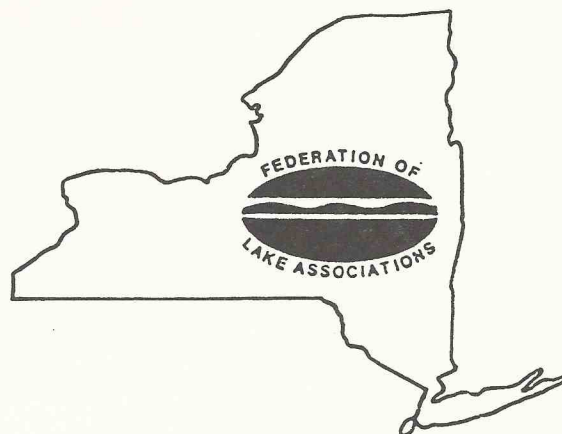


Waterworks



Summer 1990 Volume 6 Number 3

ECOLOGICAL PLANNING AND RESOURCE MANAGEMENT: A NECESSARY PARTNERSHIP FOR SMALL LAKE RESTORATION

by Bruce A. Gilman

Small freshwater lakes are comprised of diverse and often productive plant communities. Like their counterpart on land, the composition and dynamics of these plant communities are influenced by environmental factors, successional tendencies and human impacts. Eutrophication of lakes, a process that increases nutrient supply, results naturally from soil erosion but can be accelerated by cultural activities, e.g., shoreline cottage development, watershed deforestation, farmland runoff, and absent or inadequate sewage treatment. These watershed activities collectively comprise the external loading factors, and partially account for the troublesome periodic algal blooms, dense submerged weedbeds, and high coliform bacteria counts. Internal nutrient loading occurs from the organic sediments that have historically accumulated in the lake basin. Man also impacts small lakes through the introduction of plant and animal species, thermal discharges, and the deposition of hazardous substances. The combined effect of these human activities has reduced the quality of these important natural resources. Whether it be for recreation, potable water or simply aesthetics, these affected lakes have been degraded and demand the best possible management and restoration programs. Successful ecosystem management requires a balance between public concerns, governmental policies and assessment of the possible environmental consequences of management activities. This approach necessitates a thorough and progressive examination of field data before an actual management/restoration technique can be chosen. Critical reassessment following

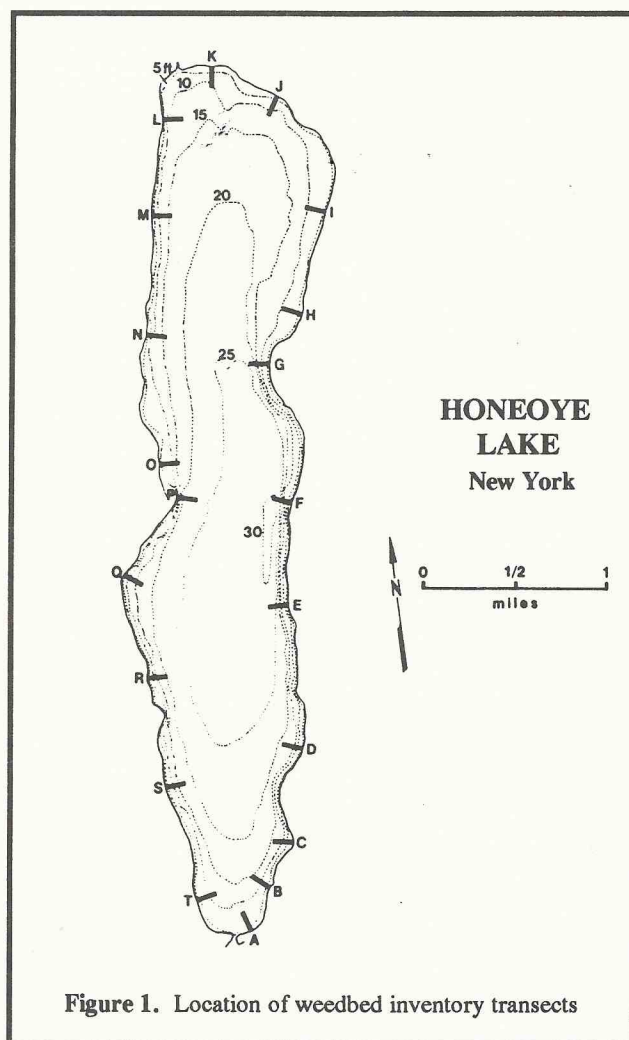


Figure 1. Location of weedbed inventory transects

management is also required to determine whether or not restoration goals have been met. In the Honeoye Lake Restoration Program, this basic philosophy has been applied to small lake management.

(continued on page 5)

The 21st Century Environmental Quality Bond Act

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The 21st Century Environmental Quality Bond Act will appear on New York's ballot as Proposal One in November. An important development for the protection of New York's 7,500 lakes, is a new emphasis on acquisition of State land to protect watersheds under the "open space" category. This article provides a brief summary of the Bond Act. Additional information can be obtained by writing to Francis Sheehan, 21st Century Environmental Quality Bond Act Office, NYS Department of Environmental Conservation, Room 620, 50 Wolf Road, Albany New York 12233-105 or by calling (518) 457-7727.

