



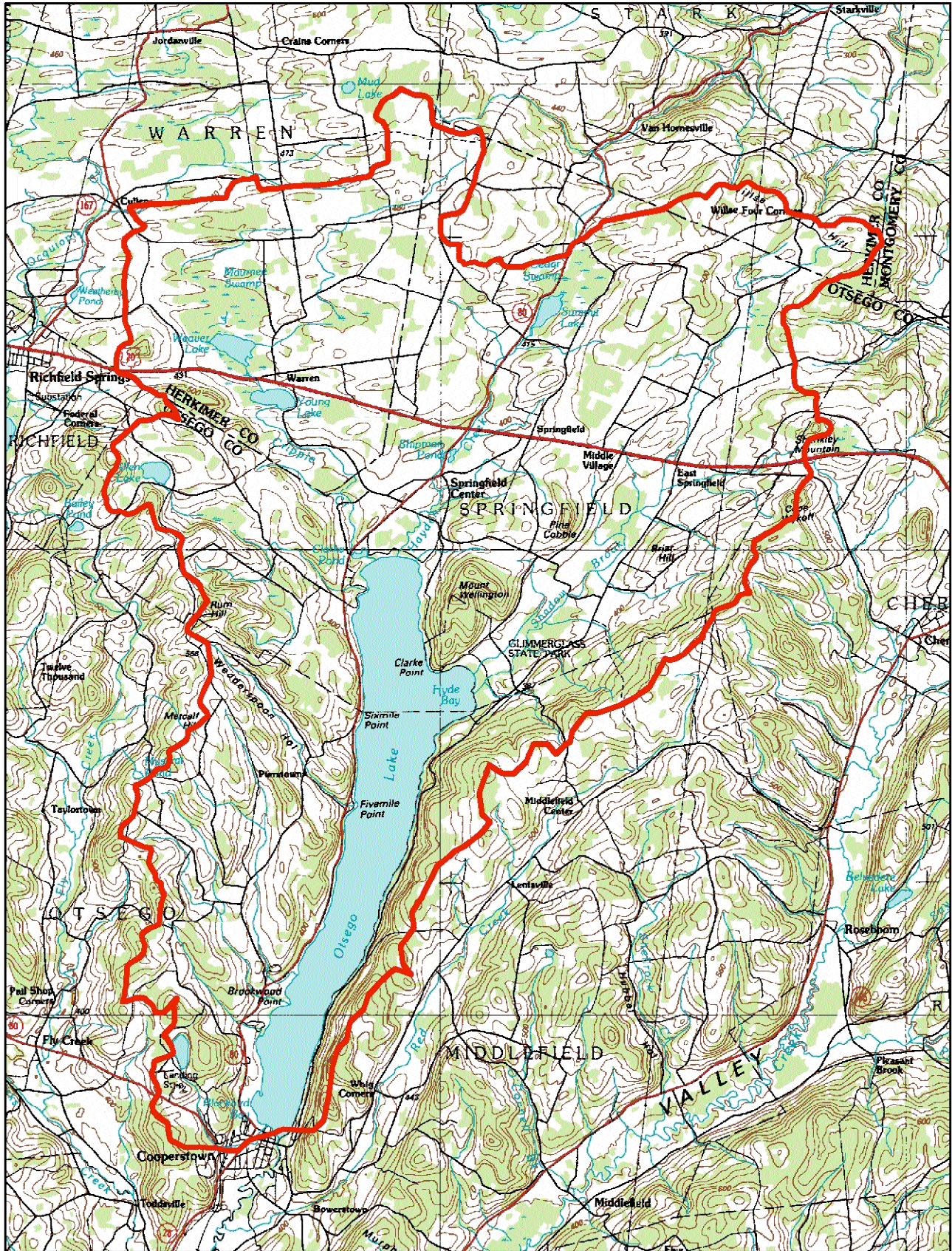
A Plan for the Management of the Otsego Lake Watershed

Prepared by the Otsego Lake Watershed Council, April 1998

Updated by the Otsego County Water Quality Coordinating Committee, June 2007



Otsego Lake Watershed




 Otsego Lake Watershed Boundary

Figure 1. The Otsego Lake Watershed

FOREWORD

This publication updates “A Plan for the Management of the Otsego Lake Watershed,” prepared by the Otsego Lake Watershed Council, April, 1998. The Watershed Council was composed of representatives from the towns of Middlefield, Otsego, and Springfield, and the Village of Cooperstown. This Council is no longer active, and in 2003 responsibility for the Management of this Plan was assumed by the Otsego County Water Quality Coordinating Committee (WQCC).

The WQCC, under the guidance of the Otsego County Soil and Water Conservation District, aims to integrate diverse non-point source water quality pollution control and abatement programs into an effective interagency approach, established at the local level. Otsego Lake and its major tributaries are included on the NYSDEC’s Priority Waterbody List.

