Chapter I: Introduction

1. Approach

Project Components

The Cayuga Lake Watershed Restoration and Protection Plan (RPP) process began in 1998 with the creation of the Cayuga Lake Intermunicipal Organization. The central focus from the beginning of the process was to identify priority issues and solutions on a watershed-wide basis and have all of the local governments and organizations in the watershed agree on the priorities and work together to access funding in order to implement the recommendations of the *RPP*.

The first step in the process was an assessment of current socio-economic and ecological conditions of the Cayuga Lake Watershed. The data collected in this assessment was published in September of 2000 in the *Cayuga Lake Preliminary Watershed Characterization*. In this report both the current understanding of the state of the watershed and the history and status of the watershed management planning process were explained.

Once the current state of the lake was analyzed, step two was to determine the desired future of the watershed. Based on input gathered from several IO and public meetings, it became clear that interested citizens wanted the watershed to remain a source of drinking water, a recreational and aesthetic resource, with public access to the lake and plenty of open space, while supporting a diverse and sustainable economy.

The third step was to identify and prioritize threats to the water quality of the watershed. In order of importance, as determined through meetings with the general public as well as the IO, the top seven threats identified (in ranked order) were agricultural practices, sediment loading, drinking water, water quality standards, development practices, stormwater runoff, and on-site wastewater systems. The primary sources of pollution identified in the watershed (in order of importance) included sediment, phosphorous, pesticides and fertilizers, organic compounds, heavy metals, pathogens and exotic organisms.

Next an inventory of current pollution controls highlighted methods being used, who is responsible for implementation and cost, how institutional measures are applied, and how feasible these controls are specifically for the Cayuga Lake Watershed. To finalize the groundwork for the *RPP* it was important to acknowledge that there are gaps in water quality and quantity monitoring data and limitations in funding both restoration and protection of our water resources. In addition, there is a clear need for watershed-wide public education, economic sustainability, pollution regulation and enforcement, and increased incentives for voluntary action.

Based on current water quality threats and pollution control methods, eleven strategies or action categories were identified in the *RPP*. They include the following:

1) public participation
2) watershed coordination, collaboration and partnerships
3) education
4) agricultural practices
5) stormwater management and erosion control

6) wastewater systems management
7) hazardous waste management
8) monitoring and assessment
9) wetland and riparian corridor management
10) forestry and silviculture management; and
11) regulatory management.

Tables for each of the eleven action categories in the *RPP* provide specific recommendations for what actions could be taken, the organizations that could be involved, possible measures and targets to follow, and approximate cost for each activity. The main purpose of these tables is to serve as a watershed management manual for municipalities, community groups and citizens interested in taking an active role in the restoration and protection of the Cayuga Lake Watershed. To prevent the watershed management plan from becoming mainly regulatory, communities and citizens are encouraged to take responsibility for their part of the watershed through "actions and deeds" and get involved in the watershed-wide process. As time progresses, more and more of the water quality threats and issues identified in the *RPP* will be addressed and new or previously unidentified issues will require an evaluation and revision of the *RPP* itself to reflect new information collected in the ongoing monitoring and assessment program. The revised *RPP* may cause a shift in management priorities as we further restore and protect our water resources and strive toward meeting our watershed goals.

While implementation has been going on prior to, and during the development of the *RPP*, it is suggested that coordinated implementation will be driven from, and by, the collective energy of the *RPP*. The institutional structure for implementing the *RPP* will be the IO. A strategy for that structure is being developed concurrently with this plan and will be functional by October 2001.

An Evolving Plan

The planning process preceding the actual production of this plan is important to understand. It includes an organizational structure that is founded in coordination, collaboration and partnerships, and understanding of nonpoint source pollution and the use of a watershed approach.

Non-Point Source Pollution

Cayuga Lake is significantly affected by non-point source pollution. Point source pollution is pollution that enters a waterbody from a pipe or other well known source. Non-point source pollution is carried to waterbodies like Cayuga Lake through runoff from the land. Thus a vast array of land use activities can potentially be a nonpoint source of pollution. Many of these activities have been identified in Chapter II of this report. Being general and indefinite, nonpoint source pollution is difficult, if not impossible, to regulate out of existence. Each individual non-point source is usually insignificant, but the cumulative effects of multiple non-point sources create the significance.

