

THE INFORMATION EXCHANGE

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Finger Lakes - Lake Ontario Watershed Protection Alliance

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Stewardship Efforts in Hemlock and Canadice Lakes Watershed

by Donald P. Root, Watershed Conservationist, City of Rochester, Department of Environmental Services

Since 1876, Hemlock and Canadice Lakes have provided a safe, reliable source of drinking water to some 250,000 people in the City of Rochester and surrounding towns. A multi-tiered approach to water quality protection combines filtration and watershed protection to assure the future availability of this valued resource.

Construction of a water filtration plant at the outlet of Hemlock Lake was completed in 1993 to meet stricter turbidity standards. Filtration provides an important safeguard for water supply customers, though it does not replace watershed protection. Conservation of the City of Rochester's undeveloped 7,000+ acre property around Hemlock and Canadice Lakes, constituting 18 percent of the watershed area, remains a key component of water supply maintenance. High quality "raw" water provides greater public health security, allows for more efficient filtration, and results in higher quality "finished" water for consumption. For the City of Rochester, preventing pollution is preferable to treatment. Eighty-two percent of the watershed area for these lakes is privately-owned and, while much of the land is undeveloped, some of the towns in the watershed do not any zoning regulations.

The New York State Department of Health's requirement that the water filtration plant be built to meet turbidity standards for drinking water supplies helped to spur the formation in 1985

of a public and private advisory body called the Upland Watershed Advisory Committee. The committee developed a number of recommendations for watershed protection, including the revision of a forest resource management plan. The City of Rochester implemented a number of these recommendations and stepped up its watershed stewardship efforts in the following years. In a 1993 resolution, Rochester City Council stated about property in the Canadice and Hemlock Lakes watersheds, "Properties should be maintained in a natural, undeveloped state..." and "Forest management, watershed practices, regular maintenance, and recreation activities should be conducted in a manner that recognizes and preserves the unique and sensitive environment of the watershed."

In 1993, the City adopted a revised Forest Resource Management Plan. Developed by forestry consultant Bruce Robinson, the primary goal of the plan is safeguard high quality water by maintaining a healthy, varied forest. A dynamic, vigorous and vital forest acts as a filter for water, trapping soil particles which might otherwise be deposited in the lake as non-point source pollution. The trapped soil instead combines with organic debris (leaves, branches, animal waste, etc.), to form a forest litter layer that helps promote successful sprouting of seeds, and thus continuation of the forest energy cycle. Ongoing implementation of the Forest Resource Management Plan has included thinning conifer or hardwood stands and selective timber harvesting. Plastic protector tubes are used on trees of desirable species to help promote forest diversity. In addition, shoreline vistas have been enhanced and a minor trail system developed, which encourages public appreciation for the resource.

Currently underway is an inventory of natural plant commu-

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nities throughout the watershed (including private and public land). This project is being conducted by the Nature Conservancy in cooperation with the Finger Lakes Land Trust and under contract with the City. The inventory will provide information and insight on the ecological health of the area and hopefully encourage conservation of private land holdings.

The City has also undertaken a joint project with the NYS Department of Environmental Conservation Wildlife Bureau to develop new and enhance existing wetlands on City watershed property. The intent is to create additional areas of open water valuable to wildlife, to maintain existing desirable habitat conditions, and to allow better access for visitors to these areas. In 1995, small ponds or potholes (<1 to 5 acres) were developed at a number of sites in the watersheds. At the south end of Canadice Lake a series of potholes was excavated through a wooded wetland with the spoils used to create an elevated trail. Care was taken to minimize impact to the surrounding area. The short trail leads to a wetter site dominated by speckled alder where a small loop trail was built. The result is an opportunity to enter a wooded wetland during high water times in relative comfort. Songbirds, amphibians and reptiles are numerous. The new loop area now retains water throughout the year thereby providing a feeding and rest opportunity for migrating waterfowl and shore birds. Green herons have been frequently sighted since the work was completed.

Similar wetland enhancement was done in Springwater Flats

south of Hemlock Lake. Most of the area is densely covered with grasses or cattails. Work done at various sites in the Flats reintroduced a small amount of open water, to improve habitat, provided better access to a section of Springwater Creek, a popular trout stream, and an overlook with a spectacular view up the lake valley.

Some of these modified wetland sites and associated trails are illustrated on the small map provided with the 1997 Watershed Visitor Permit. The Visitor Permit is another tool to promote protection of the watersheds and lakes. Free of charge, it lists conditions which visitors are expected to observe while on City property. Activities such as fishing, birding, hunting, hiking, and boating are allowed. Boats may not exceed 16' length nor 10 horsepower motors. Swimming is strictly prohibited. Most visitors obtain a permit at a self-serve kiosk on Rix Hill Road at the north end of Hemlock Lake. Approximately 20,000 permits are distributed annually.

Stewardship of these unique lakes and watersheds is important to many communities for multiple reasons. Rochester will bear its share to protect public drinking water through watershed stewardship. For more information contact City of Rochester Water Bureau, Department of Environmental Services, Hemlock Operations Center at (716) 367-3160. **q**

Watershed Education for Seneca County Kids

by Mary Catt, Seneca County Water Quality Committee

The Seneca County Water Quality Committee's watershed stewardship program reached more than 800 elementary school students in 1997 and expands in 1997-98 to include high schools. Committee members have been encouraged by student response, such as a thank-you letter written by a third-grader named Chelsea who wrote, "Until you came in, I didn't even know what 'watershed' meant". The committee designed, implemented, and improved this program with minimal resources, learning that watershed education is fun, messy, and well-received by youth.