COMPONENTS OF THE BOND ACT:

To guarantee the continued integrity of New York State's environment for future generations, a \$1.975 billion Bond Act has been proposed which will provide resources for the following projects:

\$800 Million for Land Acquisition: This will permit New York to continue, into the twenty-first century, its highly successful program to protect Forest Preserve, parkland and other environmentally sensitive parcels throughout the State from adverse development.

\$175 Million for Municipal Parks and Historic Preservation: This program supports the acquisition, development or improvement of municipal parks and recreational facilities and the preservation of historic properties.

\$525 Million for Solid Waste Management: These new programs will help municipalities achieve New York's aggressive solid waste management goals. A key element of this proposal calls for funding of \$175 million to support matching grants for municipalities to safely close non-hazardous municipal landfills. A \$20 million allocation is provided for grants to localities for innovative recycling demonstration projects; \$140 million for municipal recycling projects; \$140 million for secondary materials regional marketing assistance projects; and \$50 million for state assistance for regulated medical waste management projects.

\$201 Million for Stewardship: This proposal will ensure timely implementation of important environmental preservation and recreational improvement projects in DEC, OPRHP and other State agencies. Activities scheduled to be financed include ongoing natural resource projects in DEC and OPRHP, construction of Riverbank State Park, remediation of leaking petroleum storage tanks and preservation of the State's Barge Canal System.

\$174 Million for Water Quality Improvements: This category will finance the State's remaining match requirements (\$162 million) for the new Water Pollution Control Revolving Fund loan program for local sewage treatment construction. State matching funds, coupled with up to \$900 million in Federal capitalization grants, will leverage more than \$4.0 billion in low-interest rate loans to municipalities by the year 2000. This category will also provide New York's contribution (\$12 million) to the Great Lakes Protection Fund.

\$100 Million for West Side Waterfront Esplanade: The Bond Act will provide funds to assist in the development of the West Side Waterfront Esplanade along the Hudson River in lower Manhattan.

Federation News

New York's Water Quality Monitoring Program Expands in 1990

Volunteers involved with the Citizens' Statewide Lake Assessment Program (CSLAP) have had a busy year. This successful water monitoring program was expanded to include seventy-four lakes and three hundred volunteers during the 1990 sampling season.

CSLAP, which is administered as a joint effort between the Federation of Lake Associations and the Department of Environmental Conservation, had a boost this year with the addition of three excellent coordinators. Joining Scott Kishbaugh and Anne Saltman this summer were Erin Mulligan, Lynn McGrath, and Jennifer McGill who brought enthusiasm and expertise to the Program as they assisted with the training and lake visits. Also participating was Mike Kinsky who provided assistance with aquatic vegetation sampling through the Federation's Student Volunteer Training Program.

In addition to collecting samples for the core group of water quality test parameters, many CSLAP volunteers participated in an expanded vegetation sampling program, and continued with dissolved oxygen and temperature profiling, lake level monitoring and precipitation gauging.

FOLA Scientific Conferences a Success!

The three Federation conferences, co-sponsored by the Water Resources Board and the U.S. Environmental Protection Agency, were a tremendous success during 1990. The two regional meetings, a new approach for the Federation this summer, were very well attended. Many thanks to all who assisted with the preparations of these three events.

Now Available...

Diet for a Small Lake: A New Yorker's Guide to Lake Management

This book was written and published as a joint effort between the Federation of Lake Associations and the Department of Environmental Conservation. It provides a step-by-step approach to the development of a lake management plan and includes detailed descriptions of in-lake and watershed restoration techniques, a comprehensive discussion of lake ecology, a special section on New York State surface water laws and regulations, methods of organizing a lake community for action, line drawings and color photographs for the identification of aquatic plants, and much more!

Books are available for \$10.00 each, plus \$2.00 for postage and handling. Requests should be sent to Holly Ioset, Federation of Lake Associations, Inc., 33 Albany Street, Cazenovia, New York 13035.

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The Zebra Mussel - A Potential Threat to New York's Lakes

The introduction of exotic species is not uncommon. So why all the concern about a recent invader in the Great Lakes? And why should inland lake users be so interested?

Attention this summer has focused on a small organism called *Dreissena polymorpha*, also known as the "zebra mussel". It's original sighting in the western basin of Lake Erie in June 1988, has sparked concern within lake communities throughout the state - and for good reason. The zebra mussel has the potential to block municipal and industrial water intake facilities and to disrupt aquatic food webs and ecosystem balances. Zebra mussels can also interfere with sport and commercial fishing, navigation, recreational boating and beach use throughout the lakes of New York and the Northeast. The U.S. Fish and Wildlife Service has projected that the zebra mussel may have a \$2.7 billion impact on Great Lakes fisheries over the next ten years.