Chapter I of this report describes in large part the approach that has been used to develop and structure a plan addressing nonpoint source pollution in the Cayuga Lake Watershed.

Chapter II covers the issues, water quality status and major areas of water quality concern in the Cayuga Lake Watershed. Chapter III considers the strategies, recommendations & management options for the major areas of non-point source pollution in the Cayuga Lake Watershed.

Watershed Approach

A watershed can be defined as a catch basin in which all water that lands in the basin eventually ends up in one specific delivery point (in this case Cayuga Lake). The Cayuga Lake Watershed can be broken down into 19 major subwatersheds (18 tributary based subwatersheds and the remainder in direct drainage) and then further broken down into 46 minor subwatersheds based on the network of larger tributaries (streams) flowing to Cayuga Lake.

A plan based on watershed boundaries rather than political boundaries can better target polluted or threatened areas for protection or restoration. This *RPP* calls for a watershed-based approach to planning and management that considers the Lake and its drainage area as a whole, interconnected, complex system. At the same time it is necessary to break down this complex watershed into subwatersheds to increase the ability to identify specific pollution sources and focus efforts.

2. The Watershed

The Cayuga Lake Watershed is part of the Oswego River Basin (see Figure 1-1). The Oswego River Basin in Central New York State is a diverse system made up of many hydrologic components that flow together. Water flows from (1) upland streams down to, (2) the Finger Lakes, then to (3) low-gradient rivers and the New York Barge Canal, and (4) ultimately to Lake Ontario. Within the Oswego River Basin, Cayuga Lake is downstream of Keuka and Seneca Lake. Keuka Lake waters flow into Seneca Lake via the Keuka Lake Outlet. Seneca Lake waters flow into the extreme northern end of Cayuga Lake via the Seneca-Cayuga Canal.

The Cayuga Lake Watershed (see Map 1-1) is the largest of the Finger Lakes, covering 785 square miles (approximately 500,000 acres) of agricultural, residential, industrial, and forest land. Although the dominant surface water feature of the basin is the lake itself, a network of more than 140 streams flow into the lake. The northern outlet of the lake receives about 48 percent of the total runoff from the Oswego River Basin's 5,100 square miles, before it flows into the Seneca River, towards the Oswego River and Lake Ontario. The land area of the Cayuga Lake Watershed includes six counties and 44 municipalities (cities, towns, and villages) (see Figure 1-2), and is home to over 120,000 people.

Cayuga Lake is the second-largest Finger Lake. It is the longest, widest and one of the deepest of the eleven Finger Lakes, being 38.2 miles long, 1.75 miles wide (average width), up to 435 feet deep with a shoreline of over 95 miles. This lake's spectacular topography was formed through periods of glacial advance and recession, which deepened and widened the Cayuga Lake Valley and smoothed the surrounding hills. Due to Cayuga Lake’s relatively large size and significant depth, water that drains into the lake takes over 10 years to cycle through the lake.