The seeds for the program were cast in 1994, when committee members started gathering a library of curricular materials and began talking to teachers about the most effective way to teach children about non-point source pollution. In 1996, the program debuted with a bucket of water, a tarp, two members and a tent. Forty minutes later, the experiment needed a good volunteer educator had learned their lesson; the experiment needed streamlining, but its essence was pure. Students could learn how soil and water shouldn't mix. The lesson did not take a lot of time, money or professional background. It just needed some tweaking.

A "watershed" made from styrofoam packaging that had once protected a computer made the rounds to several other classrooms that year. Students hunched over the styrofoam mold, which represented land area in a watershed, balanced on a plastic wash basin holding a "lake". They packed soil on the rim and watched how water quality quickly diminished in the basin when hit by a "rain event" poured from a watering can overhead. Next, the students created a clean lake, and covered the watershed soil with stones and straw for "vegetation". The concoction was held in place by "tree roots" — students' fingers. A second rain event demonstrated how water quality can be protected by controlling erosion in a watershed.

In 1997, the refined program expanded to reach more than 800 students in all four Seneca County school districts and its two Catholic schools. Six committee members visited schools for hands-on sessions averaging one hour in length. Teaching materials now include a large green tarp for the watershed and Finger Lakes and streams made out of pieces of a blue tarp.

The theme was enlarged to watershed stewardship. Five-

In 1997, the refined program expanded to reach more than 800 students in all four Seneca County school districts and its two Catholic schools.

hundred youngsters received Austrian pine seedlings, purchased by the committee, to plant at home. Many students also received related homework assignments from their teachers. Students were asked to talk to their parents that night about watershed stewardship and to identify their home's watershed address on maps designed by the committee. The students were also asked to bring up in conversation the subject of watershed stewardship whenever they passed any of the 14 watershed signs installed on state roads in 1997 by the Seneca County Water Quality Committee.

The Information Exchange

is published by the Water Resources Board (WRB) of the Finger Lakes Association, a group of representatives from 24 counties in upstate New York which comprise the Finger Lakes - Lake Ontario Watershed Protection Alliance (FL-LOWPA) funded by New York State. The primary purpose of the WRB is to coordinate management activities and exchange information between participating members related to the condition of surface water bodies in New York's Lake Ontario Basin.

WRB Chairperson
Jim Skaley

FLA Executive Director
Conrad T. Tunney

TIE Editor
Betsy Landre

Submission of articles, essays, letters and artwork is invited and encouraged.

Address all queries and submissions to:

TIE
Water Resources Board
309 Lake Street
Penn Yan, New York 14527

In September 1997, an adopt-a-watershed project sponsored by the committee begins along the western shores of Cayuga Lake. Fifty-five tenth grade biology students in the Seneca Falls School District will monitor the watershed, identify and implement solutions for problems, and report their findings to the public.

More information about the Seneca County Water Quality Committee, its education project and other efforts are available by contacting Nancy L. O'Connor, at 315-568-4366. q



A Growth Year for FL-LOWPA: Notes from the Chair

by Jim Skaley, Chair, FL-LOWPA

FL-LOWPA and the Water Resources Board have had a busy year. The 5th annual conference, in Rochester jointly sponsored with the Water Quality Board of the International Joint Commission, DEC and others was a major success and represented our first two-day conference. In the coming year we hope to build on this success in several ways. First, the Water Resources Board is negotiating Memoranda of Understanding with key regional watershed partners in the Lake Ontario Basin including the DEC, New York State Association of Regional Councils (NYSARC), and the New York State Soil and Water Conservation Committee. As of this writing, agreements have been constructed with the State Committee and DEC, and a substantial consensus has been reached with NYSARC. The intent of the MoUs is to formalize agreement to cooperate where possible in the protection and management of water resources in the Finger Lakes and Lake Ontario regions. These partnerships should allow for closer collaboration on future initiatives, such as FL-LOWPA's conference series, and linking grassroots and county-based programs with regional and basin perspectives. There is a very large job to do as we move to integrate watershed management across counties in the Finger Lakes-Lake Ontario Basin; we welcome these new relationships in this joint effort.

The 1997 Fall Conference will be in Geneva on September 30 and October 1. The program highlights the two largest Finger Lakes — Cayuga and Seneca — and the Oswego River drainage system. We begin in 1997 the second five-year cycle of conference series. Conferences in the first cycle focused on visioning, developing twenty-five year visions of what communities around the region's lakes and river basins wished for their watersheds. As we approach the millennium, the second cycle of the conference series will promote action plans to assure that the interests expressed in earlier conferences are supported. The 1997 conference focuses on identifying resources and tools and building partnerships to support action plans. New initiatives for Seneca and Cayuga Lakes will be discussed at the conference. A intermunicipal, interagency group initiated by Seneca Lake Pure Waters Association is developing a watershed management plan for the Seneca Lake watershed. The joint effort is known as Seneca Lake Area Partners in Five Counties. A watershed organization called the Cayuga Lake Watershed Network is meeting regularly and getting organized.