WQCC membership includes the following agencies and organizations which are concerned with the Otsego Lake Watershed:

Cornell Cooperative Extension (CCE)
NYS DEC Region 4 Division of Water (DEC)
NYS DEC Region 4 - Fisheries (DEC-fish)
NYS Department of Health (DOH)
NYS Department of Transportation (DOT)
Otsego 2000
Otsego County Conservation Association (OCCA)
Otsego County Planning Department (OCP)
Otsego County Sheriff’s Department (Sheriff)
Otsego County Soil and Water Conservation District (SWCD)
Otsego Lake Association (OLA)
Otsego Lake Watershed Supervisory Committee (WSC)
Otsego Land Trust (OLT)
SUNY Oneonta Biological Field Station (BFS)
Upper Susquehanna Coalition (USC)
USDA Natural Resource Conservation Service (NRCS)
Village of Cooperstown Water Board (CWB)
Village of Cooperstown Zebra Mussel Committee (ZMC)

Since the establishment and acceptance of the original Management Plan, considerable progress has been realized regarding the Plan’s implementation. Because of that, as well as lessons learned and the advancement in management strategies since 1998, the WQCC felt it appropriate to give a progress report in conjunction with this, the Plan’s second printing. The following list briefly summarizes activities related to the Plan’s implementation. The balance of this document is an updated version of the Plan.

ACCOMPLISHMENTS

Shortly after the acceptance of the Plan by the municipalities surrounding Otsego Lake, a proposal submitted by the WQCC (on behalf of SWCD) was awarded \$31,700 from the Chesapeake Bay Small Watershed Grants Program for the creation of a Watershed Coordinator position (the Village of Cooperstown provided a \$10,000 match). A subsequent grant by the NYSDEC funded the second year of that position (\$32,000 in-kind match by the BFS), and continued funding from various NYSDEC grants, the Village of Cooperstown, OCCA and the Clark Foundation have allowed that position to continue to date. The primary responsibility of the Watershed Coordinator is to implement "A Plan for the Management of the Otsego Lake Watershed," approved in April 1998. The following summarizes progress to date on that Plan.

A. LAND USE PLANNING

Springfield planning and land use regulations

- Subdivision regulations consider water quality, distribution and amounts.
- Draft Comprehensive Plan considers water quality, distribution and amounts.
- Local Law #1 of 2006 amends Local Law #3 of 1987: Amendment currently undergoing further revisions.

Highlights of draft plan:

- Applies to all property fronting on Otsego Lake, or within 500' of the lake, and properties having deeded or contractual access not on the shoreline.
- Only single-family residences allowed.
- 5-acre minimum lot size.
- Site Plan Review applies to any construction.
- No surface disposal of sanitary waste permitted.
- Artificial discharges of water must pass through infiltrators or some form of construction or landform that inhibits surface runoff.
- Agreement with WSC regarding sanitary waste system approvals.
- New or renovated sanitary waste removal systems within 100' of the lake must include nutrient removal.

Otsego planning and land use regulations

- Draft Comprehensive Plan addresses water quantity and quality.
- Draft Shoreline Protection District to redefine uses and potential environmental activities through redefining the removal of tree cover within 250' of the lake.

Middlefield planning land use regulations

- Draft Comprehensive Plan.

B. LAND PROTECTION AND PRESERVATION

- Approximately 604 acres in the watershed are protected in that they are in public holdings.
- The OLT has 1,400 acres contracted in permanent conservation easements within the watershed.
- The NRCS holds conservation easements on 396 acres in the watershed on lands contracted in the Wetland Reserve Program. (See E. "AGRICULTURAL MANAGEMENT.")
- Approximately 4,000 acres of the watershed, owned by the Clark Foundation, are under other protected status.

C. SEPTIC SYSTEMS

- In 2002, the WSC began considering impacts of near lake septic systems.
- In 2003, BFS monitoring indicated that nutrient (P and N) inputs by near-lake conventional septic systems may be substantial.
- In 2004, the Village of Cooperstown enacted legislation (under Public Health Law 1100) related to septic system management. Oversight was by the Watershed Coordinator.
- In 2004, all septic systems within 500' of the lake shore and 100' of tributary streams (the "zone of protection") were inventoried (age, size, design, maintenance, etc.).
- In 2005, inspections on those systems began. A 5-year continuing cycle was anticipated. Owners of failed systems were given one year to gain compliance (assistance provided by WSC).
- By the end of 2006, 180 inspections were completed (of 337). 105 (58%) failed.
- In 2006, WSC was awarded \$76,000 from NYSDEC to implement demonstration projects of alternative septic system designs, including phosphorus removal components. The BFS will monitor the effectiveness.
- OCCA has provided \$87,000 in funding for implementation of the septic system management plan.

D. ROADWAY MANAGEMENT AND MAINTENANCE

- In 1998, the Village of Cooperstown began relying less upon abrasives ("sand") to provide traction for vehicles during the winter time and instead used salt which had been pre-treated with organic deicers mixed with liquid magnesium chloride. By 2002, they relied solely upon the latter technique. BFS monitoring (funded by NYSDOT and IMUS, Inc.) documented that this management change reduced phosphorus runoff from village streets significantly.
- In the early 2000s, SWCD produced a GIS inventory identifying ditching areas in need of mitigation.
- In 2002, 2003 and 2004, the WQCC sponsored forums to educate DOT personnel on proper road ditching techniques, salt storage and applications, and other road management issues.
- In 2004, SWCD was awarded \$43,200 from NYSDEC to purchase a hydroseeder, primarily to be used to stabilize road ditches following DOT ditch grading (though uses can involve any disturbed site). The OCCA has provided \$9,200 to purchase seed and mulch for the hydroseeding program. These supplies will seed 24 acres of buffer strips 3.5' wide.
- In 2007, the SWCD used the hydroseeder to reduce the potential of soil erosion from more than 30 acres of land.