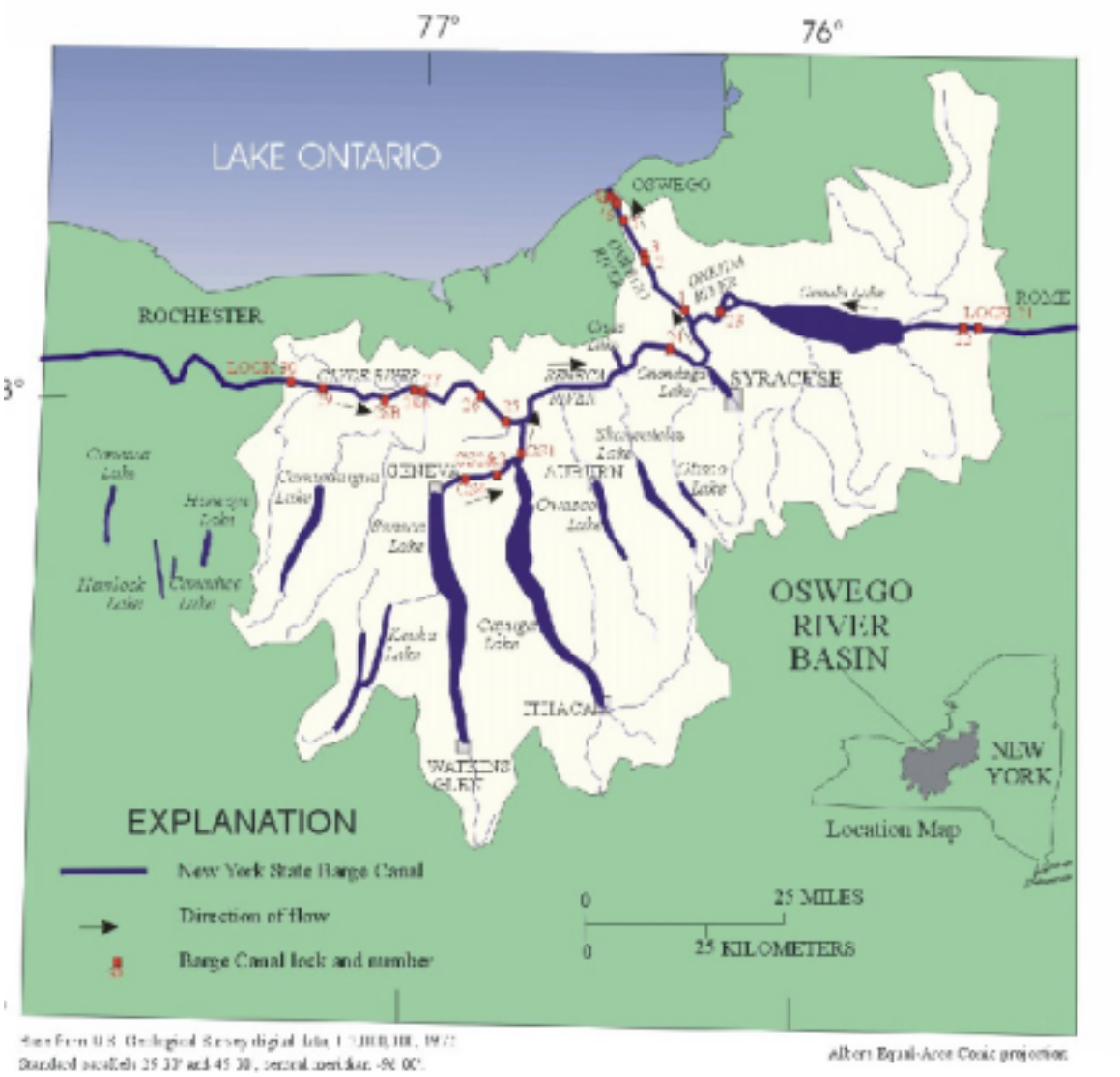
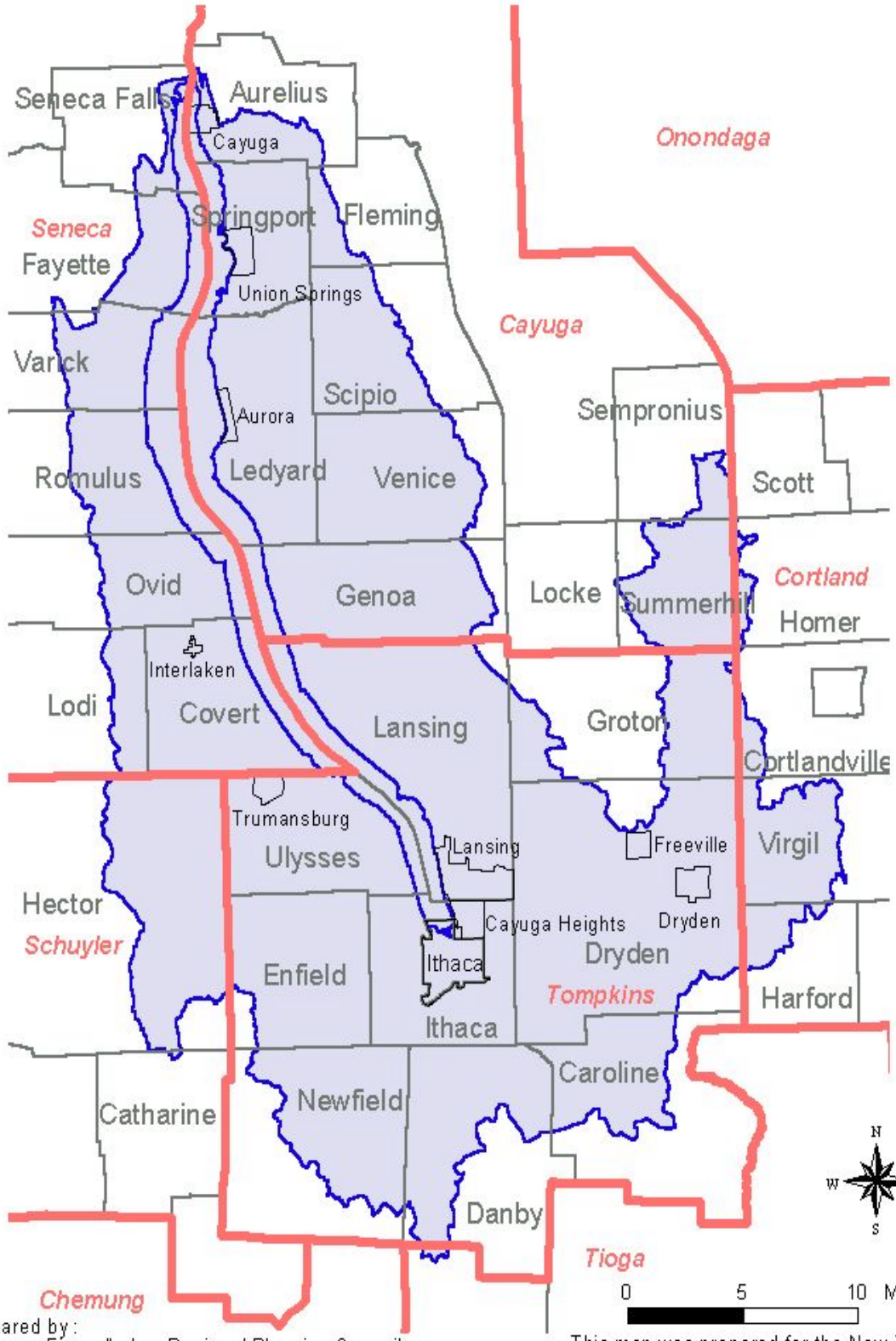


