

# Chapter VI: Issues of Concern

## Section 1. Introduction

Development of the State of the Lake and Watershed Report has provided an opportunity for stakeholders to identify important information regarding local issues of concern for the lake and watershed. These issues are summarized below, in no particular order. Due to the large size of the watershed, the issues are presented in six separate sections, based on watershed regions: the Limestone/Butternut, North Shore, Northern Uplands, Eastern, Southern Uplands, and South Shore regions (**Map 6.1.1 – Watershed Regions**). The report limits a discussion of these issues to a brief summary, but the future “Oneida Lake and Watershed Management Plan” will prioritize the issues, identify project goals, and develop specific strategies to address program objectives.

In an effort to identify the issues of concern for each of the six regions, impressions of the lake and watershed were obtained from three primary groups of decision-makers and were documented over a one-year period. A summary of these groups and how their input has been incorporated into this document is presented below.

- One source of information regarding local issues was obtained from county-level agencies and organizations. Each section of this Chapter contains general background and problem assessment information that was collected from local reports such as the **County Water Quality Strategies** in each of the five major watershed counties – Onondaga, Madison, Oneida, Oswego, and Lewis. The Strategies were written by each County’s Water Quality Coordinating Committee (WQCC). WQCCs are comprised of representatives from government agencies, private organizations, and individuals that have a special interest in programs relating to water resources. Monthly WQCC meetings are typically attended by Planning agencies, SWCDs, Health Departments, Regional Planning Boards, Cooperative Extension and other local groups. The County Strategies provide a comprehensive summary of countywide issues of concern from an agency and organization perspective. A common concern expressed by several of the WQCCs, but not included in the County Strategies, is the lack of people at County level to help with regulatory program implementation and other services.
- The second source of information about local issues of concern was obtained from a **Municipal Survey** (designed by CCE of Onondaga County, CNY RPDB, and HOCCPP) that was distributed to approximately 69 municipalities in the watershed in January 2002. This included the municipalities that are entirely or partially located in the watershed. Mayors and supervisors were asked to discuss the survey with members of their local boards in order to develop a consensus response for each question. The survey questions were presented in relation to both lake and watershed issues. The survey also asked what the municipalities expected from a Watershed Management Plan and what issues they felt should be addressed on a local level.

Twenty-nine surveys were returned, representing 42% of the total distribution. The response rate was higher for the municipalities that border or are situated near Oneida Lake and lower for the towns and villages located farther from the lake, several of which expressed a minimal interest in lake issues. A copy of the 2002 Municipal Survey can be found in **Appendix J**.

- The third source of information regarding lake and watershed issues was obtained from the **2001 Task Force Conference**. Seventy municipal representatives and other key decision-makers with an interest in Oneida Lake and its watershed attended the annual event in November 2001. The afternoon was devoted to breakout groups where attendees were divided into six watershed sub-regions. One of the important topics discussed by each group was the identification of water resource activities that are considered to be important local issues of concern.

Throughout this chapter, care was taken to avoid using the word “problem”, as opinions by differing groups vary greatly. One person’s “problem” may be seen as another person’s blessing. Instead, the topics are presented as “issues of concern,” to imply that these are areas that need to be addressed.

On a final note, information from the Priority Waterbodies List (PWL) is not presented in this chapter. Instead, a comprehensive summation of PWL information can be found in Chapter II, Section 4.4, and **Appendix I**.

## **Section 2. Issues Defined**

The issues identified in this chapter vary significantly among the six regions. Several topics, however, were repeated by a large number of sources throughout three or more regions. For example, the key priorities for Oneida Lake identified by most of the regions include the decline of fish populations, the presence or threat of water chestnut and zebra mussels, the need for cormorant control, and various boating related issues. When commenting on watershed issues, common concern expressed by many of the regions focused on flooding and water level controls, erosion and sedimentation from urban and agricultural influences, surface and groundwater contamination, and impacts from poorly maintained septic systems. Several of these common lake and watershed issues are briefly described below.

- **Fisheries:** Oneida Lake is a shallow productive lake with extended clear water periods. The physical characteristics combined with the fertility of the lake have contributed to excellent fisheries dating back to the early 1800s. A decrease in the sport fishery of walleye and yellow perch has occurred over the past decade and the cause(s) for this decline has been the focus of attention by researchers at the Cornell Biological Field Station and by NYS DEC. The decline is associated with predation by double-crested cormorants and possibly increased predation on young walleye by fish predators due to extended clear water events in response to zebra mussels. Recreational fishing is economically important to the Oneida Lake region (\$10.6 million in 1996) and significant declines of sought after fish like walleye and yellow perch negatively impacts the local economy.

- **Double-Crested Cormorants:** Cormorants are a significant predator impacting fish populations in Oneida Lake. In the fall when the birds are migrating south from Canada the number of cormorants can increase dramatically. In 1998, cormorant populations on Oneida Lake peaked at 1,750 birds, representing a migrant population of approximately 1,000 birds. Cormorants are opportunistic feeders and generally eat the most abundant fish in Oneida Lake, which happen to be walleye and yellow perch. The birds consume approximately one pound of fish per day per bird and can consume large numbers of fish. In 2001, while resident and migrant populations of cormorants consumed an estimated 2.8 million fish (of which 2 million were subadult yellow perch and 350,000 were subadult walleye), the bulk of the consumption of walleye and yellow perch was by resident cormorants.

In 1994, the NYS DEC created a Cormorant Task Force made up of citizens in the Oneida Lake and Lake Ontario communities. An aggressive harassment program to discourage cormorants from stopping over and to reduce their time spent on Oneida Lake was implemented in 1998 by USDA's Wildlife Services Unit, NYS DEC, and the Oneida Lake Association. Scientists from the NYS DEC and the USDA Wildlife Services Unit are also conducting experiments to see if the use of sound and visual deterrents will alter cormorant migration and roosting patterns on Oneida Lake.

