A black and white photograph of a lake. The foreground shows a grassy bank with a small, simple building. The middle ground is a calm body of water reflecting the sky and the trees on the opposite shore. The background is a dense line of trees. The top left corner has dark, out-of-focus leaves.

# **1995–1996 Water Quality Activities**

 **NORTHEASTERN ILLINOIS PLANNING COMMISSION**

# Water Resource Project Highlights ♦ 1995–1996

- ❖ Completed assistance on the Skokie River Restoration Project at the Chicago Botanic Garden
- ❖ Coordinated wetland advanced identification project in McHenry County
- ❖ Developed a report on alternative site design approaches to reduce urban runoff impacts
- ❖ Began construction for a series of stream and shoreline restoration projects in the Flint Creek watershed
- ❖ Coordinated the 1995-96 Volunteer Lake Monitoring Program for 45 lakes in northeastern Illinois
- ❖ Completed a training manual for the Volunteer Lake Monitoring Program
- ❖ Completed Clean Lakes Program Phase I Diagnostic/Feasibility Study of Lake George in the Village of Richton Park, Cook County
- ❖ Continued lake water quality assessment for six publicly-owned lakes in northeastern Illinois
- ❖ Continued a diagnostic/feasibility study of Indian Lake at Brookfield Zoo in Cook County
- ❖ Continued a project with the Fox Waterway Agency to address nonpoint source pollution from bottom sediment resuspension in Grass Lake, Lake County
- ❖ Continued Phase II Clean Lakes Program Implementation Program at McCullom Lake in the City of McHenry, McHenry County
- ❖ Completed the final report for the Phase II Clean Lakes Program Implementation Program at Skokie Lagoons, Cook County
- ❖ Completed a review of water quality standards relating to dredging operations for the Illinois EPA
- ❖ Coordinated ninth annual "National Conference on Enhancing the States' Lake Management Programs," April 24–26, 1996
- ❖ Coordinated a national symposium "Assessing the Cumulative Impacts of Watershed Development on Aquatic Ecosystems and Water Quality," March 18-21, 1996
- ❖ Completed Detention Retrofitting brochure
- ❖ Assisted McHenry County Stormwater Committee in preparing a countywide stormwater plan
- ❖ Continued technical support of countywide and watershed stormwater management programs
- ❖ Reviewed 34 Level II Illinois Water Quality Management Plan amendment requests including 21 FPA boundary changes, 8 plant expansions, 1 facility plan review, and 4 applications for new treatment facilities. Also reviewed 106 requests for reissue, issue, modification, or termination of NPDES permits.

## Inside...

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For more information on the topics discussed in this report, please contact these individuals at NIPC (312/454-0400).

### NATURAL RESOURCES DEPARTMENT:

**Dennis Dreher**, Director of Natural Resources: Water Quality Protection, Watershed Management, and Stream and Wetland Management

**Bob Kirschner**, Principal Environmental Planner: Lake Management and Conference Coordination

**Tom Price**, Senior Engineer: Stormwater Management and Urban Nonpoint Source Control

**Holly Hudson**, Senior Environmental Analyst: Volunteer Lake Monitoring and Lake Management

**Michael Murphy**, Assistant Environmental Planner: Conference Coordination, Publication Design, Aquatic Ecology, and GIS.

**Cover Photo:** McCullom Lake, City of McHenry, McHenry County

This report was prepared using federal Water Pollution Control Act Section 205j funds from the Illinois Environmental Protection Agency. The findings and recommendations contained herein are not necessarily those of the funding agency.

## The Impacts of Watershed Development

The Commission had the opportunity this year to co-sponsor with the U.S. Environmental Protection Agency a national conference on the topic of *Cumulative Impacts of Watershed Development on Aquatic Systems and Water Quality* (see "Conference Highlights" later in this report). This conference brought to Chicago over 300 watershed planners and water quality specialists to discuss several critical water quality questions, including:

- What happens to water quality when watersheds urbanize?
- Can we accurately predict watershed changes due to urbanization?
- What are the best techniques to prevent urbanization-related impairments?

The evidence presented at this conference corroborated some observations that we have made in this region over the last several years. A general observation was that streams and rivers in urban and suburban watersheds in northeastern Illinois were substantially more degraded than those in rural watersheds. More recently, with the aid of our regional geographic information system (GIS), we were able to refine this observation. We now know that nearly all of the streams and rivers with population densities greater than about 200-300 people per square mile fail to meet designated use standards for aquatic life and, thereby, fail to meet the "fishable" goal of the Clean Water Act (see "Watershed Development Impacts" on page 4).

What are the implications of this observation? First, if the decentralized development trends of the last several decades continue and if the region continues to develop with the same types of water quality controls and watershed protection techniques used in the past, we will surely see a deterioration of many of our remaining high quality streams and rivers. Second, if we are to avoid the adverse effects of urbanization on stream quality, we must change the ways we develop the landscape, manage wastewater discharges and stormwater runoff, and protect stream corridors and wetlands.

It was evident at the conference that northeastern Illinois is already among the leaders in developing innovative approaches to reducing watershed development impacts. Local speakers highlighted Kane County's initiatives in cluster development and land treatment of wastewater in its "critical growth corridor," the innovative natural landscaping and stormwater drainage approaches utilized at the Prairie Crossing development in Grayslake, and the use of native vegetation landscaping to improve runoff quality at several office campuses in the region.

