
BACKGROUND

PROJECT HISTORY

Since 1956, the Keuka Lake Association (formerly the Keuka Shoreline Property Owners Association) has worked to enhance and protect the purity of Keuka Lake. In the early 1960's the Association was instrumental in helping the municipalities around Keuka form what was known as the "Perimeter Committee". This group was organized to help promote uniform regulation and enforcement of septic systems around the lake. Through the 1960's to early 1980's, one watershed inspector hired through Penn Yan, patrolled the perimeter of the lake and approved designs for septics. Each of the municipalities contributed an agreed upon share to Penn Yan to pay for the program and monthly meetings of the Committee were held, represented by the Chief Executive of each municipality. The watershed inspection program worked very well for a number of years and demonstrated a unique partnership between the municipalities in the watershed not seen elsewhere in New York State.

In the early 1980's, several of the towns pulled out from the Perimeter Committee inspection program. Several of the towns hired their own inspectors and passed different laws pertaining to septics. By the mid 1980's, there was a growing perception by the public that there was a lack of uniformity in the septic system area in the watershed. In the late 1980's, the Yates County Soil and Water Conservation District, working with Cornell University, conducted a number of surveys and investigations, as well as discussions to revive the Perimeter Committee or an analogous organization. At the time, some of the municipalities showed an interest in reviving a watershed organization, but the effort did not result in the formation of a watershed entity.

In 1989, the Keuka Lake Association conducted a poll of its membership and found that water quality protection was the number one priority. They also found that the lack of uniformity in laws and enforcement was the biggest obstacle facing the long-term protection of the lake. In response, the KLA contacted a number of organizations, including the Soil and Water Conservation Districts, Planning Departments, Cornell University, Cooperative Extension, state legislators, Water Resources Institute, and other lake associations. The KLA determined that they were the only watershed-wide group that could take responsibility to try and correct this perceived problem and formed the Keuka Lake Watershed Task Force and started the Keuka Lake Watershed Project.

In 1991, the Task Force raised \$150,000 for the two-year project and hired a Watershed Project Director. The mission of the Keuka Lake Watershed Project was to form a community supported watershed protection program to enhance and protect Keuka Lake. After two years of working with the municipalities, the municipalities formed the Keuka Watershed Improvement Cooperative by signing an inter-municipal agreement in December of 1993. The purpose of the KWIC is to protect and improve the purity of waters in the Keuka Lake watershed and the primary focus is on septic system management. The KWIC also has the authority to pursue appropriate actions to address other threats to Keuka Lake in a cooperative and uniform action, consistent with their home-rule authority.

In 1995, the Keuka Lake Association's nonprofit arm, the Keuka Lake Foundation, received funding of \$50,000 from the New York State Great Lake's Protection Fund to undertake the development of a comprehensive watershed management plan. The project is the focus of this report and is entitled, "Keuka Lake Looking Ahead". KLLA is community-based cooperative effort between a number of organizations including the KWIC and the local county agencies. The development of the management plan for Keuka follows work completed for Canandaigua Lake where the first watershed planning guide was tested in 1994. A number of KLLA project participants also participated in the Keuka study and have helped to improve several of the methods found herein.

Watershed management will ultimately be carried out on a state-wide scale in New York as watershed protection and nonpoint source pollution prevention become increasingly important. Both the Canandaigua and Keuka Lake watershed projects serve as state-wide models demonstrating cooperative, community-based planning, assessment, and action to preserve and protect water resources from nonpoint source pollution.

A key component of watershed management planning is public education and involvement. A public policy education model emphasizing public awareness, concern, and involvement has been used by the Keuka Lake Looking Ahead Project as the basis for this part of the program.

PARTICIPANTS

The Keuka Lake Foundation is the lead organization for the project. The Keuka Lake Foundation is the nonprofit arm of the Keuka Lake Association. The KLA is a watershed member organization with nearly 2,000 individual, family and business members. The KLA and KLF have a Board of Directors and an Executive Committee, which provided overall direction and support for the project.

A Watershed Project Committee was formed by the KLF to conduct the Keuka Lake Looking Ahead study. Peter Landre of Cornell Cooperative Extension, was the Committee Chairman and Project Manager and Les Travis, Yates County Soil and Water Conservation District, served as Chairman for the Agriculture Subcommittee. Approximately two dozen other participants were on the WPC from county and state agencies, universities, KLA and other organizations. The Agriculture Subcommittee was primarily composed of farmers in the watershed and agriculture agency personnel.