- **Water chestnut:** The 1999 detection of water chestnut, with its thick vegetative mats and preference for shallow, slow-moving waters, looms on the horizon as another threat to recreational opportunities on Oneida Lake. Dense plant growth on the lake surface blocks the sunlight from penetrating the water column, shades out native plants, reduces fish habitat, and restricts boating and other recreational usage.
- **Zebra mussels:** Zebra mussels are a "biological pollutant" added to the Oneida Lake food web in 1991. These organisms have dramatically changed water clarity patterns in Oneida Lake and have caused the extinction of all native clams. Zebra mussel induced water clarity patterns have resulted in aquatic plant growth extending into deeper water and have likely impacted the behavior and abundance of turbid water fish species like walleye. Increased light penetration has caused mats of algae to grow on the lake bottom at shallow depths and windrows of aquatic plants and algae to accumulate on the shoreline in late summer and early fall.
- **Boating pressures:** Because of the recreational opportunities and aesthetic appeal, tourism is a major industry for the Oneida Lake watershed. As a result, local residents and lake users are concerned about the perceived overuse of the lake by boaters and other watercraft and the lack of enforcement of local laws. Many have voiced concern about boating and personal watercraft issues, such as speed, noise, and close proximity to the shoreline.
- **Salt application and storage:** The application of deicing salts on roadways and unprotected salt storage areas can impact both surface water and groundwater. High salt content in groundwater and surface water can alter water chemistry, making it unfit for aquatic life or human consumption.

- ❑ **Septic systems and other human influences:** While phosphorus levels and nutrient enrichment have declined in Oneida Lake over the past 20 years, nutrients and other elements originating from agricultural and street runoff and poorly maintained septic systems remain a concern. The lake community has voiced a human health concern regarding untreated septic wastewater entering Oneida Lake.
- ❑ **Erosion:** The loss of soil from the Oneida Lake watershed due to poor land use practices associated with agriculture, forestry, highway maintenance, and construction is a major issue of concern especially in the southern portion of the watershed. Loss of soil into Oneida Lake destroys valuable fish habitat and introduces nutrients and other pollutants to the lake.
- ❑ **Sedimentation:** Excess sediment loading at the mouth of tributaries and in Oneida Lake can result in negative impacts on aquatic biota, fish, and fish habitat. As areas of the lake bottom become shallow as a result of heavy sedimentation, boating and other recreational activities are greatly hampered. Excess sedimentation and erosion also negatively impacts the flora and fauna including fish in Oneida Lake watershed streams.
- ❑ **Flooding:** Flooding occurs in the regions surrounding Oneida Lake, often after major storm events or rapid winter thaws. This flooding can be attributed to high water tables, as well as the accumulation of logjams and sediment in the tributaries. The most notable hydrologic impact from sedimentation is a higher flood stage in the stream. As excessive sediment fills in the stream channel, the stream loses its capacity to hold water, thereby increasing the frequency of bank overflows. Impervious surfaces such as parking lots and buildings may also increase the quantity and velocity of stormwater runoff. Flooding may also be exacerbated when the natural runoff storage capacity of wetlands is lost to drainage and filling efforts.
- ❑ **Lake water levels:** Problems within the lake community can develop if the lake water levels are either too high or too low. High water levels can contribute to flooding problems during periods of excess precipitation. Lake drawdown, a common process whereby the lake level is lowered in the fall, is designed to reduce flooding during periods of snowmelt and heavy precipitation during the following spring. While this practice is commonly used to reduce flooding for shoreline communities in the springtime, the fall drawdown has a negative impact on recreational users who wish access to the lake and to fish and other organisms that become entrapped in pools separated from the main lake. Prior to ice-in in early winter, erosion and transport of nearshore lake sediment along de-watered shoreline is an issue of concern.
- ❑ **Damage to existing properties:** Flooding occurs in the areas surrounding Oneida Lake, often after major storm events or rapid winter thaws. But damage can occur to public and private property below existing flood levels.

## Section 3. Specific Issues of Concern by Region

### 3.1 Limestone/Butternut Creek Region

#### Introduction

The following Onondaga County municipalities are located in the Limestone/Butternut Region: the City of Syracuse, the Towns of DeWitt, Fabius, Lafayette, Manlius, Onondaga, Pompey, Tully, and the Villages of East Syracuse, Fayetteville, Manlius and Minoa.

According to the Onondaga County Water Quality Strategy, urban runoff, nutrients, and sediment are the primary pollutants of concern in the Limestone/Butternut Creek subwatershed.

Land use and natural physical characteristics of the landscape contribute to erosion and sedimentation problems in the Limestone/Butternut Creek Region. A significant mudslide occurred at the headwaters of Limestone Creek (north of NYS Routes 13 and 80) during the late spring of 2002 after a period of heavy rainfall. The slide area has been reported to be semi-active over the past several years. This recent incident has altered the creek flow, resulting in tons of suspended sediment flowing downstream and impacting stream biota for over ten miles. Heavy turbidity and low transparency is noted in the creek down to the Village of Manlius. If left unchecked, at least one homestead and a major power line crossing the valley will be threatened. A team of professionals from Federal, State, and County agencies are currently developing a remediation strategy to stabilize the shoreline and reduce further impacts to the stream.

Agriculture is another contributor of sediment and nutrients as many acres of farmland are located on steep slopes or thin upland soils. The majority of the cropped fields in these subwatersheds are eroding at 2 to 3 times the sustainable soil loss rate. Spring and storm runoff combined with steep and narrow channels can result in flash flooding that transports topsoil downstream.

Flooding occurs as a result of topography and limited channel capacity, combined with development pressures when homes are built in areas with a high water table. A 1984 U.S. Army Corps of Engineers report *Limestone Creek: Local Flood Protection Fayetteville, New York* states that overbank flooding occurs in the downstream reaches of Limestone Creek and is of special concern in areas such as the Village of Fayetteville because of the intensity of development in that area.