Zebra mussels are small bivalve mollusks with elongated shells marked by alternating light and dark bands. The mussels attach on to solid surfaces and can rapidly colonize lake shorelines and riverbanks.

Dreissena polymorpha is native to the region of the Black and Caspian seas. It was introduced to European freshwater ports during the late 1700's and is believed to have been brought to the Great Lakes from ballast on ships. Zebra mussel populations have spread rapidly throughout the Great Lakes and biologists now fear that it could invade inland waterways in the near future.

The zebra mussel could be inadvertently transported from infested Great Lakes waters into uninfested inland lakes and waterways by anglers and recreational boaters as they travel throughout the state. The infestation and spread of the zebra mussel can be slowed with your help. Here are a few precautions:

- * Drain all bilge water, live wells and bait buckets before leaving an infested waterway. Leftover bait should not be transported from infested waterways to uninfested waters;

- * Thoroughly inspect your boat and scrape off any zebra mussels that may be present;

- * Thoroughly wash all boat parts and accessories using:

- a. hot (140° or hotter) water; or use a 10% solution of household chlorine bleach and water; or

- b. a hot saltwater solution (mix 1/2 cup salt to 1 gallon water), followed by a clean water flush to remove chlorine/salt residues. (note: these solutions should not be used where they will run off into surface waters or storm sewers); or

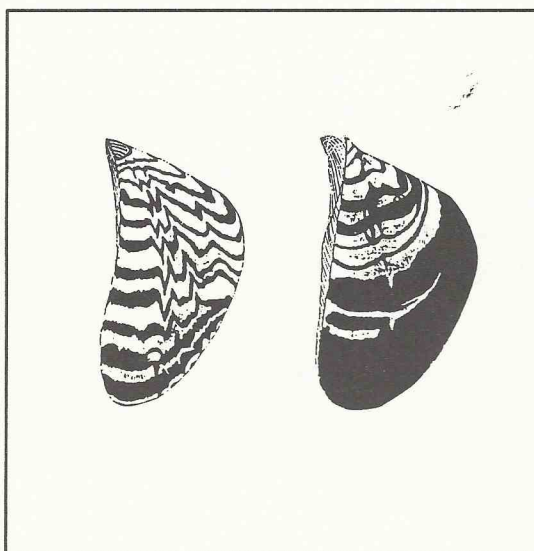
- c.) a pressurized steam cleaning unit;

- * Boats and trailers should be allowed to dry thoroughly before being transported to uninfested waterways;

- * If possible, avoid leaving out-drives in the "down" position if boats are left in the water of infested lakes. Hulls and drive units should periodically be inspected and scraped free of mussels.

- * Antifouling paints may be effective to prevent attachment of zebra mussels. Consult with your local marine dealer or manufacturer before using chlorine or salt solutions in the cooling system.

For more information on zebra mussels, contact the NY Sea Grant Extension, 248 Hartwell Hall, State University College, Brockport, NY 14420 or the NYS Senate Task Force on Zebra Mussels, Senator L. Paul Kehoe, 40 Canal Street, P.O. Box 607, Lyons, NY 14489.



Now entering its fifth year of management activities, the Honeoye Lake long-term program goal is to enhance the multiple-use quality of the resource through nutrient reduction. This goal mandates an holistic approach to lake restoration, one that clearly distinguishes symptoms from causes, and addresses the desirability of nutrient reduction through proper watershed management. Four strategies were identified to achieve this goal. The first was to monitor existing lake water quality and pertinent watershed features. Such descriptive information is essential in understanding the ecological variability of small lakes from year to year. The second strategy was to assess the degree of resource degradation. Critical problem areas (i.e., dense weedbeds) had to be inventoried across the growing season to determine the suitability of potential restoration techniques. The third strategy reflects the subjective nature of the degradation. For example, dense weedbeds are considered a problem if they occur adjacent to cottage development but they may not be of concern if adjacent to undeveloped forested wetlands. Additionally, the weedbeds may be a nuisance to the swimmer yet be recognized as a valuable nursery area for aquatic life by the fisherman. Management of a small lake must be sensitive to its diverse values and strive in a balanced way to satisfy most of the resource users most of the time. A watershed questionnaire was developed to survey the public's perceptions and attitudes toward the lake resource. The final and perhaps most important strategy was to involve the public in the restoration program. General education through town meetings and active participation in a newly formed lake association would allow a resident to play a role in the planning and implementation process.

To fulfill the long-term program goal, a three-year schedule was adopted. The tactics employed the first year included a scientific literature search for background information and an inlake fall biomass sampling of the littoral weedbed communities. One hundred inventory stations were equally grouped among 20 transect lines (Figure 1). It was anticipated that with this large number of inventory stations most of the lake's weedbed variety would be sampled. At each station, standing crop biomass within a weighted 1/4 square meter quadrat frame was clipped at substrate level and later sorted by species for drying and weight determination. Concurrent environmental measurements included water depth and water transparency. Substrate samples were also taken and subjected to several analyses. Four indices of plant community structure were determined based on the fall standing crop biomass data.