At the beginning of the study, an agreement was sent out to potential stakeholders in the watershed for their review and response. The following is a copy of the agreement:

The Keuka Lake Watershed Study

A Call for Cooperation and Action

The Keuka Lake Foundation and the Keuka Watershed Improvement Cooperative offer an agreement for the Keuka Lake Watershed as a shared vision of the present and future condition of the watershed's lands and waters. **The purpose of the agreement is to encourage continued cooperation and participation in the development and implementation of a**

community-based watershed management plan. The management plan is being privately funded by the Keuka Lake Foundation using a \$50,000 grant from the New York State Great Lakes Protection Fund.

Signers of this document support the ideals of the vision and agree to act consistently with the study's plan to protect the integrity of the watershed.

Representatives of agencies, local and regional governments, non-governmental organizations, private sector interests, and private individuals are encouraged to sign.

DEFINITIONS

The Keuka Lake Watershed is an outstanding local and regional resource, consisting of 100,800 acres of land area draining into the lake. The "hills" around the lake roughly define the lake and its boundaries can be located on topographic maps and confirmed in the field.

The Keuka Lake watershed comprises parts of Yates and Steuben Counties, the Towns of Barrington, Milo, Wayne, Urbana, Pulteney, Jerusalem, Potter, Benton, Wheeler, Bath and the Villages of Penn Yan and Hammondsport.

GOALS

- To promote a cooperative and comprehensive approach to the enhancement of the quality of life in the Keuka Lake watershed
- To protect and enhance the quality of Keuka Lake
- To encourage and improve management practices in the Keuka Lake watershed
- To successfully complete a locally-directed program of public policy education for water quality improvement by local adoption of a watershed compact and management plan
- To facilitate broad-based community involvement and support to protect and enhance water quality in the watershed
- To provide an educational program to increase awareness and appreciation and foster responsible use of watershed resources

STATEMENT OF VALUES AND INTERESTS

There are many legitimate interests in watershed lands and waters. These are some of the major ones.

- The highest and best use of Keuka Lake is as a pure source of public drinking water. Currently, twenty thousand persons rely on Keuka Lake for drinking water. About three-quarters of a million dollars in revenues were generated by Penn Yan and Hammondsport for drinking water in 1995. The cost of developing an alternative source has never been assessed.

- The lake is used for recreation by residents and attracts thousands of visitors. The estimated recreational value in 1995 is more than ten million dollars. There is no doubt that Keuka Lake is a major economic “engine” for the region. When multiplier factors are applied to the recreation and tourism dollars, the lake’s value is staggering.
- About one hundred businesses were identified as operating wholly or partially in the Keuka Lake watershed.
- Over 400 farms, comprising more than 34,000 acres, depend on the continued fertility of watershed lands and cleanliness of its waters for the success of their agricultural ventures. There is no end in sight to society’s need for food, fiber and clean water.
- Twenty thousand people reside in the Keuka Lake watershed, and many others own seasonal vacation homes. The assessed real estate value of lakeshore properties in 1991 is six hundred million dollars. Up to seventy percent of town taxes are derived from lakeshore properties and they have been shown to be sensitive to perceptions of water pollution.

Watershed land and water has many values; some may be calculated and others are beyond enumeration. Some of the values difficult or impossible to calculate, but nonetheless present, are scenic, aesthetic, climatic, habitat, healthful and ecological. Some of these values cannot be calculated from a solely human view-point.

PRINCIPLES

- All water in the landscape is interconnected. The water cycle not only runs past but through us.
- Water does not respect property lines or political boundaries. We cannot pollute water in one place and expect it to remain pure in another.
- Water is essential to life. The acknowledged highest and best use of Keuka Lake is as a pure source of drinking water.
- Many human activities intensify the normal “aging” processes of water bodies.
- Actions which may seem reasonable from an individual point-of-view will not always be responsible group behavior.
- Most people are unaware of the impact of their actions on water quality.
- Understanding the connections between actions and impacts will help people to choose to act in a more “water-friendly” way. Good stewardship requires active programs of public education.
- Prevention of pollution is almost always less expensive and more effective than the treatment of problems.