An additional issue in the Limestone/Butternut Creek Region is the increasing pressure on natural resources as a result of suburban and rural non-farm growth. Managing the urban/rural fringe is a challenge and issues such as land use, building, water supply, and sewage disposal rise to the forefront as the population grows. In the Limestone/Butternut Creek Region, drinking water from wells or springs that tap perched water tables in glacial till and groundwater supplies originating in limestone are subject to periods of low flow and tend to have hard waters. The limitations of these groundwater supplies become an increasing concern, as suburban and rural non-farm growth continues.

## **2002 Municipal Survey**

Nine of the municipalities in the Butternut Limestone Region responded to the 2002 Municipal Survey and expressed common concerns for stream management (debris buildup and log jams) and agricultural impacts on groundwater quality from pesticides, manure spreading, and chemical fertilizers. Stormwater runoff from impervious surfaces and roadside ditches impacting surface and groundwater quality was also a concern expressed by the Limestone/Butternut Creek Region representatives. Flooding, open space planning, and natural resource protection are other issues of concern in this region. Highway maintenance and storage of road deicing materials were also noted as important issues. According to the municipal representatives, the most important issues that should be addressed by the Watershed Management Plan include debris buildup in streams, maintenance of water quality standards, open space management and planning, stormwater runoff, and flood management.

Municipal representatives from the Limestone/Butternut Creek Region feel most prepared to address issues relating to streambank management and highway maintenance practices. Several of the municipalities requested further information on streambank protection including management strategies and grant funds. Representatives were interested in learning how other municipalities dealt with erosion and sedimentation, specifically control measures that have been successfully implemented. On a scale of one (excellent) to ten (poor) the survey respondents rated the overall quality of Oneida Lake as five (good).

## **2001 Task Force Conference**

Several issues of concern in the Limestone/Butternut Creek Region were identified at the 2001 Oneida Lake and Watershed Task Force Conference. They included the following:

- Flooding in relation to lake level control and land development;
- Sediment deposition from agriculture, new construction, and highways;
- Floodplain protection/development in floodplains and on marginal land;
- Agricultural planning;
- Open space protection; and
- Public access along creeks.

The issues of concern expressed for Oneida Lake include fisheries management, weed growth, and the control of exotic species.

## **Additional Opinions**

In 2001 and 2002, Cornell Cooperative Extension sponsored a series of meetings with Watershed Advisory Council representatives from towns and villages throughout the Limestone/Butternut Creek Region. At a meeting held on January 24, 2002, participants voiced concern that regulators are requesting towns to change to salt for the control of ice on slippery roads during the winter months. Sand can lead to excessive sediment loading to surface waters, but rural towns are more concerned that salt may contaminate drinking water wells. Concern was also raised over fallen trees in the streams and how to effectively deal this type of obstruction.

## **3.2 North Shore Region**

### **Introduction**

The North Shore Region of the Oneida Lake watershed includes the Towns of Hastings, West Monroe, Constantia and Vienna, and the Villages of Cleveland and Central Square.

According to the Oswego County Water Quality Strategy, the poorly drained soils and high groundwater levels along the Lake Plain region pose limitations to septic systems and poor infiltration can result in system overloads. When system failure occurs, untreated wastewater and sewage can be introduced into groundwater and surface water. To address this issue, the Town of Constantia is considering the creation of a sewer district along County Route 49.

Additional issues of concern have been affirmed by the North Shore Council of Governments (NorCOG), a group of Oneida Lake north shore municipalities bound together by an inter-municipal agreement. NorCOG is comprised of the Village of Cleveland, and the Towns of Constantia and West Monroe. These municipalities submitted additional information to the CNY RPDB in a March 10, 2002 letter that presented a descriptive text about their local issues of concern. A summary of the NorCOG letter is presented below, following the issues of concern that were summarized in the 2002 Municipal Survey, and expressed at the 2001 Task Force Conference.

### **2002 Municipal Survey**

Survey responses indicated a need for greater economic development, tourism enhancement, and open space planning. Municipal representatives are interested in maintaining water quality standards, monitoring the tributaries and the lake, and the management and regulation of water levels. In addition, there is concern that a lack of comprehensive planning and local controls on new development may result in an increase in the density of shoreline development, thereby contributing to an increase in local flooding issues and the need for more stringent stormwater management.

Issues of high concern in Oneida Lake include the presence of non-native plants and animals (especially zebra mussels, round gobies, and water chestnut), excessive growth of algae and rooted plants, and decomposing plant materials. Cormorant impacts on fisheries and the need for their long-term population control, and the reduction in fish populations are also issues of concern noted by North Shore representatives. The municipalities agreed that excessive speed and noise of personal watercraft vessels as well as intoxicated boat/jet ski operators are issues of great concern on the lake.

The loss of open space, diminishing natural habitats, and streambank and roadbank erosion were also identified as areas of concern. In addition, concern was expressed over the decline in surface water and groundwater quality resulting from agricultural and industrial practices, runoff from landfills/illegal dumping/hazardous spills, and stormwater runoff from impervious surfaces and roadside ditches. The storage of road de-icing materials and roadside ditch maintenance practices, the impact of septic effluent on lake water quality, as well as the age and need to retrofit the existing infrastructure, completed the issues of concerns identified by North Shore Region survey respondents.

Lake access, water quality, cormorants, shoreline development, and lake water levels were identified as the highest priority lake and watershed issues that need to be addressed. North Shore municipal representatives feel they are best able to address issues regarding on-site septic systems, impacts related to highway maintenance procedures, erosion and sedimentation, lake access issues, and sewage discharge. Survey respondents listed education, opportunities for intermunicipal cooperation, and grant assistance as products they would like to receive from the Watershed Management Plan. On a scale of one (great) to ten (poor), their impression of overall quality in the lake was a 5 (good).