Average weedbed biomass clearly indicates that the weedbed density varied considerably along the lake shore. Variation

in the growth of submerged aquatic communities involves environmental, competitive and successional interactions. Positive correlations exist between fall standing crop biomass and richness, textural class, organic matter content and silt content. Fall standing crop biomass was negatively correlated with sand content, pH and substrate phosphorus level. These suggest that as silt and detritus accumulate, substrate conditions improve the weedbed productivity. This information gathering, data analysis and interpretation should be considered as the highest priority in all restoration programs. A basic ecological understanding of the natural resource is a necessary precursor to any successful management activity.

*Successful ecosystem management requires
a balance between public concerns,
governmental policies and assessment of the
possible environmental consequences of
management activities.*

With sufficient background information, the tactics for the second year consisted of a watershed questionnaire and limited use of aquatic vegetation control techniques. The questionnaire results provided valuable information on residential features, water consumption, wastewater disposal facilities and landuse practices. The public's general impressions on lake problems provided a prioritized list for action that was later utilized by the newly formed lake association. The public's impressions on the causes of these problems served to illustrate the degree of public education that would be needed for program acceptance. For example, ranked as the leading cause of lake problems was the use of pesticides and fertilizers. Little agricultural land exists within the watershed, yet it appears that the public still desires to use the familiar scapegoat of farmland runoff. The second highest response was that lake problems were due to individual citizen abuse. The public's tendency to place the blame on someone else is unfortunate. All resource users contribute to the problems and all bear some level of responsibility. This premise must be accepted before a sound ecological management plan, having public support and cooperation, can be achieved. Selected third among the list of causes was natural lake conditions. This is indeed correct and it is hoped that most watershed residents and lake users will realize the limitations placed on lake

(continued on page 6)

Ecological Planning (continued from page 5)

restoration due to the shallowness of the lake, warmth of the water during the growing season and the high nutrient level. A discouraging response was the low ranking of past pollution as a cause of modern lake problems. Many apparently believe that past sewage contamination quickly flows downstream out of the lake. Although the lake has a relatively short hydraulic retention time, nutrients appear to be reside in the bottom sediments for many years. Past abuses will continue to haunt present resource users.

Mechanical harvesting experiments and benthic shading experiments were completed in the second year of the program. Both weedbed control techniques were successful. Harvesting reduced biomass immediately, with a 25% recovery one month later. However the next year, a rapid recovery occurred. Some tentative conclusions can be made at this point in the ongoing research program. The composition of the harvested weedbed areas did not change significantly. Both richness and relative abundance (based on standing crop biomass) were similar in control and harvested areas. Good historical data on macrophyte productivity is not available but some year to year variability is to be expected. Lake users often remark that a year is a particularly good growth year for a certain plant. The experimental harvesting study period may span such natural variability. Ultimate biomass reduction of weedbed communities following harvesting has taken many years in some instances. Overnight results are not to be expected.

Benthic shading eliminated weed growth in small areas but was both expensive and labor intensive. Additionally, such alteration of the substrate must produce some impact on other nontarget organisms. Did it interfere with bass spawning? Did it significantly reduce cover for forage fish and invertebrates? Conversely, did it improve the feeding opportunities for established predators in the lake? The nature of these questions underlies the need for sound scientific investigation to accompany any management/restoration technique. The potential impact of benthic shading must be assessed relative to the percent of bottom covered and availability of suitable habitat elsewhere for the displaced organisms.

Progress made during the third year of the lake restoration program included intensive weedbed harvesting, monitoring of water chemistry and detection of possible sources of bacterial contamination. All three activities provided short-term improvements in the multiple-use capacity of Honeoye Lake. Harvesting successfully removed vegetation without any of the drawbacks associated with the use of chemical herbicides or the introduction of new organisms to the water. Problems associated with harvesting were minor

(i.e., escape of plant fragments, accidental capture of juvenile fish) and through continued research and program modification these problems can be reduced. For this year, a small boat equipped with a bow-mounted rake will collect most plant fragments that escape from the harvester. The juvenile fish captured are predominately sunfish (85.6%) and belong to the young-of-the-year and first-year cohort. Insignificant numbers are captured relative to their estimated density within the weedbed communities.

Water chemistry analysis revealed how the lake is intimately tied to what happens within the watershed. Nutrient pulses occurred following precipitation events that undoubtedly caused runoff. Water clarity temporarily decreased with siltation caused by runoff as well as wind generated mixing. Overall, water clarity, measured as secchi disk transparency, has improved during the first four years of the lake restoration program. An integrated approach to small lake restoration based on a sound understanding of the dynamic nature of lake ecosystems is recommended. Baseline data collection is essential prior to and following management activities. Some management activities should be favored under certain conditions. The choice will vary among small lakes. Most management activities will produce new questions about lake ecology and, therefore, direct research into areas for future investigation. As a result, success must be judged in both a short-term and a long-term framework. No single quick cure for the environmental problems of a lake should be expected.

