA	MICHIGAN	MINNESOTA	OHIO	WISCONSIN
Secchi Disk Depth	+	+	+	+	+	+
Field Observations	+	+	+	+	+	+
Water Color	+	+		+	+	+
Temperature Profile						(+)
Dissolved Oxygen Profile						(+)
Nitrogen	(+)	(+)				
Total Phosphorus	(+)	(+)				(+)
Chlorophyll a		(+)				(+)

NOTE: (+) means that the parameter is measured only in an expanded component of the program.

(FARMERS ...

continued from previous page)

trout streams. The overall increase in fish numbers largely reflects an increase in the bigmouth shiner, a fish that thrives on aquatic insects found on the rocky bottoms of clear, quick-flowing streams. Biologists also noted the presence of central stonerollers. These small fish consume algae that grow on stream-bottom rocks and are not commonly found in creeks with sandy or silt-covered bottoms.

Russell Fetting's positive effects will soon be reinforced by four neighbors. County Conservationist Dale Olson and his staff have made special efforts to encourage other Eagle Valley landowners to participate in the watershed project, and the county has provided additional cost-sharing money. As a result, more than 80% of the creek will be protected from cattle-related damage. Staff from the state natural resource department and the county land conservation department are optimistic that with the streambank protection and other planned conservation practices, Eagle Creek will once again be a trout stream in reality, as well as on paper (*Nonpoint Source News & Notes*, Aug./Sept., 1993).

Zebra Mussels Found on Aquatic Plants

In a recent survey of boats removed from Lake St. Clair (located in the channel connecting Lake Huron and Lake Erie), up to one-quarter were trailing aquatic plants with zebra mussels attached. Ladd Johnson, a visiting scientist at the National Oceanic and Atmospheric Administration's Great Lakes Environmental Research Laboratory, stated that "The number of zebra mussels we found on plants was astounding. One strand of coontail was so heavy it couldn't float."

Jim Kitchell, a University of Wisconsin-Madison zoology professor, suggests that lakes most likely to become infested with zebra mussels are the same ones that experienced an early invasion by Eurasian water milfoil. Both zebra mussels and water milfoil require similar water quality conditions and are spread by similar human vectors.

So now, along with checking hulls and trailers for attached mussels and pumping out motor cooling water that could contain zebra mussel larvae, it is important to clean aquatic plants from trailers and boats. Anyone finding zebra mussels attached to aquatic plants or to their boats or trailers is urged to contact the nearest Indiana

Department of Natural Resources office immediately (adapted from *Lake Tides*, Vol 18, No. 3).

Program on Upper Tippecanoe River Saves Soil and Protects Water

A USDA water quality project on the Upper Tippecanoe River Hydrologic Unit Area is promoting voluntary adoption of cropland and livestock management practices that will protect water resources from agricultural nonpoint source pollution. The project area covers a small portion of southwestern Noble and northeastern Whitley counties and much of Kosciusko County. This area was selected because groundwater is the sole source of drinking water for most of the area's residents. The groundwater resource in much of this area is shallow and susceptible to contamination. The project is supported through the U.S. Department of Agriculture's Water 1989 Quality Initiative.

Since the project began in 1990, local producers have adopted practices covering 35,292 acres of cropland and installed 41 erosion control structures. The cumulative amount of soil saved with these practices is 77,645 tons; and along with the soil savings, 7,495 pounds of soil-attached phosphorus have been prevented from entering surface waters. Ten manure storage facilities have been constructed resulting in improved management of several thousand tons of manure as a crop production resource. These results illustrate how a voluntary approach to agricultural nonpoint pollution management can be effective if adequate educational, technical, and financial incentives are available to assist landusers (Dave Stratman, SCS).

Watershed Protection: Catalog of Federal Programs is Available

The Watershed Branch of EPA's Office of Wetlands, Oceans, and Watersheds has published a catalog of federal (other than EPA) programs of use to states and local governments and organizations that engage in watershed protection projects.

Some 50 programs located in 12 federal agencies are included in the catalog, which states in its introduction:

The catalog will help lead agencies and others involved in watershed management to fully utilize and integrate appropriate federal resources into holistic, ecosystem-based efforts to restore and

maintain the chemical, physical, and biological integrity of the watershed's water resources.