Figure 1-1 Oswego River Basin

The economic and natural resources found in the Cayuga Lake Watershed are invaluable to residents and visitors alike. Economic resources include agriculture, tourism and recreation, real estate, industry, and commerce. Natural resources include wildlife, parks, fisheries, wetlands, forestry, and water.

The soils of the Cayuga Lake Watershed are among the richest and most fertile in the nation (*Cayuga Lake Preliminary Watershed Characterization, 2000*). According to the 1992 Census of Agriculture, the hundreds of cash crop, beef and dairy farms in the watershed generate annual receipts of approximately $176,423,000. The watershed's beaches, rivers, and lakes are an attractive vacation destination. In the Cayuga Lake Watershed, tourism and recreational activities include boating, bicycling tours, hiking, sport and recreational fishing, hunting, bird watching, swimming, and camping. On average, proximity to water raises the value of a home by about 28%. Furthermore, houses in better water quality areas are generally worth about 20% more than those adjacent to poorer water quality. The beauty and bounty of the Finger Lakes Region attracts businesses and educational institutions that seek a high quality of life for their

Cayuga Lake Watershed



Prepared by:
Genesee Finger/Lakes Regional Planning Council
Source:
Genesee/Finger Lakes Regional Planning Council, 1998.
Base Map:
New York State Department of Transportation, February 1996.

This map was prepared for the New York State Department of State with funding from the Environmental Protection Act. Additional funding was provided through the Empire State Development Corporation.