Public participation is critical in assessment of resource use, misuse and recovery. A local sense of accomplishment can be achieved if restoration activities are funneled through a local lake association.

Small lake restoration should be holistic. Often what is observed in the lake as a problem should instead be thought of as a symptom, with the real cause of the problem residing in the lake's watershed. Lake restoration, therefore, should utilize a wide variety of techniques employed at several scales. A recent publication by the New York State Department of Environmental Conservation and the Federation of Lake Associations titled, "Diet for a Small Lake" provides an excellent and thorough review of techniques currently in use.

This information was taken from an article of the same title appearing in New York State Museum Bulletin 471, Ecosystem Management: Rare Species and Significant Habitats, 1990. The author is a Professor in the Department of Natural Resources Conservation, Community College of the Finger Lakes, Canandaigua, New York 14424. He is a former chairman and current member of the Scientific Advisory Board of the New York State Federation of Lake Associations.

North American Lake Management Society

International Symposium on Lake & Reservoir Management

November 6-10, 1990 • Sheraton Hotel • Springfield, MA

For hotel and registration information, contact the NALMS office at P.O. Box 217, Merrifield, VA 22116 or call (202) 466-8550.

Draft Program Summary

Tuesday, November 6, 1990 - Registration

Living Lakes Scientific Advisory Board Meeting

8:00 a.m.-5:00 p.m.

NALMS Board Meeting 8:30 a.m.-3:00 p.m.

Tailwater Ecology Workshop 8:30 a.m.-4:30 p.m.

EPA Clean Lakes Coordinators meeting

9:00 a.m.-5:00 p.m.

Lake and Watershed Management Education

Workshop - College Level Roundtable

Discussion 1:30-5:00 p.m.

Exhibit Areas Open 5:00-7:00 p.m.

Activities: Basketball Hall of Fame Reception

7:30-9:30 p.m.

Wednesday, November 7, 1990 - Breakfast &

Opening Plenary 7:00-10:00 a.m. On The
Origin of NALMS and its Future

Technical Plenary 10:30 a.m.-Noon (TBA)

Concurrent Technical Sessions 1:30-3:00 p.m.:

Diagnostic and Analytic Methods, Biological
Macrophyte Control, Nonpoint Source
Perspectives

Concurrent Technical Sessions 3:30-5:00 p.m.:

Nutrient Dynamics and Models, Erosion and
Sedimentation, International Water Resources

Activities: Clean Lakes Classic 5K Race 11:30 a.m.,

Old Sturbridge Village Tour and New England

Dinner Catered by the Publick House

5:30-10:30 p.m.

Thursday, November 8, 1990 - Concurrent

Technical Sessions 8:30-10:00 a.m.: Nutrient
Dynamics, Aquatic Vegetation Assessment,
Watershed Assessment

Concurrent Technical Sessions 10:30 a.m.-Noon:

Acidification Issues, Aquatic Vegetation
Assessment, Watershed Modeling

Concurrent Technical Sessions 1:30-3:00 p.m.:

In-lake Liming Experience, Toxics, Ecosystem
Perspectives

Concurrent Technical Sessions 3:30-5:00 p.m.:

Liming Adirondack Lakes and Watersheds,
Macrophytes, Modeling

Thursday, November 8, 1990 (Continued)

Activities: Tour of Berkshire County and Norman

Rockwell Museum 10:30 a.m.-4:30 p.m.,

Annual Meeting 5:00-6:00 p.m., Social

6:00-7:30 p.m., Annual Banquet 7:30-9:30 p.m.

Friday, November 9, 1990 - Concurrent Technical Sessions & Citizen Sessions (see*)

8:30-10:00 a.m.: In-lake and Watershed

Liming, In-lake Ecology-Methods, Watershed

Management, *Citizen Monitoring Panel

Concurrent Technical Sessions and Citizen Sessions

10:30 a.m.-Noon: Watershed Liming and Panel

Discussion, Watershed Management, Fishery

& Food Web, *Watershed Protection Planning

Concurrent Technical Sessions & Citizen Sessions

1:30-3:00 p.m.: NALMS Panel Open Forum,

Surface Water Supply, Fishery Management &

Food Web, *Shoreline Management

Concurrent Technical Sessions & Citizen Sessions

3:30-5:00 p.m.: NALMS Panel Open Forum,

Surface Water Supply, Fishery Management &

Food Web, *Lake Use Management

Activities: Tour of CT Valley and Quabbin

Reservoir 10:30 a.m.-4:30 p.m.

Saturday, November 10, 1990 - CITIZEN

SESSIONS - Registration 7:00 a.m.-3:30 p.m.

Lake Water Quality Assessment and Modeling

Workshop 8:30 a.m.-4:30 p.m.