In addition, the WRB recognizes that without a healthy local economy, efforts to manage watersheds are going to be more difficult. In this year's conference program, there will be presentations and discussions aimed at linking the natural resources provided by the area's lakes and streams to local economic interests. With investments being planned or made in the NYS Barge Canal, tourism, revitalizing the

upstate economy and a changing agriculture picture, it is important that water quality and watershed concerns be a part of the public dialogue so that we have both a healthy, sustainable economy and an environment which supports the quality of life we currently enjoy in upstate New York. We hope this year's conference will give these efforts a boost. We also want to celebrate the hard work and successes which have occurred in watershed management to date. I hope you will join us in Geneva September 30 and October 1, and contribute to the dialogue.

The WRB is embracing the electronic era. We now have an e-mail address at wrb@eznet.net. With the assistance of Steve Pacenka at the New York State Water Resources Institute at Cornell University, we are establishing a page on the World Wide Web which will give both members and the broader public a means to stay abreast of the Water Resources Board and water-related events going on around the basin. In addition, the WRB has entered into a cost-sharing agreement with the United States Geological Survey (USGS) to develop a basin wide water resources Geographic Information System. Initially, with the cooperation of our member counties, USGS will build a meta-data database describing what electronic information for various watersheds within the basin. Building a cooperative GIS database is a long-standing goal of the WRB and we look forward to being able to share this exciting new tool as it develops in the next two to three years.

As a member of the WRB for nearly ten years and as Chair during the last two years, it has been a pleasure to watch the Finger Lakes - Lake Ontario Watershed Protection Alliance grow into an effective 24-county organization with broad recognition around the State. The counties in the three Regional Alliances within FL-LOWPA are now developing regional programs just as the WRB, the governing body of FL-LOWPA, considers building a basin management plan based on grassroots consensus.

Each FL-LOWPA member county has individual watershed concerns, and varying political and resource interests which must be mobilized to address these concerns. WRB members representing FL-LOWPA counties have worked hard to develop local programs which attract local communities' interest and support. Paraphrasing Senator Maziarz, on the jigsaw puzzle metaphor he presented at our 1996 conference (see page 5), watershed management is a puzzle with many pieces. It takes many players to identify the pieces and bring them together to form a coherent "whole". I am encouraged that the pieces are being identified and the picture becomes clearer as our work progresses.

Finally, but significantly, the growth and cooperation I have described above could not have taken place without the consistent funding support of the New York State Legislature. The WRB extends its appreciation to our legislative supporters who have often made difficult budgetary decisions to maintain their support.

Regards,
Jim Skaley

The Puzzle Of Watershed Management

The Honorable George D. Maziarz, New York State Senate, 61st District

In his opening remarks at FL-LOWPA's fifth annual conference on October 19, 1996 in Rochester, New York, Senator George D. Maziarz likened watershed management to the process of putting together a jigsaw puzzle. This metaphor was well received as an easily understood framework for discussing cooperative watershed management across the Lake Ontario Basin. Senator Maziarz' remarks are reproduced in their entirety below for the benefit of our readership, which represents several "institutional pieces" of the watershed puzzle. A report of the fifth annual conference is available from the Water Resources Board at (315) 536-7488 or e-mail wrb@eznet.net.

Good Morning! It's a genuine pleasure for me to be with you this morning and to have the opportunity to welcome you to this conference on "Linking Local Watershed Management Efforts across the Lake Ontario Basin." This is the fifth annual conference sponsored by the Water Resources Board and I congratulate the Board on its wisdom and initiative in bringing people together to pool resources, expertise, and experience. I also want to wish the newly expanded and renamed Finger Lakes-Lake Ontario Watershed Protection Alliance the best of success in achieving the goals that we all share. I also thank all of you for taking a Saturday to devote to planning and problem solving on behalf of the Lake Ontario basin ecosystems and all of us who call it home.

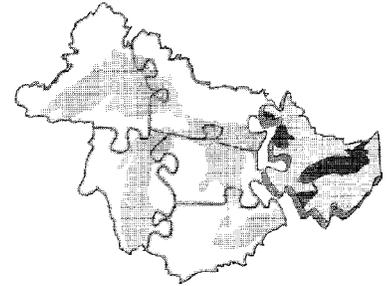
The values of watersheds are no secret to anyone here today. Among many other values, they provide:

- Natural flood and erosion control
- Water quality maintenance
- Groundwater recharge
- Biological productivity and diversity
- Fish and wildlife habitats
- Historical and archeological values
- Environmental and outdoor education
- Agricultural productivity
- Recreational and tourism opportunities

New York State's two largest industries, agriculture and tourism, depend on healthy watersheds. Combined with all these other values, there is no downside to effectively protecting and managing them. Just like everything in watershed ecosystems depends on each other to thrive, so do local communities in a watershed need each other to realize full economic, water quality, educational, and environmental benefits from the watershed. The state and federal agencies and the international programs need the communities, and on it goes. We're pretty much all in this together; we have to be.

Let me share with you a metaphor, simplistic, perhaps, and not perfect, but I think illustrative of what effective watershed management efforts need to reflect. I want you to picture yourself doing a jig saw puzzle. You know, when you're putting together a jig saw puzzle, you have to do two things simultaneously and constantly, or you'll never be successful in completing the task. First, you have to pay close attention to those individual small pieces to discover how their unique edges fit

together, how they compliment each other and where they rub each other the wrong way. Pretty soon, you have these little islands of matching pieces all over the table top, seemingly unconnected to each other except that they're on the same table, but that's OK, because each one of these little growing islands of complimentary pieces gives you a glimpse of the whole image that you're aiming for. The payoff is in figuring out how to connect everything to produce that final image, and so you can't leave any pieces out and you have to constantly look for linkages.