The region's challenge is to more routinely utilize these and similar techniques as we design our future developments. Early indications are that the development community is eager to try new approaches and that these approaches may substantially reduce the costs of site development and maintenance, while also protecting the environment.



Phillip D. Peters  
Executive Director

# WATERSHED DEVELOPMENT IMPACTS ON STREAM USES IN NORTHEASTERN ILLINOIS

There is clear evidence from around the country that watershed urbanization has had adverse impacts on the beneficial uses of downstream waterbodies. In northeastern Illinois, this impact is reflected in a documented relationship between urbanization, as measured by watershed population density, and stream use indicators. This observation is based on stream use impairment information for over 40 streams and rivers, as reported in Illinois EPA's biennial *Water Quality Report*. Use impairment determinations are based on assessments of biological indicators, particularly the fish-based Index of Biotic Integrity (IBI).

The IBI is used to rate streams into five categories, ranging from A to E, with A being the highest. A and B streams, classified as "good" or "full support" by the Illinois EPA, meet the goal of the Clean Water Act of restoring and maintaining "water quality which provides for the protection and propagation of fish, shellfish, and wildlife," also known as the "fishable" goal. C and D streams are classified as "fair" or "partial support" and E streams are classified as "poor" or "non-support."

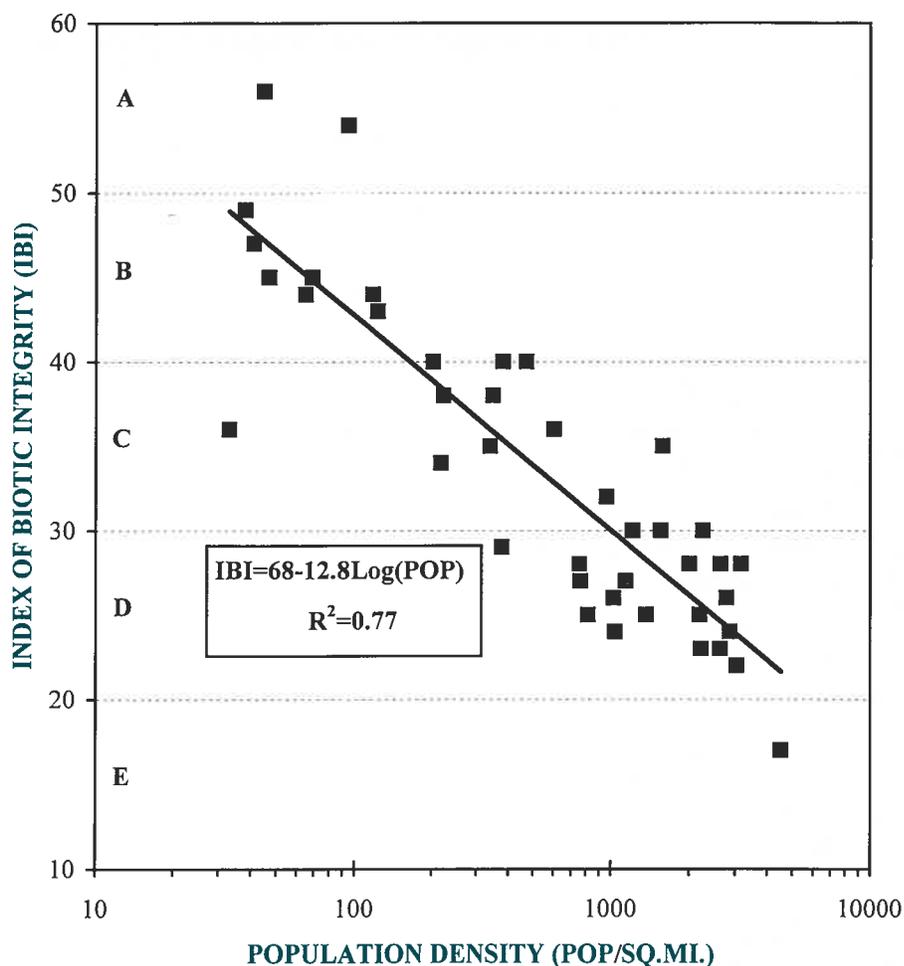
The results of comparing stream quality in northeastern Illinois, as indicated by the IBI, to population density are presented in the accompanying figure. There are some clear observations that can be drawn from this information.

- Nearly all streams in urban/suburban watersheds (i.e., with population densities in the range of 1000-5000+ people per square mile) are substantially degraded with C, D, or E classifications.

- Virtually all rural/agricultural streams (i.e., with population densities in the range of 30 to 300 people per square mile) are in relatively good condition, with classifications in the A to B range.

Several conclusions are evident from these findings. Despite dramatic improvements in wastewater treatment and combined sewer overflow control in the last 20 years, water quality and physical habitat are too degraded to

## IBI VS. URBANIZATION Northeastern Illinois Streams



support desired fish communities in urban/suburban stream watersheds. Urban nonpoint sources and certain problematic wastewater discharges are the principal causes of this impairment. While there are known problems in rural watersheds associated with agricultural chemicals and cropland erosion, as well as occasional wastewater-related problems in rural villages, these problems generally do not prevent rural streams from supporting relatively high quality fish communities.