E. AGRICULTURAL MANAGEMENT

- In 1995, OCCA partnered with the USDA-Farm Services Agency to carry out three barnyard water management projects in the watershed. OCCA contributed \$18,611 to this effort.
- In 1997, the SCWD was granted \$35,000 from NYS Non-Point Source Control and Abatement Program to assist in the implementation of BMPs designed to reduce agricultural runoff into Otsego Lake.
- Between 1997 and 2002, BFS conducted year-round, precipitation-based monitoring on Shadow Brook to evaluate the effectiveness of the above agricultural BMPs. OCCA provided \$22,500 toward this effort.
- Since 1998, the NRCS has worked with numerous farmers in the watershed to implement

BMPs. This work includes: 11 contracts involving 3,343 acres, funded by the Environmental Quality Incentive Program (EQIP; \$187,700) and cost-shared by the OCCA (\$125,460), 5 contracts involving 257 acres, funded by Agriculture Management Assistance (AMA; \$28,630) and cost-shared by the OCCA (\$9,540), and 10 contracts involving 122 acres, funded through the Conservation Reserve Program (CRP; \$5,037).

- In the late 1990s, WQCC implemented a “Lake Friendly Farmer” program, designed to acknowledge watershed farmers demonstrating exemplary efforts in environmental management. Approximately 10 signs of recognition have been distributed.
- Since 2005, the SWCD has administered the Agricultural Environmental Management program within the Otsego Lake watershed. The program is a tiered approach to helping the local agricultural community in reducing the environmental impact of their operations on the Lake.

F. LOGGING OPERATIONS-SILVICULTURE

G. STREAMS AND TRIBUTARIES

- Annual BFS monitoring of 23 sites on the major tributaries to the lake continues, both to isolate areas needing management and to evaluate the effectiveness of management activities to date.
- CRP projects (see E. “AGRICULTURAL MANAGEMENT”) undertaken by the NRCS and OCCA address tributary enhancement measures on farmlands.
- During the late 1990s, the WQCC undertook several volunteer projects involving stream bank plantings on Hayden Creek.
- Since 1998, the NRCS restored 6 wetlands in the watershed, totaling 414 acres, funded by the Wetland Reserve Program (WRP).
- In 1999, a NYSDEC grant acquired by the Village of Cooperstown included \$30,000 to conduct an engineering study to evaluate the feasibility of repairing the leaking dam and of dredging sediment from Clarke Pond, a 6-acre impoundment of Cripple Creek immediately above its outlet to Otsego Lake. (See below.)
- In 2001, \$358,000 was acquired through a NYSDEC grant to do work on Clarke Pond. The aged, leaking dam was repaired and approximately 2,000 cubic yards of material was dredged from the impoundment so it could continue to serve as a sediment detention basin. The Clark Foundation provided \$170,000 in matching funds, the property owner provided \$35,000 in matching funds, and the BFS contributed \$153,500 as an in-kind match.
- In 2002-2003, four wetlands in the watershed, totaling approximately 50 acres, were restored under the oversight of Ducks Unlimited. Funding was provided by the USACE. Monitoring of two of those sites, as well as a local “reference site,” was conducted by BFS to evaluate the influence of the wetlands on water quality and floral and faunal communities (also funded by USACE).
- In 2005-2006, OCCA provided \$16,500 to fund a riparian buffer technician to procure sign-ups for the USDA-Conservation Reserve Enhancement Program. Twenty-three acres have been planted to date.
- The OLA funded several demonstration near-lake gardens designed to buffer “urban runoff” to the Lake.

H. RECREATIONAL USE OF OTSEGO LAKE

- In 1999, NYSDEC grant monies received by the Village of Cooperstown included \$5,600 for the purchase of lighted buoys to delineate the 200' no-wake zone. Since then, additional funds have been provided by the OCCA (\$5,200), the Village of Cooperstown, and the Town of Otsego for additional buoys and for maintenance costs. A team of BFS volunteer SCUBA divers has overseen the annual placement and removal of the buoys. Signage regarding the no-wake zone is posted at access sites.
- The Lake is patrolled by the Sheriff and the NYSDEC, primarily on weekends, during the summer.

I. EXOTIC SPECIES

- Information on the consequences of exotic species is disseminated regularly through signage, mailings and the media.
- In 1998, the BFS introduced 100 Galerucella beetles, obtained from Cornell University, into Goodyear Swamp Sanctuary. These insects have been shown to be host-specific to purple loosestrife, an exotic wetland plant which has become widespread across much of New York State. Monitoring shows that purple loosestrife is virtually gone from the sanctuary and native plant diversity and coverage has increased substantially. Purple loosestrife throughout Otsego's watershed is currently impacted by these beetles.
- Since 2000, the BFS has worked in conjunction with the NYSDEC to re-establish walleye in Otsego Lake in hopes of providing additional angling opportunities offered by this gamefish, and to potentially control the abundance of the alewife, an exotic forage fish which became established in the lake in the mid 1980s. Approximately 70,000 pond fingerlings, plus several thousand fall fingerlings, have been added each year. The BFS is monitoring for lake improvements that may be attributable to increased forage pressure on the alewife. Funding has been provided by the The Alice Busch Gronewaldt Foundation, Inc. (\$25,000 per year), OCCA (\$2,000), and Otsego 2000 (\$2,000). Since 2003, the NYSDEC has provided 40,000 of the stocked pond fingerlings.
- In 2001, a NYSDEC grant acquired by SWCD included \$6,800 to purchase 2 high pressure steam power washers to clean boats coming to Otsego Lake from other lakes in order to reduce the likelihood of exotic introductions.
- In 2002, the Village of Cooperstown formed the Zebra Mussel Committee to oversee efforts to prevent the introduction of non-native species. The OLA has provided assistance. Also in 2002, OCCA organized a lake forum at which the keynote speaker was an expert on zebra mussel control.
- Beginning in 2003, the Village began an inspection system at its public launch site. From May through October (periods during which temperatures would promote the existence of zebra mussel veligers), all incoming boats and trailers are inspected. If any evidence exists that boats have recently been on other water bodies without having been washed, the boats are escorted to a power washing station. Bleach solution is added to bilge areas and live wells. When boaters come during times when inspectors are not present (such is occasionally the case during bass tournaments), they are encouraged to use local car washes. Support for this endeavor is provided by the Village, the Clark Foundation, The Scriven Foundation, OCCA (\$30,000) and OLA. The BFS has provided technical guidance.