Concurrent Citizen Sessions 8:30 a.m.-10:00 a.m.:

Panel Discussion-Developing Effective Lake

Management Organizations, Introduction to

Lake Ecology, Panel Discussion-Lay

Monitoring and Public Education

10:30 a.m.-Noon, Nuisance Aquatic Plants of

the Northeast & Their Management,

Watershed Management, Case Studies in Lake

Management

Lake & Watershed Management Education

Workshop-Primary & Secondary Level

1:00-5:00 p.m.

Concurrent Citizen Sessions 1:30-5:00 p.m.: Repeat

of morning sessions.

LAKE MANAGEMENT GUIDANCE DOCUMENTS

by William Morton
New York State Department of Environmental Conservation
Bureau of Water Quality Management

In the past few years, a number of excellent publications and reference manuals pertaining to lake management have been published. These "self-help" manuals can be extremely helpful in providing guidance to address lake management issues. It is strongly recommended that each lake association establish a lake management reference library and obtain these publications for inclusion therein. Individual lake association members should familiarize themselves with the concepts and principals in the guidance documents so that they can be conversant with state, county and local officials, planning board members, developers and others involved in activities which affect lakes. These are considered to be core documents on the subject of lake management which no lake management library should be without. The reference documents include:

"Diet for a Small Lake: A New Yorker's Guide to Lake Management"

This manual was written jointly by staff in DEC's Division of Water and the New York Federation of Lake Associations. It provides a planning framework for diagnosing lake management problems, and developing lake management objectives, and it describes various in-lake and watershed management techniques for achieving those objectives. It also provides guidance on how to evaluate alternatives and organize for action.

"Diet" is available at no cost to all affiliates of the FOLA. Additional copies for individuals and non-FOLA associations can be purchased by sending a check for \$12.00 payable to the FOLA to Holly Ioset of FOLA, 33 Albany Street, Cazenovia, NY 13035.

"The Lake and Reservoir Restoration Guidance Manual"

This manual was prepared by the North American Lake Management Society for the U.S. Environmental Protection Agency. As in the case of "Diet," this manual provides a planning framework to solve lake problems. The manual provides a process for defining a lake problem, predicting water quality, managing the watershed, and it also describes lake and reservoir restoration and management techniques. This manual may be obtained from the

North American Lake Management Society, 1000 Connecticut Avenue, N.W., Suite 300, Washington, DC 20036 (Telephone: 202/466-8550).

"Citizen's Statewide Lake Assessment Program (CSLAP) Sampling Protocol"

This protocol was prepared by the Department of Environmental Conservation to familiarize citizens with the "citizen's lake monitoring program" and with the procedures for taking water samples and sending them to the laboratory for analysis. The protocol can be obtained at no cost by contacting: Scott Kishbaugh, Lake Services Section, Bureau of Technical Services and Research, Rm. 301, NYS Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12233 (Telephone: 518/457-7470).

"Stream Corridor Management: A Basic Reference Manual"

Clearly, if lakes are to be protected, streams feeding lakes must likewise be protected. The "Stream Corridor Management Manual" identifies approaches, opportunities and techniques for restoring, protecting and enhancing streams. The appendix to the manual identifies sample ordinances which a community may adopt to protect stream corridors. This manual may be obtained at a cost of \$5.50 plus \$2.00 shipping from Health Research, Inc., Health Education Services Division, P.O. Box 7126, Albany, NY 12224 (Telephone: 518/439-7286).

"New York Guidelines for Urban Erosion and Sediment Control"

This guidance document was prepared by the Empire State Chapter of the Soil and Water Conservation Society (SWCS). The manual describes and provides specific design criteria for the full range of practices for controlling erosion and sedimentation from construction activities. The manual can be obtained for \$25.00 from any County Soil and Water Conservation District Office or by sending a check for this amount payable to the "SWCS" to the attention of Marilyn Stephenson, Rm. 201, Bureau of Water Quality Management, NYS Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12233 (Telephone: 518/457-6781).

"Stormwater Management Guidelines for New Development"

In order to protect lakes from the off-site impacts of development, it is absolutely essential to properly control stormwater runoff from developing areas in a lake watershed. The "Stormwater Management Guidelines" have been prepared by DEC's Division of Water. They contain specific guidance criteria for siting, sizing and designing stormwater management facilities which can be adopted as performance standards in local zoning regulations to protect water quality from development. These guidelines can be obtained from: Bill Morton, Rm. 201, Bureau of Water Quality Management, NYS Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12233 (Telephone: 518/457-6781).

"Nonpoint Source Assessment Report"

Published by the Department of Environmental Conservation in 1988, the "Nonpoint Source Assessment Report" identifies nonpoint source impacted waterbodies in New York State, including lakes. While this assessment report has been updated more recently in a county-by-county nonpoint source assessment, its chief value to lake associations is that it contains a description of the broad range of federal, state and local agencies which have a potential role in the control of nonpoint source pollution. This report can be obtained by sending a check for \$5.00 payable to NYSDEC to: Robin Warrender, Rm. 201, Bureau of Water Quality Management, NYS Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12233 (Telephone: 518/457-6781).