### **2001 Task Force Conference**

The issues of concern in the North Shore Region identified by participants at the 2001 Oneida Lake and Watershed Task Force Conference include:

- Lake issues: cormorant control, declining fisheries, exotic species, public access, and the impact of septic effluent on lake water quality
- Density of waterfront development, increased commercial development, and lack of local controls on new development
- Stormwater management
- Flooding and Oneida Lake water level controls
- Lack of comprehensive planning
- Old infrastructure and retrofitting

### **North Shore Council of Governments (NorCOG)**

In a letter to the CNY RPDB dated March 10, 2002, the NorCOG municipal representatives stated that the issues of greatest concern are fish populations, invasive species, low nutrient levels, lake water levels, water quality standards, and shoreline development. Portions of the NorCOG letter are summarized below. The recommendations from NorCOG to address these issues will be incorporated into the Oneida Lake and Watershed Management Plan.

**Fish Populations:** The sport fishing industry is an important component of the North Shore's economy and regional life style. It's also the key element needed to support the regional tourism industry. The populations of the two most sought after game fish, walleye and yellow perch, were depressed during the decade of the 1990s. As a consequence, many fishermen spent their time and money elsewhere. NorCOG survey responses related to invasive species, low nutrient levels, lake water levels and water quality standards are heavily influenced by their concern for the declining fish populations.

**Invasive Species:** Zebra mussels, water chestnut, purple loosestrife, and phragmites have impacted the Oneida Lake ecosystem. It is expected that the round goby and European ruffe, two fish species potentially capable of causing serious ecologic harm, will eventually make their way into the lake. In addition, the population of double crested cormorants has grown to levels that exceed the lake's carrying capacity.

**Low Nutrient Levels:** Phosphorus, essential in aquatic environments for primary productivity, supports the growth of phytoplankton, which is the basis of the food chain. Over the last thirty years, the phosphorus levels in Oneida Lake have declined by at least 50 percent. If phosphorus

levels become too low it may cause a decline in lake productivity and a corresponding decline in fish populations.

**Lake Water Levels:** The low water levels, made possible by the construction of the Caughdenoy water control structure in the 1950s, had a severe impact on the wetlands adjacent to the lake and the near-shore zone within the lake. This resulted in the loss of spawning beds and an increase in the mortality of many fish, amphibians, and invertebrates. The lake and wetland ecosystems have adjusted to the current average low level of 368.5, Barge Canal datum (bcd). Any further lowering below this level may be detrimental to the entire lake ecosystem.

**Water Quality Standards:** Oneida Lake water is naturally high in microbes, organics, and algae because it is a shallow lake at the bottom of a large drainage basin with a low gradient outlet. This natural productivity is the reason that the lake supports a great fishery. Targets for water quality standards should take the fishery into consideration.

**Shoreline Development:** New development should mitigate visual impacts from the lake, maintain views of the lake from public spaces and roadways, and prevent discharge of pollutants into the lake.

### **3.3 Northern Upland Region**

#### **Introduction**

The Northern Upland Region of the Oneida Lake watershed includes portions of the Towns of Lewis, Osceola, West Turin, Turin, Martinsburg and Montague in Lewis County; the Towns of Parish, Amboy, Albion, Williamstown, Orwell and Redfield in Oswego County; portions of the Town of Ava and the entire Towns of Florence, Annsville and Camden, including the Village of Camden, in Oneida County. Of the six identified geographic regions in the Oneida Lake watershed the Northern Upland Region is the most geographically distant from Oneida Lake and contains the highest percentage of undeveloped land in the watershed. The Northern Uplands Region includes the East Branch of Fish Creek and the West Branch of Fish Creek subwatersheds.

The **Oneida County Water Quality Strategy** identifies the following potential pollution sources and areas of concern in the West Branch of Fish Creek subwatershed: manure spreading and storage, streambank erosion, soil erosion on farms and roadbanks, sedimentation, pesticide and fertilizer application, and landfills. The Strategy lists the East Branch of Fish Creek as an area that experiences frequent and severe flooding. Erosion and sedimentation, contaminants, and structural damage are concerns associated with this flooding. The Strategy also identifies the following pollution sources and areas of concern in the East Branch of Fish Creek subwatershed:

- Manure spreading and storage
- Erosion
- Sedimentation
- Pesticide and fertilizer application
- Livestock access to water
- Vegetative removal/silviculture
- Agricultural runoff
- General development pressure
- Individual and community wastewater systems
- Urban runoff.

## **2002 Municipal Survey Responses and 2001 Task Force Conference Discussions**

The following section summarizes the issues of concern expressed by representatives from the Northern Upland Region during the 2001 Oneida Lake Task Force Conference and through the 2002 Municipal Survey responses. Only three municipalities responded to the survey, despite numerous efforts to encourage a greater response rate. Several of the Northern Upland region municipalities expressed limited concern for Oneida Lake issues due to the geographical distance from the lake. The comments summarized in this section are based on a discussion that took place among representatives of the Northern Upland Region during the 2001 Task Force Conference and the three Municipal Survey responses submitted from the Northern Upland Region.

Regional representatives expressed an interest in boosting economic development and tourism in the northern watershed, while protecting the rural qualities and open space amenities that make this area unique. Natural resource protection, open space protection, and the maintenance of water quality standards were identified as important to meeting the region's future tourism and economic development goals. Municipal representatives expressed concern that existing local laws and regulations are inadequate to protect water resources and that enforcement is inconsistent. Task Force conference participants also discussed concern over the increased use of ATVs and snowmobiles and that such use is unregulated and not sufficiently monitored.

Northern Upland representatives further expressed a general concern regarding the impacts on groundwater from landfills, illegal dumping, home and commercial pesticide use, application and storage of road deicing compounds and salt, industrial practices, and the age and location of chemical and petroleum storage systems.

In addition to seasonal flooding, improperly sized and/or located on-site septic systems and the lack of a watershed wide septic system inspection and maintenance schedule are also primary issues of concern in the Northern Uplands Region.