- The launch in the Town of Springfield has incorporated a registration system. This site has been dedicated for use by town residents only, though a lack of oversight led to use by non-residents. If vehicles without the appropriate registration sticker enter the area, an attendant will direct the driver to the Town Clerk to prove residency and obtain a sticker. Attendant(s) can also require launch users to wash their boats/trailers if there is any indication of debris that may harbor living organisms.
- Eurasian water-milfoil, an exotic, nuisance plant, became established in the lake in the 1980s and it is now widespread. However, BFS research has indicated an abundance of native insects which seem to control this plant such that its growth does not reach problematic levels. Any attempts to manage it would likely exacerbate the issue.
- The BFS annually sponsors “Water Chestnut Day,” during which the public is educated about the importance of this, and other, non-native plants. Areas suitable for the growth of water chestnut are searched. In 1999, a few rooted stems of this plant were removed by BFS personnel. Following that, Otsego 2000 provided several thousand dollars to fund a coordinated search by BFS summer interns. No water chestnut has been found since.

J. IMPROVE ABILITY TO MAINTAIN THE LEVEL OF THE LAKE MORE CONSTANT WITH STORMS

- In 2002, the Village installed a control orifice at the outlet structure which allows for finer tuning of control at low flows. The catwalk was replaced with a metal grill and hand rail for safer access.

K. CONTINUE MONITORING OF THE LAKE

- The BFS continues to monitor many parameters in the Lake and its watershed on a regular basis. Reports are published annually and provided to all interested parties. BFS monitoring of the Lake and its watershed has been supported largely by the Clark Foundation (\$40,000 annually). Since 1997, OCCA has provided \$65,000 to support monitoring.

L. PUBLIC EDUCATION AND OUTREACH

- The OLA, OCCA, SWCD, OLT, BFS and Otsego 2000 mail newsletters to their constituency, often focusing attention on lake-related issues.
- The BFS, through its “Learning Adventures Program,” educates approximately 1,200 pre-college students on lake issues annually.
- WQCC has sponsored two forums designed to educate road managers on appropriate “lake friendly” management techniques.
- The OLA funded a series of aerial photographs following storms to highlight the issue of sediment loading to the lake, made obvious by the sediment plumes near stream mouths.
- WQCC has sponsored Otsego Lake Festivals in 2005 and 2006, the emphasis being to draw attention to lake issues in a festive environment. Funding has been provided largely by The Alice B. Gronewaldt Foundation, with numerous other donors.
- Otsego 2000 sponsors conferences that focus on planning, land use regulations and watershed protection.

INTRODUCTION

The Otsego Lake watershed encompasses approximately 75 square miles, which includes parts of two counties, five towns and one village (see Figure 1). It is the headwater of the 64,000-square-mile drainage basin of the Susquehanna River which runs from Cooperstown to the Chesapeake Bay. Otsego Lake is eight miles long with a maximum depth of 166 feet and contains 117 billion gallons of water. Geologically, it is similar to the Finger Lakes. Its long, thin, finger-like shape oriented north to south was created by glacial action. The Lake is bounded on the east and west by slopes rising up to 482 feet above its surface. At the northern end, soils are rich in nutrients, well drained and good for agriculture. The Lake is also the drinking water source for more than 2,300 residents and countless thousands of visitors.

In 1968, the Biological Field Station (BFS) was established on the Lake by SUNY College at Oneonta. Since that time, the BFS has created a database of information on the ecology and water quality of the Lake and all its tributaries. Many water quality initiatives have been based on this work.

Water, air and earth – natural elements on which our existence depends – do not respect boundaries drawn for governmental purposes. The Otsego Lake watershed covers three townships in Otsego County and part of two townships in Herkimer County. A plan based on the features of an entire watershed makes sense because activity in one part of the watershed flows into another part and converges into Otsego Lake, the drinking water source for the Village of Cooperstown as well as lakeside residents in the towns of Middlefield, Otsego, and Springfield. Furthermore, Otsego Lake, renowned for its natural beauty and its fishery, draws thousands of tourists and fishermen yearly, whose presence provides a boon to the local economy. Otsego Lake is a resource we must protect to ensure a desirable quality of life, as well as economic viability in this area in the future. It is for this purpose that the Plan for the Management of the Otsego Lake Watershed has been adopted.