In the directory, federal programs are divided into two types: (1) *comprehensive* programs that can provide support for the project lead agency in coordinating the efforts of other agencies, and that provide both financial and technical assistance, and (2) *support* programs that provide special-purpose technical assistance or advisory services only.

The directory provides an overview of both comprehensive and support programs, giving detailed information, including funding levels and examples of projects, on the comprehensive programs and more concise descriptions for the support programs.

To order the catalog: Publication Title: WATERSHED PROTECTION: *Catalog of Federal Programs*. Publication number: EPA-841-B-93-002. Copies may be ordered from NCEPI, 11029 Kenwood Road, Bldg. 5, Cincinnati, OH 45242; or, by FAX: NCEPI, (513) 891-6685. There is no cost. (Be sure to include both the title and the publication number in all orders.)

Agricultural Policy and Water Quality: The National Perspective

At the meeting on March 15-16, the pending debate over reauthorization of the Clean Water Act and the 1995 Farm Bill set the stage for a national forum called "The Next Generation of U.S. Agricultural Conservation Policy." Over 500 individuals, agricultural leaders, and special interest group representatives attended. The Kansas City event featured discussions on water

quality programs, trends in agricultural research, natural resources limits, and perspectives on farm policy and the environment.

Water quality protection via agriculture policy in the United States is not a minor expenditure. Currently, [a significant amount] of the \$40 billion paid through incentive payments in various agricultural programs is targeted at protecting water resources. Robert Wayland, Director of the EPA's Office of Wetlands, Oceans, and Watersheds expects water quality and resources protection to be the subject of numerous debates during the next year as Congress considers reauthorization of the CWA. Speaking at the Kansas City meeting, Wayland said, "Look for agriculture to be included in the debate." Wayland stated that past efforts have protected water quality, but more needs to be done to protect wetlands, estuaries, and biotic diversity in the natural community.

Not only will farmers see future changes in policy, but policy makers will feel the impact of reorganization. Tom Hebert, assistant to the Senate Committee on Agriculture, Nutrition, and Forestry said, "There's not a day that goes by that we don't discuss reorganization of USDA." A great deal of discussion has focused on creating a farm service agency where a number of USDA agencies would be brought together. Hebert pointed out, "There's a feeling on the Hill that there is a lack of coordination on issues that effect the farmer, especially at the national level."

Change won't come easily for USDA. Both Hebert and Wayland described how a new direction will require fundamental changes in laws that govern agriculture, many of which have evolved over the past 60 years (*Nonpoint Source News & Notes*, June/July 1993).

PERSPECTIVES

A lake is a landscape's most beautiful expressive feature; it is earth's eye onlooking into which the beholder measures the depth of his own nature.

—Henry David Thoreau



U.S. Fish and Wildlife Service Expands Wetland Restoration Program to Include Bottomland Hardwood Reforestation

Recent flooding in the Midwest has focused attention on the floodplains of the major river systems and the impact that past flood control projects have had on their ability to store and release floodwaters. Prior to settlement, extensive stands of bottomland hardwood forests covered these floodplains, providing important habitat for waterfowl and other migratory birds, wild turkey, white-tailed deer, and a host of other species. These forests also protected streambanks, enhanced fisheries and other aquatic habitat, and provided floodwater storage during peak flows. Since that time, however, many of those forests have been lost, primarily to clearing for agriculture. In fact, throughout the U.S., only 20% of the original bottomland hardwood forests remain.

While their fertile soils make productive farmland, their seasonal wetness and flooding characteristics result in frequent replanting and delayed harvest problems. These same characteristics also make bottomlands well-suited to hardwood forest growth. When properly managed, bottomland hardwood forests can provide valuable fish and wildlife habitat, improved water quality, and renewable timber resources for the landowner.

Since 1988, the U.S. Fish and Wildlife Service (FWS) has been restoring wetlands on private land throughout Indiana, at no cost to the landowner, in return for an agreement not to drain or alter the wetland for 10 years. The response has been tremendous, with over 600 wetlands totalling more than 3,000 acres restored over the last five years. The majority of these wetland restorations have been in the northern third of the state, where "pothole-" or "kettle-" type wetlands predominate. The FWS is now in the process of expanding the Wetland Restoration Program to include bottomland reforestation as an eligible practice.