These findings also point to some important water quality challenges for the region.

- An immense challenge remains in attempting to restore degraded streams and rivers in built-out urban/suburban watersheds to meet the "fishable" goal of the Clean Water Act. Various remediation measures have been

identified, including retrofitting detention basins to remove pollutants from stormwater and restoring the physical habitat of channelized streams. However, to date these measures have only been implemented in isolated demonstration projects.

- Protecting the region's remaining high quality streams also will be a challenge, particularly in the face of substantial outward population growth and our past record of deterioration. Reducing the adverse effects of development will require improved implementation of both nonpoint source controls on new development and more reliable treatment of wastewater discharges. Even with the best controls, however, it is not known whether high quality streams can be preserved once suburban densities have been reached.

# REDUCING THE IMPACTS OF URBAN RUNOFF WITH ALTERNATIVE SITE DESIGN APPROACHES

Changes to the natural landscape to accommodate urban development can have dramatic effects on the quantity and quality of stormwater runoff. In particular, stormwater runoff occurs at a much higher rate than prior to development and it carries with it numerous pollutants. Without adequate controls, urban runoff causes increased flooding, channel erosion, and severe water pollution in downstream lakes and rivers.

While some urban design standards, such as stormwater detention requirements, can partially mitigate some of these effects, other common standards may further exacerbate the problem. For example, modern standards which require wide streets, expansive parking lots, and artificial drainage systems produce even more runoff than similar developments of 40 to 50 years ago.

Fortunately, there are development options involving alternative stormwater drainage and site design approaches which can substantially reduce the full range of identified impacts. These alternative development techniques, commonly called *best management practices*, or *BMPs*, typically involve measures which accomplish two objectives: 1) reduce the amount of impervious surface area, thereby reducing runoff and/or 2) utilize the landscape to naturally filter and infiltrate runoff before it leaves the development site.

Such practices can greatly lessen offsite impacts related to both stormwater quantity and quality and simultaneously produce cost savings to both developers and municipalities.

These alternative practices are documented in a new

report and an accompanying brochure entitled *Reducing the Impacts of Urban Runoff: The Advantages of Alternative Site Design Approaches*. The recommended alternatives reflect a range of old and new design philosophies. Some of the recommended approaches mirror a design philosophy which existed prior to the 1960s when "modern" subdivisions began to spread across the landscape. Older developments, for example, often utilized natural drainage approaches and narrower street widths which this report again espouses. In other instances, the alternative approaches, such as landscaping with native vegetation, pre-date the arrival of European settlers. The report also recommends certain innovative planning approaches, such as cluster developments, which have not been widely implemented anywhere in the region.

The following site design techniques and BMPs are recommended:

- Reduced imperviousness in residential streetscapes
- Reduced imperviousness in parking lots
- Natural drainage measures

(including open swales and vegetated filter strips)

- Natural detention basin designs (incorporating features of natural wetland and lake systems)
- Infiltration practices
- Permeable paving materials
- Landscaping with native plants
- Cluster developments

Copies of the report and brochure will be available from NIPC's Publications Department.



*Natural Landscaping at the AT&T Corporate Campus, Lisle*

## STATUS OF CLEAN LAKES PROJECTS

### McCullom Lake Milfoil Weevil Investigation Continues

As reported in previous Water Quality Reports, the City of McHenry has received a Phase II grant under the U.S. EPA's Clean Lakes Program to restore McCullom Lake's recreational uses and provide for its long-term ecological protection. The Commission is serving as technical coordinator for the project, while the Illinois EPA is administering the federal grant.

During 1995, McCullom Lake experienced a remarkable decline in the non-native Eurasian watermilfoil, a particularly troublesome exotic plant. It usually grows quite rapidly in the early spring to form a dense mat-like canopy near the water surface, thereby limiting sunlight for other just-germinating native plant species on the lake bottom. A weevil insect native to North America, *Euhrychiopsis lecontei*, was discovered in McCullom Lake in June 1995, and it is believed to have contributed to the lake's milfoil decline. This weevil also has been associated with milfoil declines at several lakes in other parts of the country. Local newspapers heralded the discovery of the weevil in McCullom Lake, but in doing so perhaps oversimplified the potential implications. Our phone was ringing off the hook from lake homeowners and managers asking "Where can we buy the weevils?" While the limited scientific evidence collected thus far suggests that *E. lecontei* has the potential to be a useful biological control for Eurasian watermilfoil, we're still a long ways off from touting it as a reliable management strategy in Illinois. We're just beginning to understand some of the basic facts about the insect's life cycle, and we have much more to learn.

Could it be that *E. lecontei* has been around for some time, but that its populations are exterminated each time we apply chemical herbicides on a whole-lake basis (thereby killing the weevil's food source), or conduct aquatic plant harvesting of an entire lake (thereby removing most of the weevils since they live in the top few feet of milfoil plants)? Only continued



Adult weevil feeding on Eurasian watermilfoil (photo by Raymond Newman, U. of Minn.)

research will give us more clues. It's interesting, though, that of the eight lakes in Vermont that have experienced significant, sustained Eurasian watermilfoil declines, none of them have any prior history of aquatic plant management.