- By most standards, Keuka Lake remains relatively clean and healthy; water quality problems which exist in certain areas at certain times should be regarded as early-warning signs.
- People have a right to live in a healthy environment and to use natural resources within the sustaining limits of the environment's health and integrity.
- The economic well-being of human communities in the Keuka Lake watershed is interdependent with the health and integrity of the environment.
- Maintenance and improvement of the watershed's integrity should be a guiding principle for local decision-making.
- Practical, cost effective measures are available to prevent the degradation of Keuka Lake watershed's natural resources.
- We acknowledge the need for a coordinated research program to develop the best available research and historic data into a common sense watershed management plan. The plan will serve as blue-print for understanding and protecting the resource into the future and will be forwarded to the Keuka Watershed Improvement Cooperative for their review and action.

DISCUSSION

- No single entity regulates or manages Keuka Lake and its watershed; the responsibility is shared by many governments, agencies, organizations and individuals.
- "Shared responsibility" does not mean that no one is responsible; rather, it demonstrates the need for cooperation. The Keuka Watershed Improvement Cooperative represents a focus for intermunicipal cooperation vital to protecting and enhancing the purity of Keuka Lake.
- Voluntary compliance is the most effective means of caring for the watershed's resources. Regulations are best accepted by citizens who understand the reasoning behind the laws.
- Within a watershed, consistent enforcement of uniform regulations best protects water quality.
- Thorough discussions of policy and active public participation lead to good regulatory systems.
- Decisions about the location, density, and type of land use affect the environment, economy, and quality of life for all residents of the Keuka Lake watershed.
- Few individual land use decisions create profound changes, but cumulative effects of incremental decisions can drastically alter the watershed.

- Local governments have primary responsibility for land use planning and management decisions under the provisions of “home rule.” Their powers are exercised to protect public health, safety and general welfare.
- Past development within the watershed, especially near Keuka Lake and along its upland tributaries, has contributed to the degradation of water resources.
- Though instances of degradation have been localized and temporary, they should be regarded as warnings that preventive and corrective measures are needed to protect the future of watershed lands and water.
- We should seek to re-affirm our ties to the watershed by encouraging development activities which are well-planned, visually pleasing, biologically sound and preserve the watershed’s integrity.
- Integrity is the ability to self-organize and adapt to diverse changes and may be natural as in the watershed’s wild areas, or cultural as in the proper stewardship of the watershed’s wild areas, or cultural as in the proper stewardship of the watershed’s developed areas. A measure of natural integrity is the abundance and diversity of native species living in natural communities and habitats.

AGREEMENT

Whereas we are in agreement with the goals of this study; and whereas we acknowledge the importance, value and integrity of Keuka Lake and its watershed area and our reliance on its natural resources; and

whereas we recognize and accept our responsibility to care for the resources of the Keuka Lake watershed so that they may be available for the use and enjoyment of present and future generations; and

whereas we realize that inaction and lack of proper stewardship can damage and diminish the value of Keuka Lake watershed resources; and

whereas we wish to associate and coordinate our activities in such a way as to have the most beneficial effect;

therefore we agree to cooperate for the long-term benefit of the watershed, its residents and users.

Three dozen groups signed the agreement as a gesture of their support. The following is a list of the signers of the agreement:

Cornell Cooperative Extension - Steuben County
Cornell Cooperative Extension - Yates County
Izaak Walton League
Keuka Lake Association
Keuka Watershed Improvement Cooperative

- Town of Barrington
- Town of Benton
- Town of Jerusalem
- Town of Milo
- Town of Pulteney
- Town of Urbana
- Town of Wayne
- Village of Hammondsport
- Village of Penn Yan

New York State Department of Environmental Conservation - Region 8

New York State Department of Health - Geneva District

New York State Soil and Water Conservation Committee

Finger Lakes Office of Parks, Recreation and Historic Preservation

Penn Yan Grange

Southern Tier Central Regional Planning and Development Board

Steuben County Soil and Water Conservation District

Steuben County Environmental Management Council

Steuben County Legislature

Steuben County Trout Unlimited

Sullivan Trail Resource Conservation and Development Office

USDA Farm Service Agency - Steuben County

USDA Farm Service Agency - Yates County

USDA Natural Resources Conservation Service - Steuben County

USDA Natural Resources Conservation Service - Yates County

Yates County Chamber of Commerce

Yates County Industrial Development Agency

Yates County Legislature

Yates County Soil and Water Conservation District

Yates County Water Resources Alliance

PROCESS

A Plan of Work was developed by the Project Manager and was submitted for approval by the KLF and Great Lakes Protection Fund. Several agencies were subcontracted to perform specific work tasks outlined in the Plan of Work. The Plan of Work for Phase I (1995-1996) was based on completing the first seven chapters of the management plan following the outline from the Canandaigua Lake report. The remainder of the plan was completed under Phase II (1996-1998) of the grant.