Figure 1-2 Municipalities in the Cayuga Lake Watershed (*Municipalities with small portion in watershed)

Tompkins County
· Town of Carline
· Town of Danby
· Town of Newfield
· Town of Dryden
· Town of Ithaca
· Town of Enfield
· Town of Lansing
· Town of Ulysses
· Town of Groton
· City of Ithaca
· Village of Dryden
· Village of Trumansburg
· Village of Lansing
· Village of Cayuga Heights
· Village of Freeville

Cayuga County
· Town of Summerhill
· Town of Genoa
· Town of Sempronius
· Town of Locke*
· Town of Venice
· Town of Ledyard
· Town of Scipio
· Town of Fleming
· Town of Aurelius
· Town of Springport
· Village of Aurora
· Village of Union Springs
· Village of Cayuga

Schuyler County
· Town of Hector
· Town of Catharine*

Tioga County
· Town of Spencer

Cortland County
· Town of Harford
· Town of Virgil
· Town of Cortlandville
· Town of Scott*
· Town of Homer

Seneca County
· Town of Covert
· Town of Lodi
· Town of Ovid
· Town of Romulus
· Town of Fayette
· Town of Varick
· Town of Seneca Falls
· Village of Interlaken

employees and families. Studies have shown that clean water and air are the two most important factors in choosing a place to live.

The Cayuga Lake Watershed is an important link in the waterfowl flyway of the Atlantic Coast. There is seasonal use by approximately 314 bird species, including many shorebirds and waders. There are seven state parks and numerous county/town parks that provide public access to the lake as well as preserve the integrity of various natural resources. The watershed supports both warm and cold water fishes, including lake trout and four species of salmonids. There are more than 6,000 acres of high quality wetlands in the watershed along with thousands of acres of valuable forests important for timber, wildlife, recreation, and water quality. Numerous communities and hundreds of households depend on Cayuga Lake and its watershed as a drinking water source from both surface and ground waters.

3. Statement of Watershed Restoration & Protection Plan Vision, Goals & Purpose

Vision

The Intermunicipal Organization envisions Cayuga Lake recognized and valued by all watershed residents as the watershed's foremost natural feature and resource, deserving of and receiving protection via watershed-wide adoption of land-use plans that minimize pollution and sprawl, preserve viewsheds and soils, and result in a sustainable and diverse economy that provides satisfying employment for all residents able to work and that contributes to regional self-sufficiency, all in a non-discriminatory, equitable, and cooperative manner.

A single vision for the Cayuga Lake Watershed is impossible to define without being overly simplistic. Who doesn't want high water quality?. We all agree that clean water is essential.

Other than clean water, the more difficult question is, what do we want the watershed to look like in the future and how do we get there?

Goals

The Intermunicipal Organization (IO) will work through the development and implementation of the *RPP* to promote the understanding that is vital to maintain and improve the ecological health and beauty of the watershed and the protection and preservation of Cayuga Lake, along with building and maintaining a productive economy in order to sustain a healthy social environment for the people of the Cayuga Lake Watershed. The cooperating municipalities share a number of common goals, including:

- minimize nonpoint source pollution of both surface and groundwater in the watershed;
- the remediation of existing pollution and degradation;
- the preservation of open space and natural resources;
- the expansion of economic activities consistent with the watershed environment;
- developing programs for educating the public and public officials;

- developing compatible components of their comprehensive plans and zoning and natural-resource ordinances;
- exploring mutually beneficial ways of securing and sharing federal, state, and county-agency funding for the programs that accomplish their objectives in the above areas;
- sharing the costs of monitoring compliance and enforcement of regulation;
- the resolution of disputes regarding development projects with intermunicipal impacts;
- the resolution of disputes regarding development projects that impact environmentally sensitive areas;
- working with federal, state, and county agencies and authorities to assure that their activities in the watershed are compatible with the plans and programs of the cooperating municipalities; and
- understand ecosystem dynamics within the watershed in an effort to prevent and/or respond to threats to its integrity.

Purpose

The purpose of the IO according to the Memorandum of Understanding establishing it is "to develop a Cayuga Lake Watershed Management Plan (RPP) and oversee and administer it." To this end, the IO operates under the following expanded statement of purpose:

The purpose of the IO is to recognize the interrelatedness of all activities within our watershed and to collaboratively and collectively work to address issues and problems. The goal is to promote understanding that is vital to maintain and improve the ecological health and beauty of the watershed along with building and maintaining a productive economy and also sustain a healthy social environment for the people of the Cayuga Lake Watershed.

The charge of developing a *RPP* includes the need to:

- establish watershed priorities;
- approve an annual work plan and budget;
- approve requests for funding and for endorsement of projects consistent with the priorities;
- provide a forum for all municipalities within the watershed to interact and exchange information; and
- review technical and fiscal summary reports.