It is hoped that a research effort soon can be initiated here in Illinois to complement ongoing scientific investigations in other parts of the country. In doing so, we will more fully understand the role this seemingly-remarkable insect might have in managing nuisance levels of Eurasian watermilfoil.

### Skokie Lagoons

After a 12-year run, the Skokie Lagoons Lake Restoration and Protection Program drew to a close in 1996. Restoration involved removal of over 1 million cubic yards of sediment, diversion of wastewater treatment plant effluent around the lagoons, fisheries rehabilitation, and other ecological enhancements. The "post-project" monitoring was completed in 1995, and this data has been analyzed and assembled into a final report for the

project. The project has improved water quality conditions in the lagoons, resulting in fewer algae "blooms," greater water clarity, more stable water levels, and enhanced aquatic and shoreline habitat. The Lagoons are once again a popular spot for sport fishing enthusiasts.

The Forest Preserve District of Cook County began implementation of a shoreline erosion control demonstration project at the Skokie Lagoons during 1995-1996. With technical assistance from Commission staff and the help of several local contractors, the District is installing innovative shoreline stabilization practices along approximately 2.5 miles of the Lagoons' 15.5-mile shoreline. "Bioengineering" techniques, which rely on native wetland and prairie vegetation, are being used to stabilize shoreline soils and dissipate erosive wave energy. Various structural components made from dead plant material, such as coconut fiber and woody brush, help protect the young vegetation until it becomes established. The installation is expected to be completed by fall 1996 or spring 1997.

(CLEAN LAKES *continued*)

## **Lake George Study Nears Completion**

Lake George in south suburban Richton Park has been the focus of a Clean Lakes Program Phase I Diagnostic/Feasibility Study since fall 1994. The lake is characterized by high nutrient levels which in turn support an overabundant population of algae; high sediment turbidity, in part sustained by an overabundant carp population; and low aquatic habitat diversity, particularly a lack of rooted aquatic plants. Interpretation of lake and tributary water quality data, along with analyses of the lake's hydrology and nutrient and sediment inputs, has guided the development of restoration, protection, and management alternatives. The management plan will be finalized after village staff review and citizen input. Strategies being considered include removal of nutrient-rich sediments; rehabilitation of the fishery; enhancement of recreational opportunities; streambank and shoreline stabilization, including vegetative means where feasible; waterfowl management to reduce the number of over-wintering birds; continuation and enhancement of agricultural best management practices; public education to reduce urban nonpoint source pollution, including a storm drain stenciling project by local students; and comprehensive watershed planning to minimize impacts of future development.



*Water and sediment depth surveying on Lake George, Richton Park*

## **OTHER LAKE MANAGEMENT ACTIVITIES**

### **Indian Lake Study Continues**

The U.S. EPA-funded lake diagnostic/feasibility study at Brookfield Zoo's Indian Lake continued in 1995-1996. Water quality monitoring was completed in June 1996, with assessment and analysis of the data scheduled for fall 1996. When completed, the study will provide recommendations for restoring and enhancing the lake's ecological and aesthetic qualities. Over 2 million visitors come to Brookfield Zoo each year; accordingly, the Indian Lake project is viewed as an exceptional opportunity to emphasize the importance of lake restoration and protection to the general public.

### **Dredging Standards**

Illinois' current water quality regulations as they pertain to sediment dredging were evaluated during 1995-1996. Presently, effluent from settling basins associated with hydraulic dredging operations must meet Illinois' water quality standards applicable to conventional wastewater treatment plants. However, some previous dredging projects have experienced difficulty meeting these requirements because background conditions at times exceed the standards. At the prompting of the Fox Waterway Agency and the Illinois EPA, Commission staff reviewed dredging regulations from other states, and developed a series of alternative strategies for Illinois' dredging

regulations. The results of this study currently are being reviewed by the Illinois EPA and others interested in lake dredging issues.

### **Grass Lake Nonpoint Source Pollution Control Project**

Under a grant from the U.S. and Illinois EPAs, the Fox Waterway Agency with the assistance of the Commission has developed a demonstration project aimed at improving the water clarity in Grass Lake. Part of the Chain O'Lakes waterway in Lake and McHenry counties, Grass Lake is most affected by resuspension of bottom sediment. This is a particular problem in Grass Lake due to its shallow water depths – only 2 to 4 feet in many areas – which allow the bottom sediments to be easily resuspended by wind, waves, and power boats.

In an effort to reduce the resuspension caused by power boats, no-wake and power boat restricted areas have been established on the west side of Grass Lake. Furthermore, power boaters will be encouraged to stay within the buoyed boating channels. Concentrated boat traffic will help to keep the channels passable and, over time, lessen the amount of silt resuspended. The Waterway Agency also is investigating ways to reduce sediment resuspension through aquatic plantings, wave breaks, and shore protection.

Home to the state threatened and endangered bird known as the Forrester's Tern, Grass Lake offers significant environmental and recreational values. It is hoped that this demonstration project can help improve the lake's water quality and enhance its recreational uses.

### **Lake Notes Fact Sheets Available**

*Lake Notes* is a series of publications about issues confronting Illinois' lake resources. The objective of these fact sheets is to provide lake and watershed residents with a greater understanding of environmental cause-and-effect relationships, and actions everyone can take to protect our lakes.