The overall objective of Keuka Lake Looking Ahead was to develop a management plan to preserve and enhance the water quality in the Keuka Lake watershed. To achieve the overall goal, the primary objectives were:

- 1) To organize a watershed task force made up of agency staff, local officials, citizens and non-profit organizations to cooperatively undertake the watershed study, outreach and make recommendations.
- 2) To inventory and evaluate existing water quality and potential sources of pollution and impact water quality.
- 3) To identify pollution prevention strategies to meet water quality goals and minimize water pollution.
- 4) To develop a management plan with recommendations for implementation that describe a coordinated program of effective actions.

FUNDING

The Keuka Lake Foundation received two grants totaling \$50,000 from the New York State Great Lakes Protection Fund to develop the plan. In-kind services representing \$150,000 were contributed to the project by local, county, state agency personnel and KLA volunteers.

SCOPE

Keuka Lake Looking Ahead-1996 was developed as part of the Keuka Lake Watershed Project; a project funded by the Keuka Lake Association since 1991. This document was prepared by the Watershed Project Committee utilizing the *Watershed Planning Handbook for the Control of Nonpoint Source Pollution*, a guide to assist communities in developing comprehensive plans for managing nonpoint sources of pollution within a watershed area and the *State of the Canandaigua Lake Watershed-1994*.

The purpose of this report is to provide information to citizens, businesses, elected officials, and community planners for implementing actions to protect the integrity of the watershed. The information can be used to make decisions regarding land and water resources and the "hows" and "whys" of land and water use protection and regulation.

Finding solutions to nonpoint source pollution problems is not a simple task. There are, nevertheless, certain logical steps leading to the preparation of a nonpoint source water pollution control plan that contains specific solutions or strategies for addressing problems.

Keuka Lake Looking Ahead is intended to be a guide, not a prescription, for understanding and protecting water quality. The KLA has identified additional nonpoint source areas that require further investigation and analysis. For example, the need for a more comprehensive stream monitoring program was identified by this project.

Keuka Lake Looking Ahead contains an enormous amount of detailed information and analysis that needs to be released and discussed by a broad range of watershed users or stakeholders. This document presents the required information to develop a watershed implementation plan to remediate existing nonpoint source problems and/or prevent new problems from occurring.

The release of this document is an enormous step forward in providing the necessary documentation and rationale for a formal watershed management plan. For the first time, a comprehensive watershed report has been prepared for Keuka Lake that inventories and evaluates sources of pollution and their impact on the lake.

While the need for additional assessment has been identified, *Keuka Lake Looking Ahead* provides sound rationale for the implementation of nonpoint source pollution prevention techniques, such as stormwater management and soil erosion and sedimentation control.

Effective watershed management requires a concerted, cooperative effort by the entire community - homeowners, business, farmers, developers, foresters, environmentalists, and local officials. All members of the watershed community share in the benefits of a high quality water resource which is critical to a community's health, aesthetic appeal and economic well-being. Together, the watershed community can protect the watershed integrity for present and future generations.

STATEMENT OF GOALS AND OBJECTIVES

KEUKA LAKE WATERSHED PROJECT

The Keuka Lake Association formed a watershed task force in 1991 to act as a catalyst for water resource protection efforts within the watershed. The task force initiated the Keuka Lake Watershed Project the same year and hired a project director. The first two years of the project focused on developing baseline information and developing intermunicipal cooperation. These efforts resulted in the formation of the Keuka Watershed Improvement Cooperative and the adoption of a uniform wastewater law. Since 1993, the Watershed Project has worked towards the development of a comprehensive watershed management plan. This efforts has been funded by a number of organizations including the Taylor Foundation, Open Space Institute, Keuka Lake Foundation, and a number of special events in the watershed. In 1995, the Foundation was awarded a Great Lakes Protection Fund grant for the project, Keuka Lake Looking Ahead, and this document represents the culmination of these efforts.