Local interest has focused on a slight increase in subdivisions and sales of large landholdings, thus raising concern over potential economic and environmental threats. The concern is also based on the potential impacts on timbering, hunting, fishing and other recreational activities if this trend continues. The East Branch of Fish Creek Working Group maintains that the continued fragmentation of private forest holdings is likely to result in further development of the area, property postings leading to fewer opportunities to hunt, fish and harvest timber, and reduced environmental quality of the East Branch of Fish Creek subwatershed.

Concerns were also expressed for stream management and erosion. Homeowners raised concern that forestry and agriculture best management practices are not always applied and that inappropriate timbering practices may be contributing to a loss of wildlife habitat and changes in stream habitat. There is also a need for increased infrastructure planning and better maintenance of bridges, culverts and other lake and streambank protection structures.

Although geographically removed from Oneida Lake, representatives of the Northern Upland Region expressed an interest in lake issues relating to reduced fish populations, the impacts of

invasive plant and animal species, the need to control cormorant populations, and the need for increased public access areas to the lake. Some municipal representatives expressed concern over the high numbers of boats and personal watercraft operating on the lake and that the related noise, safety and water quality impacts of boat and personal watercraft usage should be addressed. Other municipal representatives, however, stated that there are too few boats and personal watercraft operating on the lake. For these people, the primary issue of concern is the need to increase tourism and recreation opportunities in the lake and watershed.

### **3.4 Eastern Region**

#### **Introduction**

The Eastern Region includes portions of the Towns of Lee, Western, Westmoreland, and the Inner and Outer Districts of the City of Rome. Due to the large land area and diverse characteristics in this Region, the issues of concern are presented below by subwatersheds. Separate sections are summarized for Oneida Creek, Wood Creek, and the lower portion of Fish Creek. Common issues throughout the region are flooding, soil erosion, agricultural runoff, and threats to fisheries habitat. Oneida Creek is one of the greatest contributors of sediment to the lake and has been the focus of several research studies by SWCDs, NRCS, and Hamilton College. Refer to Chapter II, section 4.1 for additional information on these studies.

#### **Oneida Creek Subwatershed**

Agriculture is an economic staple in the Oneida Creek subwatershed and agricultural non-point source pollution has been designated by Oneida County as a number one priority. Productive farmland is found throughout the Eastern, Southern Upland, and South Shore regions but the soils are highly erodible. Problems develop when sediment and nutrients are transported down the tributaries and flow into Oneida Lake. With approximately 5,300 acres of highly erodible land in the Upper Oneida Creek subwatershed alone, soil erosion from agricultural land is an important issue. The Oneida County SWCD reports that the entire Oneida Creek subwatershed displays detrimental effects of sediment and nutrient loading. Controls are recommended for farms and streams to reduce streambank and cropland erosion, thereby reducing sediment loading to Oneida Lake.

According to the Oneida County SWCD, a primary concern for erosion in Oneida Creek is the impact on fisheries habitat and water quality. Sediment generated from streambank erosion and cropland runoff can impair fish propagation and survival. Lower Oneida Creek serves as an important nursery for warm water fish but high sediment loading in the lower reaches of the tributary covers fish eggs, fills in spawning pools, and reduces macroinvertebrate forage for juvenile fish. The high rates of sedimentation decrease macroinvertebrate populations, while increasing peak flows on riparian land and contributing to flooding problems in urban areas.

The erosion and sedimentation of Oneida Creek was examined in a 1995 study by the Oneida County SWCD and NRCS and Madison County SWCD and NRCS. The Oneida Creek Project Report revealed that 65 percent of the Oneida Creek survey respondents listed flooding as a high priority water problem in the subwatershed. Furthermore, the

report states that the streambank erosion inventory in the Oneida Creek subwatershed showed an erosion rate of approximately 1,000 tons of sediment per year, just on the main creek alone.