Written by NIPC's Natural Resources Department and Illinois EPA's Lakes

Program staff, the first three *Lakes Notes* were published in fall 1995. They are entitled "Home and Yard," "Septic Systems," and "Illinois Clean Lakes Program." Natural Resources Department staff are developing five more fact sheets which will be off the press this summer. Topics covered will be lawn and garden fertilizers and pesticides, aquatic exotic species, shoreline erosion control, buffer strips, and Canada geese. Copies can be requested from NIPC's Natural Resources Department.

### Volunteer Lake Monitoring Program

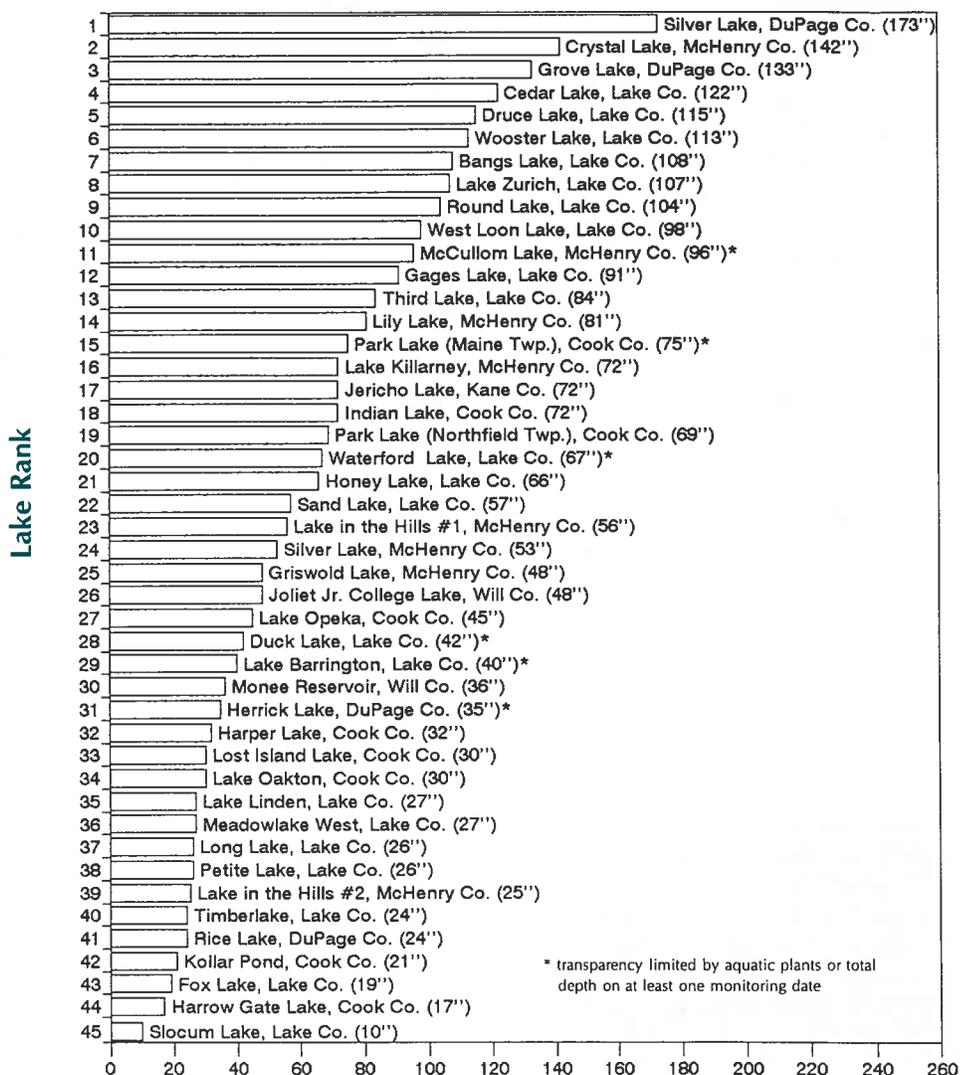
The fifteenth year of the Volunteer Lake Monitoring Program (VLMP) was celebrated during 1995. The Illinois EPA began the VLMP back in 1981 with 141 volunteers monitoring 87 lakes. By 1984 the program had grown to over 200 volunteers monitoring 145 lakes statewide, and participation has been consistent ever since. Statewide during 1995, 238 volunteers monitored 132 lakes.

NIPC continues to serve as program coordinator for the six county northeastern Illinois region providing volunteer training, technical assistance, educational materials, fact sheet development, and annual report preparation. During the 1995 season, 72 volunteers monitored 45 lakes in the counties of Lake, McHenry, Cook, Kane, DuPage, and Will. Special recognition is awarded Bruce Wallace in McHenry County who has been monitoring Silver Lake every year since 1981!

The basic tool the volunteers use is a Secchi disc, an 8-inch diameter metal plate painted black and white in alternate quadrants, attached to a calibrated rope. The volunteers measure water clarity (transparency) by lowering the Secchi disc into the water and noting the depth to which it is visible. Conducted from May through October, these measurements are used to document seasonal changes in water clarity. Furthermore, by monitoring over a series of years, potential trends can be detected. This self-help program thus provides effective public education in lake ecology and management, and also facilitates local lake and watershed management decision-making.