Ongoing monitoring indicates that Otsego Lake is at risk. Oxygen levels in the lake's deep water are often below DEC standards for maintaining trout, one of the principal indicators of pure waters. In addition, "exotic species" such as Eurasian milfoil and the alewife have contributed not only to a decrease in water clarity and reduced deep water dissolved oxygen, but have also hastened the disappearance of other plant and animal life necessary to maintain the desired balance of nature in the Lake. Since 1968 there has been a marked decline in the number of fish, invertebrate and plant species throughout the Lake. This loss in biological integrity is symptomatic of the Lake's declining health. In the interest of the Lake as a source of drinking water, natural beauty and fishery, the ecological integrity of Otsego Lake must be ensured.

In 1994, the Otsego Lake Watershed Council (OLWC) was formed to address the problems contributing to the unhealthy condition of the Lake. This council was made up of two appointed representatives from each of the three Otsego County municipalities existing within the boundaries of the watershed. (The Herkimer County municipalities opted not to participate in the formulation of the plan but asked to be kept apprised of its progress.) For two years the OLWC thoroughly studied the ecological problems existing in the watershed and determined the necessity of creating a management plan for Otsego Lake and its watershed. This plan was finalized and approved in 1998. In 2004, upon the dissolution of the OLWC, the Otsego County Water

Quality Coordinating Committee (WQCC) assumed responsibility for implementing the management plan. The following pages contain a progress report for that plan, which is expected to evolve as more knowledge is developed on both lake problems and acceptable solutions.

Management Goals and Direction

This plan has been developed for the benefit of the public and for the common good of Otsego Lake and the surrounding watershed. The goals of the Plan are to:

1. Protect the quality of drinking water drawn from the Lake for both the Village of Cooperstown and for private dwellings dependent on lake water.
2. Preserve the Lake's natural beauty and viability as a natural resource and tourist attraction.
3. Protect the Lake's fishery.
4. Ensure the safety of recreational users of the Lake.

It is hoped this plan will prove to be practical to ensure its successful implementation so that future generations will be able to enjoy Otsego Lake as present and past generations have.

From the original plan, many recommendations have been put into effect. Others may take several years to accomplish and others may involve ever-continuing efforts. Each item will play an important part in making the overall management plan for Otsego Lake a successful one.

What poses the biggest threat to Otsego Lake?

Excessive nutrients (phosphorus and nitrogen) pose the greatest threat to the health of our waters. When nutrient content is high, physical, chemical, and biological changes occur. These changes lead to a condition known as "eutrophication." Eutrophication results in overabundant plant growth, unsightly lakes and streams, and destruction of plant and fish habitat.

How do we control nutrient-loading?

Nutrient-loading comes from three major human activities carried out in our watershed: agricultural runoff, development (both residential and commercial) and inadequate septic disposal. An effective watershed management plan must therefore address these activities, which can be divided into two basic categories: 1) land management issues and 2) water management issues.

WATERSHED MANAGEMENT PLAN

A. LAND USE PLANNING

Each municipality in the watershed should maintain its own comprehensive land use master plan. There should be cooperation among these municipalities to ensure that comprehensive planning activities are conducted in a coordinated fashion.

APPROACH – The watershed municipalities must at least generally agree on some standardized land use regu-

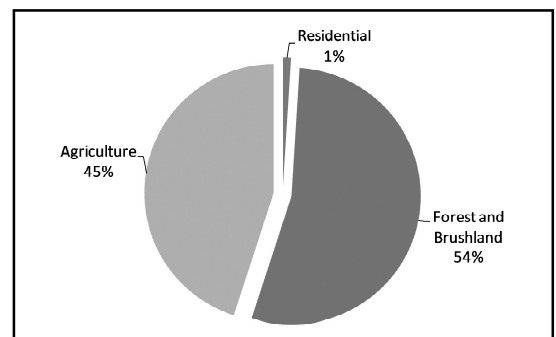


Figure 2. Land use in the watershed

lations that affect the well being of the lake. Certainly, strict enforcement of NYS Public Health Law (PHL) 1100 must occur. Local and county codes officers, the Department of Health (DOH) and the Watershed Supervisory Committee (WSC) are the appropriate enforcement agencies. Site-plan review of all projects in the Lake Shore Protection District, defined as within 500 feet of the Lake or within 100 feet of a DEC classified feeder stream, must have town planning board approval.

B. LAND PROTECTION AND PRESERVATION

Programs that encourage landowners to protect sensitive areas should be recognized as a valuable tool related to watershed protection.

APPROACH – The Otsego Land Trust (OLT) is an organization that can work with property owners to establish conservation easements (legal agreements between a landowner and a qualified non-profit organization or agency) to meet that end. These agreements typically limit residential and/or commercial uses and restrict harmful land and water management practices. The Natural Resources Conservation Service (NRCS) offers several options for water quality improvement, the footprints of which also are protected under conservation easements.

C. SEPTIC SYSTEMS

All septic systems should be maintained in proper working order.

APPROACH – In 2004, an inventory was completed for all septic systems in the Lake Shore Protection District. Data collected included type, size, material of construction, and age of each system, as well as maintenance history. Beginning in 2005, a five-year program of inspections commenced. The inspections, conducted by a trained inspector, consist of a visual inspection of the septic tank (before and after pumping), an inventory of wastewater discharges from the house, and an inspection of the absorption area. If a system fails to meet the acceptance criteria, the owner is given one year to install an upgraded system. This same inspection procedure is used when a property changes hands. The inspection cycle will be repeated continuously.