"Nonpoint Source Management Program"

The "Nonpoint Source Management Program" report, published by DEC in January 1990, outlines New York's strategy for addressing nonpoint source problems identified in the Nonpoint Source Assessment Program and subsequent updates. The chief value of this report is that it enables lake associations to become familiar with options and opportunities for preventing or remediating nonpoint source problems. This report may be obtained at no cost from Robin Warrender whose address and telephone number are given above.

"Plan for the Future of the Lake George Park"

This plan is a "policy plan" that was prepared in 1987 by numerous agencies and private groups under the auspices of the Lake George Park Commission. The "plan" identifies

major lake management problems and issues, including water quality, open-space preservation, public land acquisition, urban restoration and revitalization ... and more. Lake associations may relate to any number of problems and issues identified in this plan and learn how they are being addressed at Lake George. The "plan" can be obtained at no cost from the Lake Services Section, Bureau of Technical Services and Research, Rm. 301, NYS Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12233 (Telephone: 518/457-7470).

"New York State: A Morphometric Atlas of Selected Lakes"

This atlas contains maps and morphometric information and fisheries information for selected lakes having public access in DEC Regions 1 through 6. The "atlas" can be obtained for \$2.50 from the Lake Services Section, Bureau of Technical Services and Research, Rm. 301, NYS Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12233 (Telephone: 518/457-7470).

"Starting and Building An Effective Lake Association"

This manual was prepared by the North American Lake Management Society and it describes the steps for organizing an effective lake association. The manual also briefly describes how lake problems can be identified and how to begin planning to address lake problems. The manual can be obtained at no cost from the North American Lake Management Society, 1000 Connecticut Avenue, N.W., Suite 300, Washington, DC 20036 (Telephone: 202/466-8550).

"Mechanical Control of Aquatic Weeds: A Guide for Lakeshore Owners, Lake Associations, Municipalities and Individual Pond Owners"

This guide contains a description of aquatic plant types, their value and factors which accelerate weed growth. The guide also describes how to plan for aquatic weed control and weed control techniques. The "guide" can be obtained at no cost from the Lake Services Section, Bureau of Technical Services and Research, NYS Department of Environmental Conservation, Albany, NY 12233 (Telephone: 518/457-7470).

Milfoil Summit Meeting

Many people are overwhelmed when faced with milfoil growth in their lake. This aquatic weed is an ecological menace invading lakes throughout the state. The mechanical methods, such as harvesting, that are currently used in New York State to control milfoil can be costly and ineffective for long-term control. Additionally, mechanical methods must be repeated year after year.

If we are going to win the battle against milfoil, lake associations in New York State must work together and share information that will help solve the problem. The Lake George Association is now working to organize a state-wide conference on milfoil to help identify solutions, to promote better networking and to facilitate the exchange of information. We hope you will join us!

Who Should Attend?

People who have a milfoil problem in their lake, or are susceptible to the problem due to the existence of milfoil in neighboring lakes. People who are involved in solving the problem.

Topics for Discussion at Milfoil Summit Meeting

"Weed versus lake...who wins?" Biological requirements of milfoil.

"The Spread of Milfoil in New York Lakes": An historical review of the spread of milfoil in NYS lakes.

"Pulling, Cutting, Covering and Vacuuming": Experienced aquatic plant managers will discuss the pros and cons of these mechanical methods for milfoil control.

"Chemical Control Methods": Aquatic plant managers who have used chemical controls will discuss the pros and cons of various chemicals in controlling Eurasian Milfoil.

"Future Possibilities": An examination of the innovations being developed to control Eurasian Milfoil.

"Government Red Tape": What are the permitting requirements for mechanical and chemical

methods? What is the chemical registration process for aquatic herbicides and the problems associated with it?

"Developing and Implementing an Aquatic Management Plan": How to develop an aquatic management plan for a lake that deals with both sides of the problem; controlling the nutrients and eliminating the plants.

"Public Relations": How to organize lake associations to solve problems, and to work with and influence state and local officials.

"Next Steps": An audience discussion on what steps, if any, the individual lake associations, the Federation of Lake Associations as a group, or New York State should take to better control the spread of Eurasian Watermilfoil in New York State lakes.

* * * * *

If you might be interested in attending, please complete the following form and return it to the Lake George Association at P.O. Box 408, Lake George, NY 12845, (518) 792-6112.

Name _____

Lake _____

Address _____

Phone (____) _____

What month would be good to hold conference?

What central city should the conference be held in?

If you have other topics that you feel we should explore, or if you know of someone we should have speak, please mention them below:

* * * * *

The Nature Conservancy's Adopt An Acre Program

Students in several schools throughout the state have helped to save acres of tropical rainforest through successful fund raising efforts. This money, which was donated to the Nature Conservancy's "Adopt An Acre" program, will allow the Conservancy to work side by side with local Latin American conservation groups to acquire critical lands, develop educational programs, and hire staff to manage these areas.