## Northeastern Illinois 1995 VLMP Lake Rankings

(lakes monitored four or more times)



\* transparency limited by aquatic plants or total depth on at least one monitoring date

### Representative Site Average Transparency (inches)

The accompanying graph presents northeastern Illinois lake rankings by average annual transparency for the 1995 monitoring season. Silver Lake in DuPage County exhibited the greatest average Secchi disc transparency of 173 inches. Crystal Lake in McHenry County was next with an average transparency of 142 inches, followed by Grove Lake in DuPage County and Cedar Lake in Lake County at 133 and 122 inches, respectively. Also exhibiting average transparency of greater than 100 inches were Druce, Wooster, Bangs, Zurich, and Round lakes, all in Lake County. The lowest average annual transparency of 10 inches was at Slocum Lake in Lake County (due to substantial suspended sediment and algae).

Compared to other VLMP lakes statewide, Silver Lake ranked second, Crystal Lake fourth, Grove sixth, and Cedar seventh. Druce, Wooster, Bangs, Zurich, and Round lakes ranked ninth through thirteenth, respectively. Snakeden Hollow Lake in Knox County in western Illinois exhibited the greatest average transparency of 249 inches. Eighteen of the top 30 lakes in the state (average transparency of at least 72 inches) were in the northeastern Illinois region. Six lakes in northeastern Illinois were among the 31 lakes with lowest average clarity (24 inches or less).

More information on the VLMP, as well as copies of the annual reports, are available from NIPC's Natural Resources Department.

## STATUS OF NONPOINT SOURCE DEMONSTRATION PROJECTS

### *Flint Creek Restoration Continues*

Commission staff, with funding provided through the Illinois EPA, assisted the Lake County Stormwater Management Commission in preparing a watershed management plan for Flint Creek, a tributary to the Fox River. A watershed inventory documented numerous problems with the creek and onstream lakes, including channelization, loss of native riparian vegetation, erosion of streambanks and shorelines, and degradation of water quality and aquatic habitat.

To address these problems, the plan recommended a three tiered management approach: preventative measures to avoid further degradation of the watershed; remedial measures to address existing problems; and maintenance measures to address an array of residual problems. A grant was received in 1995 to enable several watershed stakeholders to begin implementation the Flint Creek Plan.

Project design has been completed and the following implementation activities are underway.

- **Village of Lake Zurich:** The Village is involved in three restoration initiatives. 1) 250 feet of steep shoreline along Lake Zurich in Paulus Park are being stabilized with "bioengineering" techniques. 2) 1,400 feet of eroding Flint Creek channel between Miller Road and Route 12 are being stabilized with bioengineering measures. 3) Two sand filters are being constructed to filter pollutants from runoff generated by commercial areas before it reaches Lake Zurich. Contact Ed Lebbos with the Village of Lake Zurich at (847) 540-1694 for more information.

- **Village of Barrington:** The Village is stabilizing 2,900 feet of eroding creek channel between Langendorf Park and New Hart Road, adjacent to a village public works facility and Barrington High School. Contact John Heinz at the Village of Barrington at (847) 381-7903 for more information.

- **Citizens for Conservation (CFC):** CFC is a non-profit citizens group active in the Barrington communities. They are stabilizing 800 feet of the Flint Creek channel and restoring native vegetation in the adjacent riparian zone. The project reach is immediately south of Route 22 in CFC's Flint Creek Savanna preserve. Contact Waid Vanderpoel at CFC at (847) 382-7283 for more information.

- **Lake County Forest Preserve District:** The District has recently completed brush clearing and planting of native vegetation along a 1700 foot project reach upstream and downstream of Kelsey Road, west of Old Barrington Road. Channel stabilization with bioengineering techniques will be completed by summer 1997. Contact Frank Drummond at the Forest Preserve District at (847) 680-6301 for more information.

Commission staff and the project participants invite visitors to the project sites to learn more about innovative low-cost restoration techniques. In addition to the contacts listed above, readers may contact Tom Price, the Commission's project manager, at (312) 454-0400. A final report documenting project techniques and costs will be available in 1997.

### *Skokie River Restoration Project Completed*

A demonstration project to restore a nearly one-mile reach of the Skokie River at the Chicago Botanic Garden in Glencoe is complete. The project was intended to stabilize eroding channel banks in a cost-effective, environmentally sensitive manner, to enhance aquatic habitat in the river channel and wildlife habitat in the adjacent "riparian" corridor, and to improve the ability of the river corridor to filter pollutants running off adjacent lands. NIPC has served as a technical advisor to the Botanic Garden for this project which was partially funded by the U.S. EPA through the Illinois EPA under Section 319 of the Clean Water Act.

Early indications are that the project has been successful. Restoration objectives have been accomplished using the following techniques.



*Shoreline stabilization at Paulus Park, Lake Zurich*

(NONPOINT SOURCE DEMONSTRATIONS *continued*)

■ Deep-rooted prairie grasses, willows, and shrubs were planted on eroding banks along a nearly one mile stretch of channel. Several other techniques, including "brush layering" and "fiber rolls," were applied to areas of more severe erosion.