Landowners having low, wet areas along the floodplains of streams and rivers may qualify for this new program. Areas currently in crop

production, set aside, or idle fields are preferred; the program will not reforest sites that already have a tree cover. The FWS, in cooperation with Indiana Department of Natural Resources (IDNR) District Foresters, will inspect the site and, if eligible, draw up a tree planting plan. The focus of reforestation will be on the heavy-seeded species, such as the bottomland oaks (e.g., swamp white, swamp chestnut, Shumard, cherrybark), that generally would not invade a site naturally for a considerable period of time. Light-seeded bottomland species, such as ash, sycamore, and red maple, will also be used depending on the objectives of the landowner and the proximity to existing stands. In return for the landowner signing a 15-year agreement, the FWS will pay 100% of the cost of establishing the trees, although the landowner may be responsible for the second or third year of weed control should that be necessary. Landowners with ten or more acres may also be eligible for the Classified Forest or Classified Wildlife Habitat Programs administered by the Indiana Department of Natural Resources, which will reduce property taxes to an assessed value of \$1/acre.

The overall goal of the program is to provide adequate incentives to landowners to restore wetland habitats for fish and wildlife, flood control, and the host of other associated values, and to encourage their protection and management for the benefit of future generations. For more information on the Wetland Restoration Program, contact the U.S. Fish and Wildlife Service at 620 S. Walker St., Bloomington, IN 47403; (812) 334-4261 (Jeff Kiefer, U.S. Fish & Wildlife Service).

Landmark Pennsylvania Law Mandates Nutrient Management

Pennsylvania has passed a first-of-its-kind law to stem the flow of nutrients into state waters and the Chesapeake Bay. Signed by Governor Robert P. Casey on May 20, the Nutrient Management Act links livestock density to mandatory nutrient management. The law represents six years of debate, culminating in a hard-won consensus among environmental and agricultural interests.

"From the start, various interests were brought around the table," explained Paul Swartz of the Susquehanna River Basin Commission. "Bringing together representatives of government, agriculture, and environmental groups made the process more difficult, but the end result was the cooperation needed for passage and implementation."

The Act's primary purpose is to:

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establish criteria, nutrient management planning requirements, and an implementation schedule for the application of nutrient management measures on certain agricultural operations which generate or utilize animal manure.

Under the Act, farms with more than 2,000 pounds of livestock or poultry per acre are required to develop and carry out approved nutrient management plans. About 8,000 to 10,000 existing beef, dairy, hog, poultry, and horse farms in Pennsylvania meet the animal density criteria.

"We need to be doing nutrient management bay-wide on any kind of acreage on which fertilizer is applied. This is an absolutely wonderful start in the right direction," noted Frances Flanigan, executive director of the Alliance for the Chesapeake Bay. "Nutrient management goes a tremendously long way toward addressing the bay's problems in a cost-effective way," she added.

Ninety percent of the fresh water streaming into the upper bay comes from Pennsylvania's Susquehanna River, and agricultural runoff is the largest source of nutrients in the river. Under the Chesapeake Bay Agreement with Maryland and Virginia, Pennsylvania has pledged to reduce nitrogen flow into the bay by nearly 20 million pounds per year.

The Pennsylvania State Conservation Commission, in conjunction with the state environmental and agriculture departments, has two years to promulgate regulations to implement the law and set minimum standards for nutrient management plans. During this period, the commission must identify best management practices and procedures for determining nutrient application rates. The aims are to balance nitrogen input from manure or chemical fertilizer with crop needs and minimize runoff of excess nutrients.

Meetings

December 1-4, 1993. 13th International Symposium of the North American Lake Management Society: Lake Management & Diversity-Competing Values, Needs and Goals. Seattle, WA. Contact: (303) 781-8287.

December 11-15, 1993. 5th Midwest Fish & Wildlife Conference-New Agendas in Fish and Wildlife Management: Approaching the Next Millennium. St. Louis, MO. Contact: Wayne Porath, (314) 882-9880.

March 17-18, 1994. Annual Meeting and Conference of the Indiana Chapter, American Fisheries Society. Clifty Falls State Park. Contact: Randy Lang, (219) 255-4199.

April 10-14, 1994. Fourth National Volunteer Monitoring Conference. Portland, OR. Contact: (503) 225-9916.

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