For every \$30.00 donated to the Adopt An Acre program, donors receive an honorary land deed which specifies the location of the adopted acre as well as the name of the local conservation authority. Even more significant, donors gain the satisfaction of knowing that they have played a direct role in preserving the wondrous diversity of our rainforests.

For more information on this new program, write to the Nature Conservancy, Adopt An Acre Program, 1815 North Lynn Street, Arlington, VA 22209.

The Federation of Lake Associations

We are a coalition of organizations dedicated to the preservation and restoration of all lakes, ponds and rivers throughout New York State. We welcome and encourage the memberships of lake associations, property owner groups, fish and game clubs, corporations and individuals. The Federation is incorporated under two mirror organizations with the same officers and board of directors.

The Federation of Lake Associations, Inc. purposes are:

- * to provide a clearinghouse of environmental information and expertise in all matters pertaining to lake management.
- * to promote by education the wise use and appreciation of the lakes in New York State.
- * to provide a pool of technical knowledge and expertise to advise and assist member associations and individuals.
- * to establish liaison with other environmental groups and agencies.
- * to provide a coordinating structure for lake-related research projects.

The Federation of Lakes, Inc. purposes are:

- * to monitor and report to members on legislation and administrative actions affecting the waters of New York State.
- * to support and lobby for legislation and administrative actions which promote the sound management of the waters of New York State.

MEMBERSHIP CATERGORIES

Associations with up to 99 members	\$30.00/yr.
Associations with 100 to 199 members	\$50.00/yr.
Associations with 200 or more members	\$100.00/yr.
Individual	\$15.00/yr. Corporate \$100.00/yr.
Additional Copies of <i>Waterworks</i>	\$.50 each

Membership dues over \$5.00 are tax deductible contributions to the Federation of Lake Associations, to be used for educational, scientific and public information activities of the Federation.

APPLICATION FOR MEMBERSHIP

THE FEDERATION OF LAKE ASSOCIATIONS, INC., 273 HOLLYWOOD AVE., ROCHESTER, NY 14618

Type of Membership (please check)

☐ Association

☐ Individual

☐ Corporate

Association Name: _____

Assoc. Address: Street _____ City _____ State _____ Zip _____ County _____

President/Contact Person: _____

Summer Address _____ Winter Address _____

Summer Phone () _____ Winter Phone () _____

Total number of newsletters requested of each issue: _____

The Seven Creeks Watershed Project

The Seven Creeks Watershed Project, involving eight communities in western New York's Niagara and Erie Counties, has published a 200 page community guide to water and land resource management. The guide, titled *Local Guide to Water Resource Management in New York State*, includes references to existing model programs across the state, a summarization of federal, state and county regulations, standards and permit requirements, maps and other environmental inventory data for the watershed.

A copy of the guide is available free upon request to municipalities in Erie and Niagara County. Contact Margaret Wooster, Erie and Niagara Counties Regional Planning Board, 31303 Sheridan Drive, Amherst, NY 14226-1983 (716) 837-2035.

A Conference on Global Climatic Change

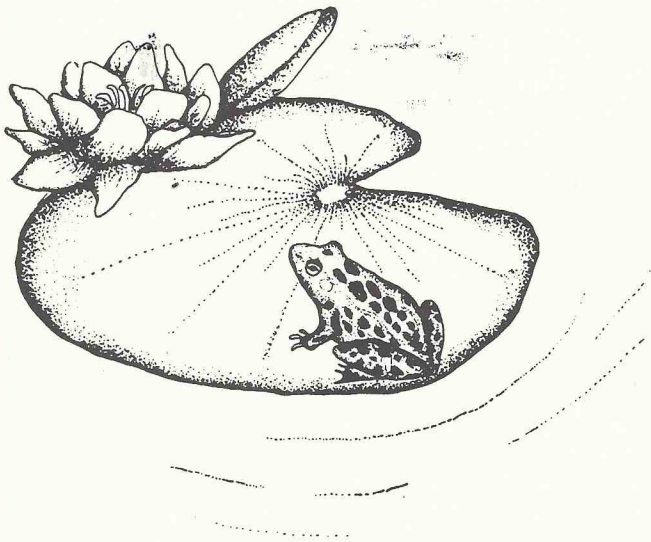
"Global Climate Change: The Economic Costs of Mitigation and Adaptation", the seventh annual conference of the Center for Environmental Information's Air Resources Information Clearinghouse, will take place December 4-5, 1990 at the Washington Plaza Hotel, Washington, D.C.

Conference topics will include: Current Analyses of Economic Costs; Benefits of Mitigation and Adaptation; Methods of Analyses; How Should We Address Economic Costs of Climate Change?; What Are The Uncertainties?; and International Perspectives.

The conference registration fee is \$225 until November 9, 1990, \$300.00 thereafter. For more information on the program or registration, contact the Center for Environmental Information at (716) 325-5131.

Federation of Lake Associations, Inc.
273 Hollywood Avenue
Rochester, New York 14618

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