How do you do this? You're able to have confidence in this multi-faceted approach only to the degree that you are simultaneously being guided by the larger image, by the understanding of how it's all contributing to the "big picture". Discovering the "fit" of the pieces while being guided by the larger image is the only way you're ever going to complete that complex puzzle.

The management of the Lake Ontario basin sometimes seems like a really advanced jig saw puzzle, doesn't it? One of those two-sided, 2,000-piece jig saw puzzles. On one side, the pieces fit together to produce an understanding of the integrated complexity of the watershed ecosystems and the consequences of human activity on them. The more of these pieces that we can fit together, the clearer understanding we'll have of what needs to be done and how to do it effectively and economically.

On the other side, the pieces fit together to reveal the multiple, collaborative and multi-jurisdictional efforts to clean-up, manage, and protect the Lake Ontario watershed. Watershed and political boundaries often overlap. Furthermore, different components of a watershed are usually administered by different agencies. Yet restoration of an aquatic ecosystem, for example, requires that the management of all significant ecological elements be coordinated in a comprehensive approach. It may often seem like a frustrating if not impossible challenges to fit the edges of some of these pieces together, but with cooperation, tenacity, and creativity, the fit will be discovered.

An example of a really nice fit is the Finger Lakes-Lake Ontario Watershed Protection Alliance, now 24 counties strong. With shared resources and a common vision while preserving local decision making on priorities and programs, the Alliance's successful efforts will be multiplied and will serve as a role model for other watershed communities.

Another powerful fit is represented in this room today. Each of us who care deeply about the Lake Ontario basin has different strengths that we bring to the effort to clean-up, to protect, and to manage the watershed. We should celebrate and appreciate them all. For example, probably everyone in this room knows more than I do about the scientific and social aspects of watershed management, and your research is fundamental to any commitment of action. Some of you are experts of the history,

details, and implementation strategies of the multiple programs, initiatives and agreements that are attempting to build public participation, consensus and action on behalf of the basin's water quality. Perhaps you were even a player in the creation of these alliances and collaborations. Others of you are community members caring enough to participate in decision making processes at the local level. Others are educators connecting school children with their watershed heritage.

And some are like me, a public servant able to influence, as much as I can, the legislature's awareness, commitment, and support of efforts to complete the watershed jig saw puzzle. I was thrilled to have been part of the successful effort to secure \$1.2 million in this recent budget for the Finger Lakes-Lake Ontario Watershed Protection Alliance.

Watershed protection and management is a puzzle that takes commitment, cooperation, and collaboration. It makes sense from a health perspective. It makes sense from an economic perspective. And it makes sense from an environmental perspective. It also makes sense from a quality of life perspective because prevention is proactive; remediation is reactive. There is certainly cause for great pride in accomplishing the difficult task of addressing existing problems in the watershed and

cleaning them up. There's no getting around engaging these challenges.

In tandem with this, however, we need to be proactive in determining the vision we want for our communities linked by our common watershed and we need to be inclusive in our actions to effectively bring this vision about. If citizens and their communities are involved meaningfully, and efforts are made to integrate everyone's contribution to watershed planning and management, the results will be powerful indeed. The heritage of a community is linked to its past, present, and future relationship with the land... its soils, its waters, its biodiversity, its geology...all of the natural and physical pieces. Is watershed management and protection worth doing? I'd prefer to let our great grandchildren answer that, but I think I know what their answer will be.

Again, let me welcome you and thank you for coming together today to brainstorm and strategize to complete the jig saw puzzle of Lake Ontario watershed management. It's a puzzle that, together, we can complete, and the final picture will be a healthy Lake Ontario basin. q

Keeping up with 1996

Clean Water/Clean Air Bond Act

by Jonathan E. Cohen, Esq. and Robert H. Feller, Esq., Feller and Ferantino

Making the Most of Bond Act Funding

The 1996 Clean Water/Clean Air Bond Act should be of great interest to those interested in enhancing and protecting the quality of the waters of New York State. Over the coming years, hundreds of millions of dollars will be spent on projects ranging from aquatic habitat restoration to dam safety, from open space protection to pollution prevention initiatives. A wide range of municipalities and, in some cases, not-for-profit groups are eligible for funding under the Bond Act.

Those contemplating applying need to adopt a strategy that will give them the best chance for success. First, applicants need a strategy for determining which projects should be pursued. Unfocused approaches run the risk of scoring few successes or successes on low-priority projects.

Applicants then need to examine how best to develop the proposal so as to meet government criteria for prioritization. In the formative stages of Bond Act implementation, opportunities exist to influence and shape of the criteria that are adopted. Hence, applicants who know what they want may be able to help their cause by influencing the criteria by which their projects are judged.

Applicants who apply early may also experience greater flexibility from the State agencies that are responsible for administering the grants. This pattern has been seen in other programs. For instance, early participants in the state Department of Environmental Conservation's Voluntary Cleanup Program (for contaminated land) were able to work with DEC in a more flexible fashion than was later possible as the agency's program became

more fixed. Draft rules are already proposed for the projects managed by the Office of Parks, Recreation and Historic Preservation (Park, Historic Preservation and Heritage Area Projects).