Advanced technology wastewater treatment systems are being used for replacement systems. The need is being driven by site limitations such as poor soils, small lots, steep slopes, and close proximity to the Lake. Also being considered is nutrient removal. The Town of Springfield now requires that phosphorus removal be included for all replacement systems within 100 feet of the Lake. The towns of Otsego and Middlefield are considering similar action.

The inspection program for septic systems is being managed by the Otsego Lake WSC. Its Regulations and Inspection Procedures are on file at the Village of Cooperstown website (www.cooperstownny.org) and copies are available at the Village Office.

D. ROADWAY MANAGEMENT AND MAINTENANCE

APPROACH – A review of present practices of town and county road maintenance crews and NYS Department of Transportation (NYSDOT) for existing maintenance practices should be undertaken in order to control non-point source pollution. Best Management Practices (BMPs) for roadway maintenance include proper storage of salt and other deicers.

Monitoring by BFS has documented continually increasing chloride concentrations in the Lake, as well as high silt and phosphorus content in abrasives previously used in some parts of the watershed. As such, alternative deicing compounds should be encouraged. Hydroseeding of roadsides (a service currently provided by the Otsego County Soil and Water Conservation Service (SWCD) and funded, in part, by the Otsego County Conservation Association (OCCA) can reduce erosion as well as sediment and phosphorus runoff following the grading of roadside ditches. The WQCC should continue to provide training programs for highway crews to make them aware of the importance of following these guidelines and should assist them in doing so. Local highway superintendents could assist in the oversight of this program. Additional training is available through the NYSDOT. The public should also be educated about the negative effects that the improper use of herbicides, pesticides and fertilizer have on local water sources. Efforts should be made to minimize the use of these products whenever possible.

Maintenance of road right-of-ways in the Glimmerglass Historic District should seek to protect historic roadway features whenever possible, including trees and plants, signage, historic fencing, and other significant character-defining natural and man-made elements. The Historic District includes lands around the lake up to its ridgelines and the entire Village of Cooperstown.

E. AGRICULTURAL MANAGEMENT

APPROACH – Support and encourage efforts of the SWCD, NRCS and the farming community to implement BMPs on all agricultural enterprises in the watershed to reduce agricultural runoff entering the Lake. Provide aid to the SWCD in obtaining funds for continued operation. Since 1996, 40 barnyard management projects have been implemented in the watershed as a result of a partnership between the USDA-NRCS and the OCCA. Typically, the NRCS provides 75% of the total project cost with the OCCA contributing the balance (otherwise charged to the landowner). BFS monitoring is attempting to evaluate the effectiveness of these efforts.

F. LOGGING OPERATIONS – SILVICULTURE

APPROACH – Any logging operations in the watershed should follow recommended practices as outlined in Silviculture Management Practices Catalog (DEC/Forest Management Section: Otsego and Canadarago Lake Watershed Planning Project (SWCD)). Depending on the scope of the project, logging permits might be required within a lakeshore district. Code officials could monitor with silviculture BMPs used as a standard.

G. STREAMS AND TRIBUTARIES

(1) All streams and tributaries should be identified, tested, tracked and evaluated with recommendations to correct problems in order of priority.

APPROACH – BFS staff published a major detailed study of the hydrological and nutrient budgets of the nine most significant tributary streams supplying the Lake (BFS Occasional Paper No. 29, June 1996). (See Appendix I.) Five of these streams (Shadow Brook, Hayden Creek, Cripple Creek, White Creek, and Mohican Creek) are monitored continually during the

summer for nutrient and bacteriological content (BFS Annual Reports, 1996-present). Additional monitoring has attempted to evaluate the effectiveness of various mitigative projects in the watershed. Examples of work done in the prevention of silting are the Willow Brook restoration project by SWCD in 1997, the discontinuation of using abrasives for winter road management, and the dredging of Clarke Pond with repair of its dam in 2005. Efforts are underway to install riparian buffers and fencing along streams in the agricultural areas of the watershed. This practice is proven to be the most cost-effective measure to protect water bodies from sediment and nutrient pollution. The buffers are being installed as part of the Conservation Reserve Program (CRP) and Conservation Reserve Enhanced Program (CREP), which are administered by the NRCS and the Farm Service Agency (FSA), under the umbrella of the United States Department of Agriculture (USDA). The OCCA is funding a buffer technician to work with NRCS and FSA to recruit participation in this program.

The impact of nutrients from waterfowl waste bears examination. (See the Management Practices for Urban Storm Water Runoff – NYS.)

(2) Map and monitor beaver dams in the watershed, so failures can be prevented. Non-active sites should be lowered to an acceptable level.

APPROACH – Recent dam breaks have caused damage to public and private infrastructure and have washed substantial amounts of sediment and nutrients into the Lake. Mapping and monitoring should be accomplished with the cooperation of landowners, local government and DEC, at a minimal cost. Aerial photography could be employed. Code officers and DEC would monitor.

(3) Wetland restoration

APPROACH – Encourage participation in a wetland creation and preservation program in appropriate areas with assistance by SWCD and NRCS. Educate public about the vital role wetlands play in our ecosystem. Funding may be sought through Clean Water, Clean Air Environmental Bond Act and the EPA. Four wetlands in the watershed north of the Lake have been developed through efforts of the Army Corps of Engineers (ACE) and Ducks Unlimited with federal funding. Additional wetlands have been restored and created through cooperative efforts between landowners and the NRCS through part of the Federal Wetland Reserve Program.