The Keuka Lake Foundation organized a Watershed Project Committee to serve as the multi-organization group to work on the plan. The WPC is made up of local citizens representing the municipalities within the boundaries of the watershed, staff people representing public and private agencies and members of private organizations that have a vital interest in watershed management activities and other interested parties.

The overall goal of the Keuka Lake Foundation is to coordinate a comprehensive approach to the protection of water resources and the enhancement of the quality of life in the Keuka Lake watershed by increasing awareness of the area's cultural, natural, and socio-economic resources. To meet this goal, the Keuka Lake Foundation functions as an umbrella organization to coordinate the efforts of public and private groups which have a stake in protecting Keuka Lake and its watershed.

The Keuka Lake Foundation seeks to:

- influence public policy to protect and enhance water quality in the watershed;
- facilitate broad-based community involvement and support through the public policy process;
- provide for an educational program to increase awareness and appreciation and foster responsible use of watershed resources.

OBJECTIVES OF THIS PLANNING GUIDE

The goal of this guide is to develop practical information which can be used by decision-makers and residents to protect and improve water quality in the Keuka Lake watershed. Specifically, the guide is designed to meet the following informational objectives:

- Provide a comprehensive inventory of watershed resources;

- Summarize and assess the physical, chemical, and biological conditions of Keuka Lake;
- Identify and prioritize sources of pollution within the watershed; and
- Identify appropriate strategies to reduce or prevent pollution from entering surface or groundwater in the watershed.

The inventory and recommendations which appear in the guide are based on the best available information. Information gaps and further studies are recognized and cited within the document. While more work can and should be done to verify certain problems, many of the recommendations can be implemented based on current knowledge and "common sense". The recommendations are intended for use by municipal officials, local organizations and agencies, and concerned citizens to help establish effective policies and practices that will protect watershed resources and sustain the economic viability of the region.

EXECUTIVE SUMMARY

The Keuka Lake watershed provides an outstanding quality of life for residents and visitors alike. The watershed is the area around the lake that drains 175 square miles of land area in Yates and Steuben county and includes an estimated 18,120 people in 1989. The lake provides high quality drinking water for nearly 20,000 people served by municipal sources and over 2,800 shoreline residences which draw water directly from the lake. Tourism and recreation is significant to the area's local economy and relies on the natural beauty and quality of the water. According to the Finger Lakes Association, the total economic impact of tourism and recreation in Yates and Steuben County nearly \$80 million in 1995, much of which can be attributed to the beauty and quality of the lakes. There were also an estimated 135,000 fishing trips taken in 1988 on Keuka Lake with an estimated economic impact exceeding \$5,000,000 (NYSDEC, 1990).

The assessed value of lakeshore properties is nearly \$600 million, representing up to 70% of some of the town's tax base. Studies on Lake Champlain have shown that up to 20% of the value of lake property is directly related to lake water quality indicators. All of the economic benefits described clearly indicate the importance of maintaining and protecting water quality in the watershed. Of course, some values such as the scenic beauty of the lake, are difficult, if not impossible to quantify, yet they too are important to the quality of life in the watershed.

The quality of the lake, groundwater and streams depends on the activities which occur in the watershed. Seventeen potential sources of pollution were analyzed for their potential impact on the lake, watershed and 29 subwatersheds. For some pollution sources, insufficient data were available to make a detailed assessment; in other cases, good information was used to recommend appropriate measures. While the overall quality of water in the watershed is very good, documented evidence of pollution impacts and impairments suggests the need for a proactive approach to managing the watershed's resources. Furthermore, as more land is converted to residential uses, more stress and direct impact on water quality is likely.

Fortunately, many potential sources of pollution can be prevented or eliminated with the use of practical and economical measures defined as "Best Management Practices". Pollution Prevention Worksheets" (PPW) were developed in the report for each pollution source. Each PPW details a menu of activities to prevent pollution and/or studies to investigate the pollution source further.

In order to implement appropriate pollution prevention measures or initiate further studies to gather more information, an implementation plan is needed. The implementation plan will be the "blueprint" for what will be done, who will do it, and when it will be started and accomplished. The plan should be developed by those who have an interest (economic or otherwise) and/or responsibility for what goes on in the watershed. These stakeholders may include such entities as municipalities, agencies, organizations, businesses, and individuals. The State of the Lake Report provides the scientific guidance needed to formulate a community-based watershed implementation plan. Once completed, the actions will protect and improve the watershed resources for future generations while accommodating economic growth and development.