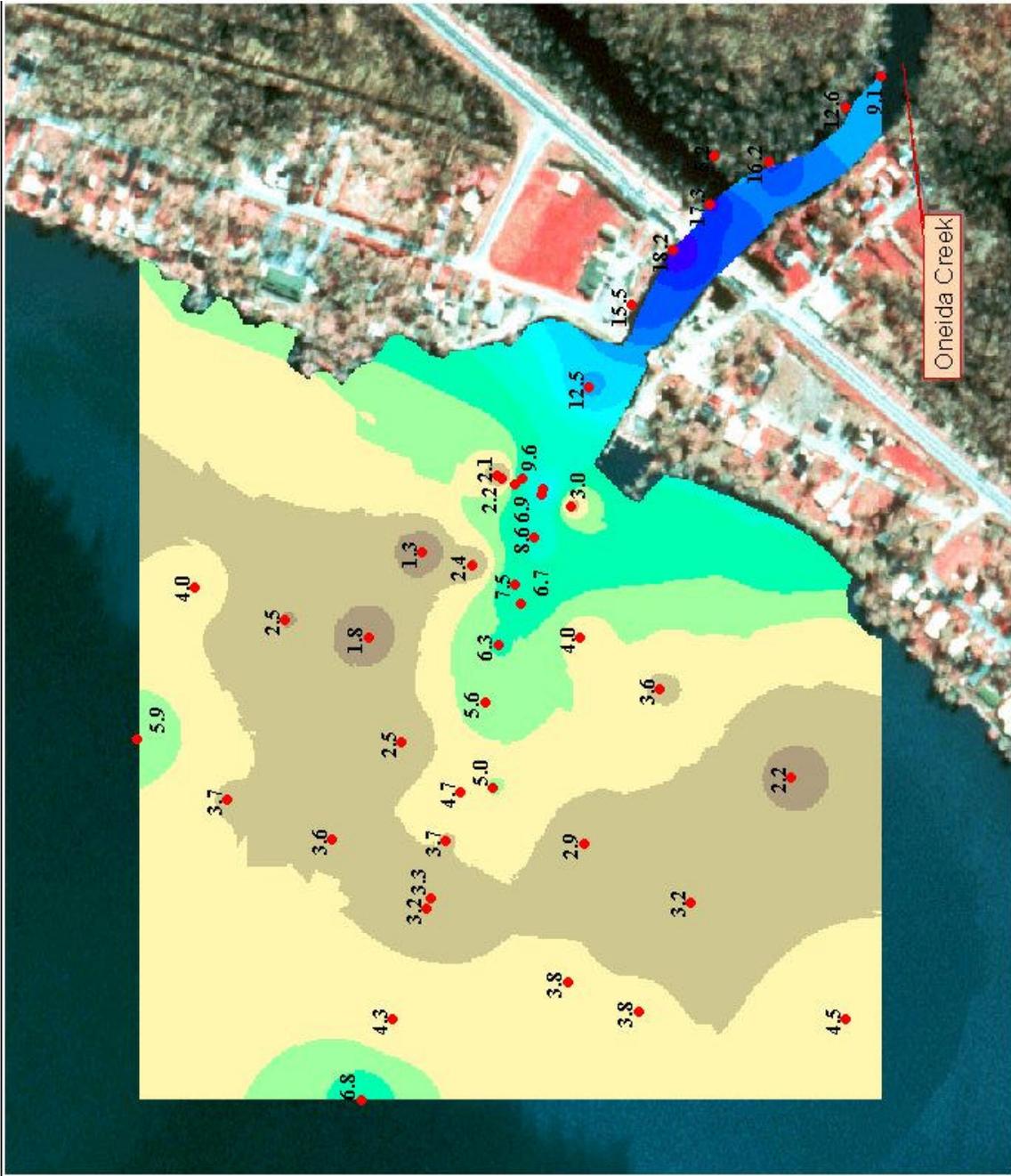
Spurred by continuing public concern over heavy amounts of sediment flowing into Oneida Lake, in June 2001 the Madison County Planning Department recorded bathymetric data at the base of Oneida Creek where it empties into Oneida Lake. With a Global Positioning System (GPS) unit, the depth to the lake bottom was recorded and GIS maps were created to visually display the data (**Figure 6.3.1**). The sediment plume in the aerial photo (the light blue color in the lake) fits closely with the location of the shallowest areas mapped (the brown colors). The bathymetric map exemplifies the extent of sedimentation occurring at the mouth of Oneida Creek.

Flooding is another issue that is common to this subwatershed. According to the Oneida County Water Quality Strategy, frequent and severe flooding causes property damage and financial loss for residences and businesses along the lower reaches of Oneida Creek. The Strategy notes erosion, sedimentation, contamination, and structural damage as concerns associated with this flooding. The 1984 US Army Corps of Engineers report titled, "Oneida Creek Watershed Oneida, New York" also sites recurrent flooding as the major water resource problem of the Oneida Creek subwatershed. The report indicates that the local flooding can be attributed to varying stream flow, lack of storage capacity, excessive runoff, and low streambanks in the Lake Plain Region.

According to the Oneida County Health Department, the Village of Oneida Castle (Town of Vernon) and population centers in the Town of Verona have long been recognized as significant contributors of non-point source pollutants in the Oneida Lake watershed. Data collected from biological assessments and other investigations by the Oneida and Madison County Health Departments, Municipal Codes Officials, the City of Oneida, Oneida County Soil and Water Conservation District, and NYS DEC provide evidence that private sewage discharges throughout the Oneida and Cowaselon Creek subwatersheds cause significant loading of non-point source pollutants to Oneida Lake. In addition to residences, several large per unit sewage discharges including restaurants, motels, county operations, schools from two districts and BOCES struggle with maintaining and operating septic systems because the soil types and water levels are not conducive for on-site treatment systems. Additionally, the Oneida County Environmental Management and Water Quality Council (EM&WQC) identifies the lower portion of Oneida Creek as a "high priority" area and has conducted various monitoring programs within the subwatershed. The Madison County Water Quality Strategy also lists water quality concerns in the City of Oneida based on impacts from the sewage treatment plant.

A group of agencies and organizations known as the Oneida Creek Water Quality Improvement Task Force is currently developing a plan to address sewage discharges from malfunctioning on-site septic systems at private residences, restaurants, motels, county operations, and schools by expanding the Oneida sewage treatment facility. Decreasing septic runoff in the Oneida and Cowaselon Creek subwatersheds is expected to improve swimming and fishing within the lower reaches of the streams and also along

**Figure 6.3.1**  
**Oneida Lake**  
**Bathymetric**  
**Modeling**



Madison County Planning Department  
 June 2001

the southern and eastern shores of Oneida Lake. Additional information about this initiative is available by contacting the Sanitary Engineer at the City of Oneida Wastewater Treatment Plant.

In addition to the issues presented above, the Oneida County Water Quality Strategy lists the following issues of concern: manure spreading and storage, pesticide and fertilizer application, livestock access to surface water, vegetative removal/silviculture, urban, barnyard and field runoff, and general development pressures.

The Madison County Water Quality Strategy ranks the Oneida Creek subwatershed as the county's #2 surface water priority due to the large percentage of land used for intensive agriculture, sediment and nutrient loading, loss of fish habitat, high residential population, steep slopes in the Stockbridge Valley, high stream gradients, and the subsequent high streambank and farm field erosion rates.

### **Wood Creek Subwatershed**

High levels of nutrient and sediment loading have impacted water quality, aquatic habitat, fish abundance and survival, and aesthetics in the Wood Creek subwatershed. Streambank erosion and pollution runoff from agricultural lands are significant issues of concern. Several prime farmland soil types (such as Honeoye and Cazenovia) are highly erodible, making soil erosion from cropland a significant issue. Impacts from urban and suburban areas are considered additional pollution sources by the NYS DEC. This includes runoff from roads that are sanded and salted during winter months. Aquatic habitat is impaired in Canada Creek (located in the Wood Creek North subwatershed) by seepage of landfill leachate.