■ A twelve-acre area paralleling the river has been transformed into a native vegetation buffer zone. Nearly eleven acres of prairie were planted using a low-cost "no-till drill" and a seed mix of eight native prairie plants. Vegetative cover is now well established in this zone but follow-up maintenance and supplemental planting may be necessary to establish a functional native prairie system. In addition, five distinct wetland zones totaling about one acre were excavated along the river channel and hand-planted with dozens of native wetland plants which are now thriving.

■ Degraded habitat in the river channel has been enhanced using several techniques. Several existing riffles were augmented with the placement of rocks ranging from 6 inches to 3 feet in diameter. Meanders were enhanced in a short section of straightened channel and wetland vegetation has been planted in several backwater areas. These techniques are intended to improve fish habitat as well as water quality conditions.

A final project report is now available. The report documents the various restoration techniques, including their installation, maintenance needs, and costs. A 30-minute video showing the installation of techniques also has been developed. Individuals are encouraged to visit the Botanic Gardens and view the site in person. Finally, the Garden also is considering the establishment a series of education stations to inform visitors about stream corridor ecology and restoration techniques. For more information readers may contact Dennis Dreher at NIPC (312/454-0400) or project manager Cynthia Baker at the Chicago Botanic Garden (708/835-8300).

## CONFERENCE AND COURSE HIGHLIGHTS

For the ninth consecutive year, state agency lake program managers, together with leaders of statewide lake associations from across the country gathered in downtown Chicago to learn—and share—the latest in lake management. This **National Conference on Enhancing the States' Lake Management Programs** on April 24-26, 1996 was cosponsored by the Commission and the U.S. Environmental Protection Agency. Session topics included lake use conflicts, electronic networking opportunities, approaches for protecting high quality lakes, integrating nonpoint source and lake management programs, an update on invasive exotic species, and citizen monitoring programs. Participants also learned from intensive workshops on fundraising, nonprofit organization liability issues, conference management, and writing skills. A special evening trip to the Brookfield Zoo's recently-opened *The Swamp* exhibit was a big hit. Many from Illinois attended, including representatives from the Illinois EPA and the Illinois Lake Management Association. Planning already is underway for the next conference scheduled for April 1997.

\* \* \* \*

In the historical development of urbanizing watersheds, water resource amenities and functions often have been sacrificed. Meandering streams were channelized to improve drainage. Floodplains were filled and developed. Once-pristine watercourses became the recipients of domestic and industrial waste. Each alteration of the environment seemed to be of minor consequence. Little if any consideration was given to what *cumulative impact* these individual actions might have on water quality or the resources' overall ecological integrity.

It is now evident that the impacts of development can not be viewed solely within the context of an individual project. Environmental planners and community leaders must assess community development plans from a holistic perspective, and recognize the limitations of natural assimilative capacities. Scientists, governmental agencies, and academia can assist through monitoring and research programs designed to assess the

### Watch for these Upcoming Conferences!

**National Nonpoint Source Pollution Information/Education Conference**  
October 22-24, 1996; Chicago, Illinois

**10<sup>th</sup> Annual National Conference on Enhancing the States' Lake Management Programs**  
April 1997; Chicago, Illinois

**Contact NIPC's Natural Resources Department for more information on these and other meetings relating to water quality.**

cumulative impacts of development, and by devising management schemes to minimize adverse impacts. Communities can then enact comprehensive plans, zoning, and development ordinances to protect downstream waterbodies while providing for orderly, environmentally-sensitive community development.

On March 18-21, 1996, the **National Symposium on Assessing the Cumulative Impacts of Watershed Development on Aquatic Ecosystems and Water Quality** explored the cumulative impacts that can result from urbanization. Co-sponsored by the Commission, U.S. EPA, NOAA, and the Conservation Technology Information Center, the symposium demonstrated to participants how non-traditional approaches may achieve a sustainable balance between economic growth and environmental stewardship. Inherent to the symposium's discussions were "non-structural" planning that goes well beyond straw bales and silt fencing. When the planning process is undertaken comprehensively, it can reduce development costs, increase market appeal, and contribute to long-term ecological enhancement.

## OTHER ACTIVITIES

### GIS Technology Aids McHenry County Wetlands Study

Commission staff, under contract with the U.S. Environmental Protection Agency, are coordinating a study of wetlands in McHenry County. This project, known as an Advanced Identification (or ADID) study, is intended to develop improved knowledge and understanding of the County's wetland resources. The ADID will result in a digital mapping inventory of county wetlands which likely will include the identification of functions of individual wetlands, the mapping of high quality wetlands, and the identification of potential restoration sites. The ADID will be a valuable tool for local government comprehensive planning, for developing watershed plans and wetland protection strategies, for locating potential wetland mitigation sites, and for improving the predictability of the federal wetland regulatory program.

Geographic information system (GIS) technology is an integral part of the ADID process in McHenry County. One of the strongest arguments for a GIS-based approach is the flexibility it provides in cross-linking data from different sources. This was particularly important in assembling a base map of wetlands in McHenry County. GIS allowed for the efficient merging and editing of digital wetland information from the USDA Natural Resources Conservation Service (NRCS) the U.S. Fish and Wildlife Service's National Wetland Inventory. To attempt the same process with conventional paper maps would have been much more time consuming.