Those interested in obtaining Bond Act funding will substantially improve their chances by staying tuned in to regulatory developments at the implementing agencies. The need to appreciate the fact that these programs are new and are in an evolving state cannot be over-emphasized.

Applicants should also understand and take into account the non-Bond Act aspects of Bond Act projects. For instance, permitting requirements and environmental impact review are not dispensed with merely because a project receives Bond Act funding. Similarly, pre-existing non-compliance issues may need to be addressed. Applicants may want to be particularly sensitive to nonpoint source pollution situations which are not currently in violation of rules but which may require attention in the future as state and federal rules tighten up.

The Bond Act represents a tremendous opportunity for communities and not-for-profits. Like any other opportunity, those who position themselves to exploit it the best will benefit the most. The following is a summary of the basic provisions relating to the Bond Act programs discussed above. Anyone interested in additional information should contact Feller & Ferrentino.

* * * * *

Funding Categories, Eligibility and Criteria

(continued on page 7)

This section serves as a reference for potential applicants by identifying funding categories and basic project eligibility information that should be of particular interest to organizations involved in protecting and enhancing water quality. (Note that this article does not address the Bond Act's "Safe Drinking Water Projects," which are for municipal and private drinking water suppliers.)

In August, the state issued a packet titled "Information for Applicants" and an application packet. (The application is also available from the DEC's Division of Water on computer disk.) The current round of applications was due October 20.

The three agencies responsible for implementing the Bond Act's Clean Water Projects — the DEC, the Department of State, and the Department of Agriculture and Markets — categorize the projects under six categories: (1) Management Programs, Plans & Projects, (2) Dam Safety, (3) Agricultural Nonpoint Source Abatement and Control Programs, (4) State Parks, (5) Local Parks, Historic and Heritage Area Preservation, and (6) Open Space and Farmland Protection projects. The programs vary considerably in terms of funding, eligible applicants, and criteria.

Management Programs, Plans & Projects

This broad category of funding is geared toward projects that have been identified in existing waterbody management plans. More than \$500 million is allocated for "water quality improvement projects" under existing management plans. Four categories of projects are eligible:

- Wastewater treatment improvement projects;
- Nonpoint source abatement and control program projects developed under state or federal law (agricultural NPS programs are discussed under a separate heading below);
- Aquatic habitat restoration projects; and
- Pollution prevention projects.

The Bond Act provides \$25 million for water quality improvement projects for the Finger Lakes and their tributaries. Eligible programs must have been approved under either the Department of State's Waterfront Revitalization program or by the DEC. The DEC will develop a set of detailed maps to determine whether a proposed project is precisely within an approved plan.

In addition to allocating funding for the Finger Lakes, the Bond Act also earmarks money for the Hudson River Estuary, Long Island Sound, Lake Champlain, Onondaga Lake, New York/New Jersey Harbor, the Great Lakes, and the Peconic Estuary.

While much of the available money is earmarked for specific waterbodies, an as yet undetermined amount will be available for waters throughout the state under a "catch-all" category. Under this category, payments are available for any waters of the state that are either approved by the DEC; identified in plans under the federal Coastal Zone Management Act or the state Coastal/Inland Revitalization law; or included in a soil and water conservation program for agricultural NPS abatement and control. Inclusion in a comprehensive waterbody management plan, such as a regional or inter-municipal plan, is an important factor for eligibility under this category.

The Bond Act makes two additional special allocations of funds. First, the Act earmarks \$50 million for wastewater treat-

ment improvement and municipal flood control in villages, towns and cities with a population of less than 75,000. Second, the Act allocates funds for the state Environmental Facilities Corporation to assist villages, towns and cities (population less than 1,000,000) in implementing small business environmental compliance projects to enhance water quality.

Eligibility

Municipalities and soil and water conservation districts are eligible to apply for and receive payments under these provisions. The Act defines "municipality" broadly so as to include any local public authority or public benefit corporation, county, city, town village, school district, supervisory district, district corporation, improvement district within a county, city, town or village. It also includes a group of these acting together.

The application must include a cover letter, the application form, and a municipal resolution (a sample appears in the aforementioned Information to Applicants packet). In reviewing applications under these programs, the agency must consider the following general factors:

- suitability and feasibility of the project in relation to the goals of the applicable program or plan;
- priority of the project in relation to other proposed under the same program or plan, give highest priority to those projects that provide the greatest reduction in pollutant or most significant habitat improvement;
- availability of matching funds, which the applicant must submit proof of; and
- urgency of the need for state assistance, taking into account other funding sources, including federal money.

The *Information for Applicants* packet outlines additional project-specific criteria. The packet also identifies the relevant management plans and their priorities. Project selection will follow the guidance contained in the relevant management programs, plans and projects for each waterbody. Activities not closely associated with actual implementation of the plans are less likely to be funded. Other activities (navigational dredging, notably) may be ineligible for Bond Act funding.

As there is no comprehensive management plan for the Finger Lakes region, projects will be evaluated based on (1) their identification in the plans approved by the DOS or DEC and (2) their consistency with the project-specific criteria. The same is true of applications for projects under the catch-all category.