H. RECREATIONAL USE OF OTSEGO LAKE

(swimming, power and motorless boating, water skiing and fishing)

(1) Glimmerglass State Park, owned by New York State and operated by the New York State Department of Parks, Recreation and Historic Preservation (OPRHP), is located on the northeast end of the lake in the Glimmerglass Historic District. Recreational use of the Lake involves two major endeavors: the establishment of navigational use regulations and the formulation of a fisheries management plan. An Interim Fish Management Plan has been formulated by DEC Fisheries, Region 4. Navigational regulations will be reviewed and appropriate steps will be taken to adjust them if necessary for the benefit of the Lake. They will also be reviewed periodically for appropriateness.

(2) Maintain and enforce a 200-foot no-wake zone, with buoys and/or signage to protect sensitive areas, reduce turbidity in the Lake, and provide a safer environment for swimmers.

APPROACH – This has been accomplished through efforts of the BFS, the Otsego Lake Association (OLA), and funding from the NYSDEC, OCCA, the Village of Cooperstown and the Town of Otsego. Education of boaters as to the importance of no-wake zones or other water issues has been undertaken and is achieved, in part, by signage at public access sites.

(3) Enforce existing NYS Navigational Laws. The most important parts of this law for lake managers are Sections 33 through 73, dealing with regulations for pleasure boats. Most of these sections relate to lakes that have public access where the bottom is owned by New York State (Parks and Recreation Law). Enactment of local ordinances regarding operation of power boats and personal watercraft might be considered. It may also be necessary to regulate commercial activities on the Lake.

APPROACH – Existing navigational laws should be enforced by Otsego County Sheriff's Department, the DEC or through a cooperative effort. Adequate funding from the county has been lacking. Attempts to get additional money from the county have been unsuccessful to date.

(4) Enhance recreational opportunities and address water quality issues for cultural landscapes in the Glimmerglass Historic District and elsewhere in the Otsego Lake watershed.

APPROACH – Identify significant cultural landscapes in the Otsego Lake watershed (e.g., Cooperstown Village Parks, Brookwood Gardens, Otsego Golf Course, etc.). In cooperation with local municipalities, state and local agencies, and nonprofits, develop historic landscape reports or plans that address recreational needs, landscape preservation, and water quality improvements.

I. EXOTIC SPECIES

In recent years, numerous species of fish, benthic (bottom-living) invertebrates, zooplankton and plants have invaded New York State waters, usually with highly deleterious consequences. Every reasonable effort should be made to minimize the likelihood of the establishment of "new" exotic species, and to attempt to manage those that have already become established in Otsego Lake.

(1) Non-native species not currently in Otsego Lake

APPROACH – An inspection program, overseen by the Village of Cooperstown's Zebra Mussel Committee (ZMC), has been in operation since 2003. All vessels launched at either of the two Village sites are inspected by trained operators. If there is water in the bilge or elsewhere a chlorine (bleach) solution is added. Weeds are cleaned from trailers. If the boat and/or trailer appears to have recently come from another water body without having been washed, they are power-washed before launching or they are turned away. This program is sponsored by the Village of Cooperstown, The Scriven Foundation, OCCA, and OLA, and is assisted by the BFS. Also, the public launch in Springfield (for residents only) has incorporated a registration system to discourage use by vessels coming from other waterways. Public information about exotic species and efforts to counter them has been distributed.

(2) Alewives

APPROACH – The establishment of this non-native forage fish in the 1980s led to the decimation of Otsego Lake’s zooplankton community and caused declines in water clarity and deep-water oxygen levels. Since 2000, the BFS has worked collaboratively with the NYSDEC on re-establishing walleye. (Funding has been provided by The Alice Busch Gronewaldt Foundation, Inc., Otsego 2000 and the OCCA.) The intent of this initiative was twofold: to provide anglers with a highly desirable fishery and to potentially control alewife numbers through increased predation. To date, walleye numbers are comparable to other NYS “walleye lakes” and their growth has been exceptional. Monitoring through 2005 indicates a rebound of the zooplankton community and modest increases in transparency and deep water oxygen. Annual stocking will continue through at least 2007.

(3) Zebra mussels

APPROACH – Immediately prior to the printing of this document, adult zebra mussels were collected from Otsego Lake. Though found in extremely low densities, their presence suggests a successful colonization and densities may be expected to increase dramatically over the next few years. Information should be distributed to lake users to prepare them for issues related to water withdrawals, boat maintenance and swimming. Education should also focus on preventing the movement of mussels to other water bodies.

(4) Exotic plants

APPROACH – As described in section I.1, boat inspections and washing should reduce the likelihood of additional exotic plants becoming established in Otsego Lake. Public education is important and signage should continue to be posted at public access sites. Constant searches by BFS and other groups should be continued, as well as the special BFS “Water Chestnut Days.” Early detection is paramount. In 1999, BFS students found two water chestnut plants. After careful removal, no others have been found since. However, in 2006 that species was documented in Goodyear Lake and in a wetland in Oneonta. Countermeasures to combat established exotic plants would include programs such as harvesting if and where it was deemed appropriate. Purple loosestrife is being controlled by introduction of specific beetles by the BFS. As of summer 2005, all purple loosestrife proximal to Otsego Lake was affected by the beetles and this invasive plant is declining.