The Wood Creek subwatershed is a high priority in Oneida County. The Oneida County Water Quality Strategy identifies the following issues of concern and potential threats in the Wood Creek subwatershed:

- Streambank, farmland, and urban erosion
- Sedimentation
- Manure spreading and storage
- Pesticide and fertilizer application
- Livestock access to surface water
- Landfills
- Flooding
- General development pressure
- Urban runoff
- Industrial pollutants and sewage.

### **Lower Fish Creek**

The Oneida County Water Quality Strategy describes Lower Fish Creek as an area that experiences frequent and severe flooding. Erosion and sedimentation, contaminants, and structural damage are concerns associated with the flooding. The Strategy also identifies the following potential pollution sources and areas of concern in the Lower Fish Creek

region: manure spreading and storage, streambank erosion, soil erosion on farms and roadbanks, sedimentation, pesticide and fertilizer application, and landfills.

### **2002 Municipal Survey**

The 2002 Municipal Survey was distributed to the City of Rome, the Towns of Lee, Verona, and Westmoreland, and the Village of Sylvan Beach. Only the Village of Sylvan Beach responded and is summarized below.

The issues of highest concern for this municipality are economic development, tourism enhancement, and planning (regional/long term). Non-native plants and animals (including zebra mussels and water chestnut), aquatic vegetation, the impact of cormorants on fisheries, and the need for long-term population control of nuisance species are additional concerns for the municipal representatives. Another issue of high concern is the reduction in fish populations in Oneida Lake. Intoxicated boaters and personal watercraft operators, insufficient public access, and a lack of available docking space are recreational issues that should be addressed. Streambank and lakeshore erosion are additional concerns in Sylvan Beach, as well as the maintenance of lake and streambank protection structures, flooding, highway maintenance, and the storage of road de-icing materials.

Of all these issues, municipal representatives stated that the highest priority topics include erosion and sedimentation, water quality, personal watercraft and boater safety, and the availability of public access and docking space. Technical and financial assistance, in addition to education, are products that these representatives would like to see develop from the Watershed Management Plan. On a scale of one 1 to 10, municipal respondents rated the overall quality of Oneida Lake as 5 (Good).

### **2001 Task Force Conference**

At the 2001 Oneida Lake and Watershed Task Force Conference the Eastern Watershed Region identified the following issues of concern:

- Accumulation of sediment in downstream areas blocking upstream access;
- Maintaining or improving current property values;
- Localized flooding that results from the generally low elevation and high groundwater in the Lake Plain Region;
- Runoff of road salt and sand resulting in negative impacts to water quality; and
- Health of the watershed as it relates to tourism.

## **3.5 Southern Upland Region**

### **Introduction**

The Towns of Cazenovia, DeRuyter Eaton, Fenner, Lincoln, Nelson, Smithfield and Stockbridge and the Village of Munnsville in Madison County; portions of the Towns of Augusta and Vernon, the Village of Oneida Castle, and the Cities of Sherrill and Oneida in Oneida County are found in the Southern Upland Region.

As with the Eastern Region, we begin our discussion of the Southern Uplands Region with Oneida Creek, which forms the border between Madison and Oneida County. Residents and

agencies from both Counties are addressing significant impacts from erosion and nutrient loading stemming from natural characteristics, such as soil type, and human influences. Short summaries of Cowaselon, Canaseraga, and Chittenango Creeks are also included here, as many of the issues in these subwatersheds are similar in term of their impacts on Oneida Lake.

### **Oneida Creek Subwatershed**

Refer to the section on Oneida Creek in the Eastern Region, Chapter VI Section 3.4.

### **Cowaselon and Canaseraga Creek Subwatersheds**

According to the 2001 Madison County Water Quality Strategy, there is moderate concern over agricultural contamination and nutrient runoff in areas of extensive crop production, especially in the muckland region of these subwatersheds. In the areas of intensive dairy farming, there have been problems associated with mismanagement of manure and contamination of surface and ground waters. Sewage treatment and combined sewer overflows in the Village of Canastota are being addressed.

### **Chittenango Creek Subwatershed**

The Madison County Water Quality Strategy ranks Chittenango Creek as a high priority subwatershed because of flooding problems, loss of wetlands habitat, a high concentration of agriculture, and development pressures.

## **2002 Municipal Survey**

Twelve municipal representatives responded to the 2002 Municipal Survey.

Economic development, tourism enhancement, open space, and regional/long term planning were identified as general issues of concern for these municipalities. The maintenance of water quality standards, review and enforcement of permits and regulations, and the protection of natural resources are also important to the representatives in the Southern Upland Region. Negotiations with the Oneida Indian Nation are of great concern to this region as well.

High priorities identified by these municipalities include the following:

- Erosion from streams and roadbanks;
- The maintenance of lake and streambank protection structures;
- Stream management (with regards to debris buildup and logjams);
- The maintenance of bridges and culverts;
- The affects of agriculture on surface and groundwater (manure spreading and the use of chemical fertilizers);
- The affects of runoff from landfills, illegal dumping, and hazardous spills on surface and groundwater quality;
- Municipalities identified the storage of road deicing materials and roadside ditch maintenance practices;
- Improperly sized and poorly sited on-site septic systems;
- Stormwater runoff from impervious surfaces and roadside ditches;
- Flooding.

In terms of lake issues, Southern Upland Region representatives are concerned with pathogens and viruses from septic waste and the odor and impacts on human and recreational activities associated with sewage discharge to the lake. Reductions in Oneida Lake fish populations are also of high concern.

Municipal representatives in the southern upland region stated that they are in the best position to address issues related to development, stormwater discharge, sewage discharge and erosion. Enforcement of laws and regulations, zoning and open space planning are additional issues that they can address.