Projects deemed eligible will be reviewed using a scoring system. The score includes three components: the severity of the source of pollution or disturbance; the level of water quality improvement that will be attained (this factor is in turn based on the classification of the receiving waters, the impairment of the desired best usage of the water, and the potential improvement of the waters); and the priority of the project as identified in the relevant management plan. (See Information Packet, Appendix 3.) Projects in the Finger Lakes are at a disadvantage in that the most points they are eligible for under the third component is 25, whereas high and secondary priority projects in management plan areas receive 200 or 100 points respectively. Applicants should therefore pay particular attention to the other components of the system. A draft list of projects will be prepared for each waterbody area, at which point there will be an opportunity

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for public input. Finally, award decisions will be made.

The state share varies based on the type of project. For Wastewater Treatment Improvement projects, the share is up to 85 percent; for nonagricultural NPS abatement and control, up to 50 percent; for aquatic habitat restoration and pollution prevention projects, up to 50 percent.

Costs associated with preparation and submission of the application are not eligible. However, appraisal, surveying, engineering and architectural services, plans and specifications, consultant and legal services, and other direct expenses incident to a project, less any federal or state funds, are eligible. Project costs incurred after November 5, 1996 are eligible.

The local share can include cash contribution and in-kind services, including overhead, municipal supplies, and materials. However, the local match must be provided between the start and completion dates of the project.

Dam Safety Projects

The Bond Act allocates \$15 million for payments to municipalities for projects to rebuild or remove dams, as approved by the DEC. Municipalities that own dams, or are willing to own abandoned properties with dams, are eligible.

DEC has indicated preference will be based on hazard class (B or C) and deficiency status, as well as project status, municipal willingness to assume ownership, and the ultimate use of the impoundment, i.e., public uses will be viewed favorably. The normal state payment will be 75 percent of cost up to \$250,000, 90 percent funding is available for municipalities willing to assume ownership.

Agricultural Nonpoint Source Abatement and Control Programs

Projects under this category have been, and continue to be, funded under the Environmental Protection Fund. The category refers to programs developed by soil and water conservation districts to reduce, control and prevent nonpoint source pollution, generally through the use of "best management practices."

County soil and water conservation districts, or groups of districts acting jointly, are eligible. The state will fund up to 75 percent of project costs, or up to 90 percent with a landowner or operator contribution.

An application packet issued by the Department of Agriculture and Markets in August contains details on eligibility, the application process, and project selection. Preference will be given to projects associated with priority water bodies that can be completed within a year of contract execution. The application packet identifies ten additional factors. Applications will be voted on by members of the State Soil and Water Conservation Committee.

Local Parks, Historic and Heritage Area Preservation

Fifty million dollars is allocated under this program, which will be administered by the Parks department. Municipalities and nonprofit corporations are eligible. Up to 50 percent funding is available for park, historic preservation or heritage area projects. The projects must develop, enhance or expand public access to a water body, promote water-based recreation, enhance a water

body, or promote historic preservation.

Open Space Projects/Farmland Protection

DEC and the Parks department may engage in open space land conservation projects — buying land or conservation easements — that develop, expand or enhance water quality protection or public access to water bodies. A municipality, nonprofit or unincorporated association can agree to maintain and operate such projects. The program is to be based in large part on the state Open Space Plan; localities may veto state acquisition of land not identified in the plan.

The Department of Agriculture and Markets may provide assistance to county agricultural and farmland protection boards, or, where they have in place a local farmland protection plan, to municipalities, for projects identified under the relevant Agricultural and Farmland Protection Program. The Department RFP indicates that priority will be given to proposed projects that (a) preserve viable agricultural land, (b) are located in areas facing significant development pressures, and (c) provide buffers for significant natural public resources containing important ecosystem or habitat characteristics. The RFP identifies additional criteria.

Non-profit organizations may participate in a project's implementation, for example, by holding conservation easements. Proposals that would direct funds to the purchase of development rights or acquisition of conservation easements are encouraged.

Up to 75 percent of total project costs are eligible for state funding. Municipalities must provide a cash match up to 25 percent of the cost. However, an in-kind administrative credit of up to 80 percent of the cash match, or \$25,000, whichever is less, will be allowed. The first-round deadline for applications was October 20.

State Park Improvements

This category allocates \$50 million for projects by the Parks department. Projects include acquiring, developing, or improving parks, preserves, beaches, shorefronts, and facilities that develop, expand, or enhance public access to water bodies, promote water-based recreation, or enhance water quality at state parks or historic sites.

Robert H. Feller is partner in the Albany, N.Y., law firm Feller & Ferrentino, which specializes in environmental, land use, and municipal law. Jonathan E. Cohen is affiliated with the firm. The firm provides environmental counsel to the Syracuse law firm Melvin & Melvin (315-422-1311).

Feller & Ferrentino periodically distributes to its clients and friends a complimentary newsletter, the Bond Act Bulletin, which discusses recent developments concerning implementation of the 1996 Clean Water/Clean Air Bond Act. If you would like to be on our mailing list, you may call us (518-465-1010), e-mail us (envirlaw@global2000.net), or write us (488 Broadway, Suite 512, Albany, N.Y. 12207).q

Managing a Eutrophic Lake: Lake Neatahwanta

by Karen Noyes, Oswego County Planning Department

Lake Neatahwanta is located in Oswego County, New York, in the City of Fulton and Town of Granby. Lake Neatahwanta is shallow, with a mean depth of 2.5 meters and maximum depth of 3.7 meters (Figure 1). It is an extremely productive system with periodic excessive concentrations of phytoplankton and blue green algae. The lake is well mixed, with poor transparency. It has high concentrations of total phosphorus and soluble reactive phosphorus. The lake supports a recreational bass fishery.