The ADID process is evaluating wetlands on the basis of habitat, water quality, and stormwater storage functions. The GIS allows for efficient production of working maps to aid in the evaluation of these functions. The GIS also allows for screening of wetlands by size, category, or watershed location and allows the user to readily generate maps at different scales (e.g., drawing index maps at a countywide scale and detail maps at a scale compatible with aerial photos).

Another important use of the GIS will be to generate comprehensive and comprehensible maps showing the results of the ADID study. The final ADID maps will identify functional classifications of individual wetlands. Each wetland also will have a unique wetland identifier that will allow the retrieval of all the information gathered on the wetland through the study. This information, in conjunction with the project methodology, will help explain why the wetland was classified the way it was. Readers may contact Michael Murphy at (312) 454-0400 for more information on GIS applications.

### Technical Assistance Provided to Local Governments

One of the important missions of the Commission is to provide technical assistance to local governments. The

Natural Resources Department, with limited funding from the Illinois EPA and local government contributions, provides advice on a variety of water quality and water resource issues, including urban stormwater management, nonpoint source control, stream, lake and wetland protection, and development ordinances.

This assistance is provided in several ways. Technical and policy presentations are made to professional associations, village boards, planning commissions, and advisory committees. In addition, staff responds to numerous telephone inquiries from local governments and their consultants.

A summary of available services and publications is provided in the 1995-96 NIPC Publications List. Telephone inquiries may be directed to the Natural Resources Department at (312) 454-0400.

## WATER QUALITY MANAGEMENT PLAN AMENDMENTS

Under contract with the Illinois EPA, the Commission reviews requested amendments to wastewater Facility Planning Areas (FPAs). A summary of review actions from July 1, 1995 through June 30, 1996 involving FPA boundary changes and/or new or expanded treatment facilities is presented below.

	Applicant	Request	Finding
95-WQ-027	Des Plaines Mobile Home Park	New Treatment	Support
95-WQ-028	Village of Addison	FPA Amendment	Support
95-WQ-030	Glenbard Wastewater Authority	FPA Amendment	Support
95-WQ-038	Village of Lakewood	FPA Amendment	Cond. support
95-WQ-043	Village of Deerfield	FPA Amendment	Support
95-WQ-044	Lake County Dept. of Public Works	FPA Amendment	Support
95-WQ-045	Lindenhurst Sanitary District	Plant Expansion	Support
95-WQ-051	DuPage Co. Dept. of Env. Concerns	FPA Amendment	Support
95-WQ-052	City of Lockport	FPA Amendment	Support
95-WQ-064	Village of Frankfort	Plant Expansion	Support
95-WQ-065	City of Woodstock	Plant Expansion	Cond. support
95-WQ-066	Village of Minooka	Plant Expansion	Support
95-WQ-067	Citizens Utilities Company	Plant Expansion	Support
95-WQ-078	Village of Matteson	FPA Amendment	Support
95-WQ-079	McHenry Co. Valley Hi Nursing Home	New Treatment	Support
95-WQ-080	Lake in the Hills S.D.	Plant Expansion	Cond. support
95-WQ-082	Village of Channahon	FPA Amendment	Partial support
95-WQ-083	City of Batavia	FPA Amendment	Support
95-WQ-092	Village of Fox River Grove	FPA Amendment	Support
95-WQ-105	Village of Gilberts	FPA Amendment	Support
96-WQ-001	Wheaton Sanitary District	FPA Amendment	Support
96-WQ-003	Village of Bolingbrook	FPA Amendment	Support
96-WQ-004	Fox Development	New Treatment	Non-Support
96-WQ-005	Village of Matteson	FPA Amendment	Support
96-WQ-006	City of Lockport	Plant Expansion	Cond. Support
96-WQ-007	Village of Richton Park	FPA Amendment	Cond. Support
96-WQ-008	Village of Richton Park	FPA Amendment	Cond. Support
96-WQ-009	Consumer Illinois Water	FPA Amendment	Cond. Support
96-WQ-010	Village of Kildeer	Facility Plan	Under Review
96-WQ-011	Village of Peotone	Plant Expansion	Cond. Support
96-WQ-042	Village of Long Grove	FPA Amendment	Support
96-WQ-044	Village of Hainesville	FPA Amendment	Under Review
96-WQ-053	Metron Engineering	New Treatment	Under Review
96-WQ-063	DuPage Co. Dept. of Env. Concerns	FPA Amendment	Under Review



# northeastern illinois planning commission

222 South Riverside Plaza Chicago, Illinois 60606 (312)454-0400



Northeastern Illinois is diverse in its land use and complex in its political structure. It has some of the most productive farms on earth—also one of the world's greatest cities. It contains 3,714 square miles of land and 38 square miles of water. It is home to 7 million people, organized in more than 1,250 units of government.

In 1957, following a decade of rapid urbanization in the Chicago suburban area, the Illinois General Assembly created the Northeastern Illinois Planning Commission (NIPC) to conduct comprehensive planning for the six-county greater Chicago region.

The Commission has three statutory charges: conduct research and collect data for planning; assist local government; and prepare comprehensive plans and policies to guide the development of the counties of Cook, DuPage, Kane, Lake, McHenry and Will.

By necessity, regional planning deals with general development policies, not local land use detail. NIPC supports and coordinates county and municipal planning. The Commission has advisory powers only and relies upon voluntary compliance with its plans and policies.

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