As part of the Watershed Management Plan, the municipalities would like to receive training for their local boards, as well as monetary funding, and engineering and law enforcement assistance. Several representatives mentioned the need for assistance with intermunicipal cooperation. Frequent meetings, the establishment of a permanent “watershed coordinator” position, a comprehensive e-mail listing of information regarding the watershed, and the development of an educational program for school children to “capture the next generation” would all be effective ways to increase communication between municipalities, government agencies and stakeholder groups. On a scale of 1 (excellent) to 10 (poor), the overall quality of Oneida Lake was rated as 4.7, slightly better than “good”.

### **2001 Task Force Conference**

The issues of concern identified at the 2001 Task Force Conference by stakeholders of the Southern Uplands Region include:

- Accumulation of sediment in downstream areas blocking access to upstream areas;
- Maintaining or improving current property values;
- Flooding in the Lake Plain region;
- Runoff of road salt and sand;
- Failing on-site septic systems and the need for a regional sewer system;
- Lack of coordination among codes enforcement officers;
- Development around recreational areas;
- Open space, wetland, and wildlife protection;
- Protection of agriculture and the family farm; and
- Soil erosion and sedimentation.

## **3.6 South Shore Region**

### **Introduction**

The South Shore Region of the Oneida Lake watershed includes portions of the Towns of Lenox and Sullivan, and the Villages of Canastota and Chittenango in Madison County; and portions of the Town of Cicero in Onondaga County. The issues summarized below are based on the Madison and Onondaga County Water Quality Strategies, the Municipal Surveys, and discussions at the 2001 Task Force conference. In addition, results from a residential survey conducted by the Town of Sullivan as part of its comprehensive plan update are included.

Because of the direct connection between downstream impacts and upstream influences, the reader is advised to refer to the Southern Uplands Region section that further describes issues in

Oneida, Cowaselon, and Canaseraga Creeks. The Limestone/Butternut Region section provides additional information relating to impacts on Chittenango Creek.

The Madison County 2001 Strategy states that the non-point source pollution issues associated with the Oneida Lake watershed include: septic system management and installation, flood control, wetlands protection and restoration, land use in the Canastota Muckland Area, lake-front development, and high sedimentation levels stemming from major tributaries. Specifically, the Oneida, Chittenango, and Cowaselon Creek subwatersheds have been designated as surface water priorities in Madison County. Sedimentation and related impacts on aquatic communities are high priority issues in Oneida Lake. In addition to erosion from agricultural and urban practices, roadside maintenance practices by the highway departments influence sediment loading to Oneida Lake. According to the Madison SWCD, 400 to 500 miles of road ditches are cleaned in northern Madison County each year, typically without any sediment control measures. This results in a significant contribution of sediment to the lake.

As with the previous sections, this South Shore section has been presented by subwatersheds.

#### **Oneida Creek Subwatershed**

Refer to the section on Oneida Creek in the Eastern Region, Chapter VI Section 3.4.

#### **Cowaselon Creek Subwatershed**

The Madison County Strategy presents a concern over the loss of fish habitat and elevated stream temperatures in portions of Cowaselon Creek that have been channelized. There is also a concern over the loss of wetland habitat in the watershed, especially in the Lake Plain Region and in the Canastota muckland.

#### **Chittenango Creek Subwatershed**

The Madison County Water Quality Strategy ranked the Chittenango Creek as a high priority subwatershed because of flooding problems, loss of wetlands habitat, a high concentration of agriculture, and development pressure. The Madison County Water Quality Strategy states that flooding is a major concern in lowland areas just north of the Village of Chittenango. Streambank erosion is also a concern. Flooding problems occur due to the lack of capacity in Chittenango Creek as a result of the deposition of gravely materials. Further north on the Creek flooding occurs because of logjams and subsequent loss of capacity.

#### **2002 Municipal Survey**

Representatives from three municipalities in this region responded to the 2002 Municipal Survey. General issues identified as high concern include economic development and the maintenance of water quality standards. Municipal representatives specifically expressed concern over sewage discharge to Oneida Lake. Rooted aquatic plants and algae, along with the need for long-term cormorant population control and their impacts on fisheries were listed as major concerns. Interest was also expressed for impacts on surface and groundwater from stormwater runoff and hazardous waste disposal. Representatives identified groundwater contamination and flooding as important issues of concern.

The highest priority for the region was given to issues relating to lake water quality, on-site septic systems, Sylvan Beach pier renovation, control of cormorant populations, and improving fish populations. South shore representatives feel they are in the best position to address issues related to roadside maintenance, debris and logjam build-up, land use planning, and storm water discharge. As part of the Watershed Management Plan, the representatives would like to receive guidance and assistance from the state of New York, educational opportunities, and a plan to help them deal with flooding. On a scale of one (excellent) to ten (poor), the south shore municipal representatives rated the overall quality of the lake as five (good).

### **2001 Task Force Conference**

Additional issues of concern identified at the 2001 Oneida Lake and Watershed Task Force Conference by stakeholders from the South Shore Region include the following:

- Accumulation of sediment in downstream areas blocking access to upstream areas;
- Maintaining or improving current property values;
- Flooding in the Lake Plain region;
- Runoff of road salt and sand;
- Failing on-site septic systems and the need for a regional sewer system;
- Lack of coordination among codes enforcement officers;
- Development around recreational areas;
- Wetland, open space, and wildlife protection;
- Protection of agriculture;
- Soil erosion

### **The Town of Sullivan: A Residential Survey**

The Town of Sullivan updated its Comprehensive Plan and recreational planning efforts during 2000 and 2001. The previous Town Plan was written in the 1970s. Part of the new plan, which will guide development for the next 10 to 20 years, was a residential survey. Responses were received from about 100 people. The primary concerns of lakeshore residents are the conflicts between residents and boaters, as well as overboard dumping of trash, and personal watercraft noise. Other areas of concern expressed by Sullivan residents include the appearance of downtown Chittenango and the need for additional sewers. The Town Plan is based on Sullivan's demographic makeup, economy, agriculture, housing, land-use patterns, environmental, natural, historic and cultural resources, community facilities and services, and local government administration. Additional information about the Comprehensive Plan is available by contacting the town office.