Most of the lake is surrounded by public land and/or wetlands, meaning there are few direct stakeholders — such as lakeshore property owners — who are affected directly by water quality degradation. This poses challenges for community in-

volvement in lake management. The Lake Neatahwanta Reclamation Committee is comprised of area citizens who see tremendous potential in the scenic lake as a community and recreational resource. Lake Neatahwanta has been the focus of a coordinated effort to improve water quality by the Oswego County Water Quality Coordinating Committee (OCWQCC), local leaders and the Lake Neatahwanta Reclamation Committee. Over the decade, a multi-agency comprehensive effort has attempted to improve the health of the lake and its watershed (Table 1). Activities have included research (monitoring, inventories, and diagnostic studies); implementation of Best Management Practices; streambank stabilization; stormwater management; and public education.

Table 1. Chronology of Lake Neatahwanta

Watershed Management: 1989-1997.

YEAR	PROJECT / STUDY	LEAD
1989	Weed Harvesting* <i>Lake Neatahwanta Conceptual Plan</i>	OCPD
1990	<i>County-wide Inventory of Waterbodies in Oswego County*</i>	OCPD
1991	<i>Lake Neatahwanta Diagnostic Feasibility Study & Management Plan</i> <i>Lake Neatahwanta Recreationway</i>	F.X. Browne OCPD
1992	Purchased Stream Monitoring Equipment Streambank Inventory and Analysis Study Nutrient Pesticide Management Special Practice #53 Radio show on Lake Neatahwanta efforts	SWCD NRCS & CCE
1993	<i>Watershed Watch</i> brochure <i>Caring for Our Lakes</i> brochure Contact Agencies brochure	
1994	Comprehensive Water Quality Monitoring* <i>Nutrient Loading of Streams Entering Lake Neatahwanta*</i> GIS Mapping of Highly Erodible Soils* Water Quality Incentive Program	SUNY Brockport OCPD NRCS
1995	Lake Neatahwanta Reclamation Committee Conference Storm Drain Stenciling Bark Bed Milkhouse Waste Facility	EMC/CCE/Boy Scouts NRCS & SWCD
1996	Aquatic Moth Study Comprehensive Water Quality Monitoring <i>Lake Neatahwanta Shoreline Development: An Architectural, Marketing, and Engineering Analysis</i> Streambank Stabilization GIS Watershed Mapping Livestock Watering Facility Cattle Exclusion Project Stormwater Detention Basin and Alum Treatment	WRB SWCD CT Male & LNRC SWCD OCPD SWCD SWCD OCHD
1997	<i>Synoptic Survey Results for Lake Neatahwanta</i> Lake Neatahwanta Non-Point Source Educational Video Streambank Stabilization in Watershed*	UFI CNYRP&DB SWCD

*Funded in full or part by the Finger Lakes-Lake Ontario Watershed Protection Alliance.

CCE = Cornell Cooperative Extension of Oswego County
 CNYRPDB = Central New York Regional Planning & Development Board
 EMC = Environmental Management Council
 OCHD = Oswego County Health Department
 LNRC = Lake Neatahwanta Reclamation Committee
 OCPD = Oswego County Planning Department
 OCWQCC = Oswego County Water Quality Coordinating Committee
 NRCS = Natural Resource Conservation Service
 SWCD = Oswego County Soil and Water Conservation District

Despite efforts to improve water quality in the Lake Neatahwanta watershed, water quality in the lake itself has not improved since the Lake Neatahwanta Diagnostic Feasibility Study and Management Plan was completed in 1991. In order to better understand the dynamics affecting water quality in the lake, the Lake Neatahwanta Reclamation Committee hired the Upstate Freshwater Institute (Syracuse, NY) in 1996 to conduct three synoptic surveys.

The synoptic survey results for Lake Neatahwanta concluded that the lake “exhibited all the manifestations of extreme eutrophication (hypereutrophy).” The lake had extremely high concentrations of chlorophyll *a* and total phosphorus, and low transparency as measured by a Secchi disk. In addition, there was a large proliferation of filamentous nitrogen fixing blue-green algae, indicative of impaired water quality conditions. The lower limits of eutrophy for chlorophyll *a*, phosphorus and Secchi disk were exceeded; under current conditions, Lake Neatahwanta should be considered extremely eutrophic (hypereutrophic).

The surveys showed the majority of particles in the water column are organic in nature. More than half of the organic material is phytoplankton. A survey report warned that “substantial reductions in organic particles without similar reductions in phosphorus may only exacerbate the phytoplankton problem by providing improved light penetration, thereby increasing the amount of available light to support phytoplankton and macrophyte growth.” According to the survey report, in order to reduce the levels of algal biomass and achieve an improved water quality state, phosphorus levels have to be reduced by 84% to 92%.

The report also recommended a routine monitoring program of the lake and its tributaries. As a bare minimum chlorophyll *a*, total phosphorus (TP), soluble reactive phosphorus (SRP), total dissolved phosphorus (TDP), and particulate phosphorus (PP) should be measured on a monthly basis along with basic field measurements (temperature, dissolved oxygen, pH, and Secchi disc). Additionally, measures of total suspended solids (TSS) and volatile suspended solids (VSS) would be useful in tracking shifts of organic and inorganic particle contributions.