J. IMPROVE ABILITY TO MAINTAIN THE LEVEL OF THE LAKE MORE CONSTANT DESPITE STORMS

APPROACH – A feasibility and engineering study should address the flow control structure at the Lake’s outlet. The Village Water Board and/or the WSC might accomplish this. More precise control of the flow over the Mill St. dam has been achieved by the Village Water Plant staff to manage the required minimum flow of 10 cubic feet per second, but there is no way to control the flow at periods of very high water except to remove all of the boards, giving a dam height of 1193.0 feet above sea level. The importance of this issue became evident following record rainfall in June 2006. Lake level peaked at 105 cm (41-1/2 in) above normal. Lakeside flooding and damage was considerable.

K. CONTINUE MONITORING OF THE LAKE

APPROACH – The BFS should continue its broad monitoring program of Otsego Lake, which includes nutrients, oxygen levels, clarity, aquatic plants, fish, and contributions by tributaries. The WQCC and other agencies should be advised periodically of the state of the Lake and any changes for which they might be able to assist with remedial action. Periodic reports to the public to maintain awareness of the status of the Lake are an important part of the BFS effort.

L. PUBLIC EDUCATION AND OUTREACH

APPROACH – In order for this management plan to be effective, it is imperative that the public be informed of and sensitive to issues related to the health of Otsego Lake. Groups involved with the Lake's management are encouraged to communicate with watershed residents and others who use the lake. Venues should include newsletters, public media and forums. The WQCC should continue to sponsor an annual Lake Festival for the purpose of educating the general public on water quality initiatives in the watershed. It should solicit funds to meet that end.

LIST OF RESPONSIBILITIES BY AGENCY

Biological Field Station (BFS): (State University College at Oneonta)

Streams and tributaries, Fishery management, 200-ft. no-wake buoys, Exotic species, Lake monitoring, Public information about lake, Record lake level

New York State Department of Environmental Conservation (DEC):

Streams and tributaries, Fishery management

New York State Department of Transportation (DOT):

Roadways

Otsego 2000

Cultural landscape initiatives, Public information

Otsego County Conservation Association (OCCA):

Support for WSC and ZMC, Public information, Funding for septic system management plan, No-wake buoy program, riparian buffer program and agricultural Best Management Practices (BMPs) in the watershed

Otsego County Planning (OCP):

Land use planning

Otsego County Sheriff's Department:

Enforce navigational laws

Otsego County Soil and Water Conservation District (SWCD):

Agricultural BMPs, Logging operations, Streams and tributaries, Beaver dams, Wetlands, Roadway erosion

Otsego County Water Quality Coordinating Committee (WQCC):
Overall management of Plan

Otsego Lake Association (OLA):
Zebra mussels, Lake turbidity

Otsego Land Trust (OLT):
Conservation easements

Village of Cooperstown:
Control of lake level, study of dam, Septic inspection program

Watershed Supervisory Committee (WSC) (Village of Cooperstown):
Septic systems, Public information

Zebra Mussel Committee (ZMC) (Village of Cooperstown):
Zebra mussel control, Public information



Photo by Andy Baugnet



*Dedicated to the preservation and protection
of the Otsego Lake region and its watershed.*

OCCA

OTSEGO COUNTY CONSERVATION ASSOCIATION

We are proud to support the Lake Management Plan and continue our role in its implementation to protect Otsego Lake for generations to come.

We all share in the stewardship of the lake, whose well being is crucial not only to those living on or near the lake, but to the entire Susquehanna watershed. For over 40 years OCCA has recognized the fragility of this valuable natural ecosystem. In the near future, OCCA volunteers will be approaching those with vested interest in the lake about contributing to a community campaign to protect the lake. We look forward to discussing the state of the lake and its future protection with you.

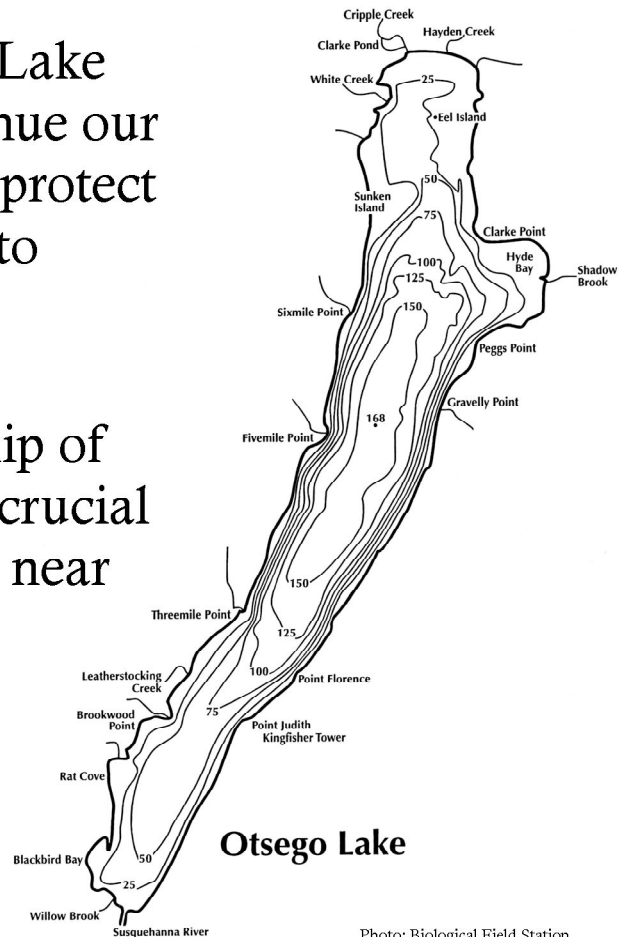


Photo: Biological Field Station

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