Alternatives to treat manifestations of this condition should be considered, such as episodic treatment with copper sulfate to control algae (phytoplankton) blooms, and weed harvesting to control near-shore macrophyte (rooted plant) growth.

As a result of the diagnostic surveys, the management goals for Lake Neatahwanta have been revised and divided into short and long-range. To achieve long-range goals, watershed management and agricultural programs are aimed at reducing pollut-

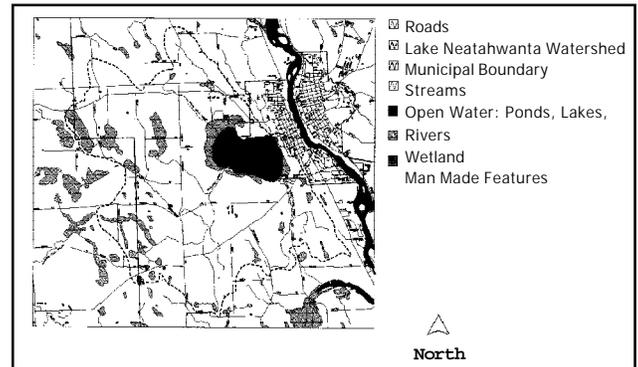


Figure 1. Hydrology of Lake Neatahwanta

ant loadings and stormwater mitigation. In the short-term, management goals include controlling algae with chemical treatment and harvesting of aquatic macrophytes as necessary. The ultimate goal is to reduce the nutrient imbalance which threatens the lake.

The Oswego County Water Quality Coordinating Committee, through Joe Allerton of the Lake Neatahwanta Reclamation Committee, consulted with Dr. Jay Bloomfield, Chief of the Lakes Services Section of the NYSDEC Division of Water, to clarify how the management effort for Lake Neatahwanta should progress, given current information. This consultation resulted in the following recommendations for action:

1. Focus on phosphorus reduction
2. Continue the implementation of Best Management Practices on agricultural lands
3. Conduct a storm sewer analysis
4. Investigate bioremediation
5. Increase water quality monitoring to measure and document water quality status and change
6. Initiate a volunteer monitoring program through Citizens Statewide Lake Assessment Program (CSLAP)

Lake Neatahwanta is the Oswego County Water Quality Coordinating Committee's top priority. The storm sewer analysis and continued implementation of BMPs are being actively pursued. It is clear that remediation of the hypereutrophic condition is extremely difficult. The challenge lies in maintaining the necessary long-range commitment to a mixed strategy approach, with little certainty of the results which can be expected. The Lake Neatahwanta case study confirms the view that pollution prevention is more cost-effective and efficient than remediation.¶

For more information, contact Karen Noyes, Oswego County Planning Department, 46 E. Bridge St., Oswego, NY, (315) 349-8292.

ETCETERA

EVENTS

FL-LOWPA's 6th Annual Conference, *Building Partnerships for Sustainable Watersheds*, September 30 - October 1, 1997, Ramada Inn, Geneva, NY. Registration information is by calling (315) 536-7488.

SUNY ESF's 13th Annual NYS Geographic Information Systems Conference, *Geographic Information and Our Future: Technology and Society*, October 6-7, 1997, Empire State Plaza, Albany, NY. Call (315) 470-6891 for more information.

North American Lake Management Society's 17th International Symposium, December 3-6, 1997, Houston, Texas. Call (608) 223-2836 for information.

PUBLICATIONS AND RESOURCES

Striking a Balance: Use of Biological Control for Lake Management

This 14-minute video describes work performed on Cayuga Lake and its tributaries to search for clues to improve management of the aquatic weed species Eurasian watermilfoil. The program highlights the discovery of the European aquatic moth (*Acentria nivea*), which preferentially feeds on milfoil, and suggests that biological control may be a long-term solution to the dominance of Eurasian watermilfoil. The video also reviews the relationship between watersheds and in-lake conditions. The video was coordinated by Tompkins County Planning Department with funding from the Finger Lakes-Lake Ontario Watershed Protection Alliance; Cornell University provided production assistance. A copy is available for loan from the Water Resources Board at (315) 536-7488.

Best Management Practices During Timber Harvesting Operations

Chemung County Soil and Water Conservation District has recently published a 40-page, well-illustrated guide for landowners, timber harvesters, consulting foresters and municipal officials. Best Management Practices are described. For more information, contact Mark Watts, District Manager, Chemung County Soil and Water Conservation District, (607) 756-5991.

Linking Local Watershed Management Efforts across the Lake Ontario Basin

This 52-page report synthesizes information presented at FL-LOWPA's 5th annual conference of the same title in Rochester, NY in October, 1996. The conference was co-sponsored by the Great Lakes Water Quality Board (WQB) of the International Joint Commission. The report includes summaries and tables of high priority obstacles identified by six geographically defined breakout groups and suggestions to overcome those obstacles. Some broad actions recommended in the report are increasing public involvement and education opportunities; creating and supporting local leadership development; strategic planning; coordinating stakeholders and integrating resources; and supporting bottom-up watershed initiatives to develop common priorities across watersheds. Several specific actions are also identified. The report can serve as a tool for all those involved in watershed management. The report was prepared by the conference steering committee with representation from the WRB, WQB, and NYSDEC Division of Water. For a copy of the report, contact the WRB at (315) 536-7488 or wrb@eznet.net.

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