

**New York State  
Nonpoint Source  
Management Program**

**Annual Report  
December 2010**

**Division of Water  
New York State Department of  
Environmental Conservation**

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## 1.0 INTRODUCTION

This report describing progress in implementing the state's Nonpoint Source Management Program is intended to satisfy the requirement of the workplan for the Performance Partnership Grant (PPG) Base Program between the New York State Department of Environmental Conservation (NYSDEC) Division of Water (DOW) and the United States Environmental Protection Agency (EPA), Region 2. This report addresses progress and accomplishments for the period from April 1, 2009 through March 31, 2010. This report also includes discussion of progress and accomplishments in previous years to provide a context for more recent program activities, and to establish continuity in the annual reporting.

The New York Nonpoint Source Management Program was established in 1990 and revised in 2000. The program's mission comprises three major components: (1) to control, reduce or treat polluted runoff through structural, operational or vegetative management practices; (2) to conduct local implementation, coordination and evaluation on a watershed basis; and (3) to coordinate all agencies and partners involved in managing nonpoint sources of pollution through the New York Nonpoint Source Coordinating Committee (NPSCC).

Toward this mission, New York defined long-term goals which placed special emphasis on three principal activities: (1) establishing and fostering partnerships to coordinate and implement county and local nonpoint source management; (2) assisting counties, local governments, landowners, and other organizations with incentives and funding to implement nonpoint source pollution controls and outreach; and (3) identifying approved nonpoint source management practices and supporting nonpoint source outreach and education activities.

The 2000 Nonpoint Source Management Program identified four priority categories of nonpoint source pollution to focus the development and implementation of controls. These categories are the basis of defining key areas of nonpoint source management:

- Stormwater Management ("Urban, Construction and Roadway Runoff" in 2000 NPS report);
- Agricultural Environmental Management.
- Onsite Wastewater Systems Management;
- Hydrologic Habitat Modification; and

Section 2 of this report presents a summary of accomplishments during the reporting period for these categories of the Nonpoint Source Management Program. In addition, Section 2 also summarizes accomplishments for two additional nonpoint source initiatives in New York:

- Coastal Nonpoint Source Management; and
- Watershed Management

Section 3 of this report presents information from New York's Watershed Assessment Program that addresses water quality issues related to nonpoint sources.

## 1.1 NATIONAL PROGRAM ACTIVITY MEASURES

The following measures of program activities are reported as required by EPA, as defined by EPA. This section does not include EPA Program Activity Measures (PAMs) that are reported in the Grants Reporting and Tracking System (GRTS).

### A. Waterbodies identified by the State as being primarily nonpoint source-impaired that will be partially or fully restored.

#### Waterbody Name(s):

**Beaver Lake (0601-0066) Assessment showed full support of uses, considered restored (minor impacts), delisted in the 2010 Section 303(d) list cycle**

**Cranberry Lake (0905-0007) Assessment showed full support of uses, considered restored (minor impacts), delisted in the 2010 Section 303(d) list cycle**

**Gull Pond (0903-0063) Assessment showed full support of uses, considered restored (minor impacts), delisted in the 2010 Section 303(d) list cycle**

**Muddy Creek, Lower, and tribs (0104-0051) Assessment showed full support of uses, considered restored (minor impacts), delisted in the 2010 Section 303(d) list cycle**

**Quassaic Creek, Lower and minor tribs (1301-0079) Assessment showed full support of uses, considered restored (minor impacts), delisted in the 2010 Section 303(d) list cycle**

**Rudd Pond (1601-0001) Assessment showed full support of uses, considered restored (minor impacts), delisted in the 2010 Section 303(d) list cycle**

**Shingle Kill and tribs (1309-0008) Assessment showed full support of uses, considered restored (no known impacts), delisted in the 2010 Section 303(d) list cycle**

**White Birch Lake (0601-0068) Assessment showed full support of uses, considered restored (minor impacts), delisted in the 2010 Section 303(d) list cycle**

#### Comment:

Other partially restored waterbodies include:

**Onondaga Lake, northern end (0702-0003) for ammonia**

**Onondaga Lake, southern end (0702-0021) for ammonia**

However, nonpoint source reduction activities that contributed to these restorations were likely to have been secondary to the primary municipal point source reductions

#### Definitions (EPA):

"Partially restored" includes either of the following:

- a) A water that is impaired for more than one use, but is restored for one or more (but not all) of those uses, and b) A water that has a use that is impaired by more than one pollutant, but meets the criteria for one or more (but not all) of those pollutants.

"Fully restored" means that all uses for the waterbody are now being met.

"Restored waters" means any waterbody that has been restored. These waters may be counted regardless of whether the restoration was supported with or without Section 319(h) funding. States do not need to show which nonpoint management actions took place to restore the water, but simply verify that the water is primarily nonpoint source-impaired, and that it has been "partially" or "fully" restored. However, a waterbody cannot be counted simply because it was delisted from a state's 303(d) list for reasons other than actual restoration (e.g., it is determined that it was inappropriately listed from the start, it has a TMDL done for it, etc.).

The definition of a "primarily" nonpoint source-impaired waterbody is left to the states' professional judgment. EPA does not expect a state to do a detailed analysis when deciding on whether a waterbody is "primarily" nonpoint source-impaired. A precise determination is difficult especially when considering a listed water flowing through both permitted MS4 areas and non-permitted areas.

**B. Number of watershed-based plans (and water miles/acres covered), supported under State Nonpoint Source Management Programs since the beginning of FY '02 that have been substantially implemented.**

**Number:**

None

**Comment:** Although the Skaneateles Lake Watershed Plan has been substantially implemented, it pre-dates 2002 and it was developed for water quality protection, not to remove an impairment. Watershed-based planning in New York State is primarily focused on water quality protection, and is not designed according to the EPA definition: Substantially-implemented means that only those actions called for in the initial plan specifically geared towards removing the impairment(s) have been implemented.

## **2.0 SUMMARY OF ACCOMPLISHMENTS FOR THE REPORTING PERIOD**

The following six sections briefly describe key components of New York's Nonpoint Source Management Program and summarize principal accomplishments for the reporting period from April 1, 2009 through March 31, 2010, including some discussion of progress and accomplishments in previous years to provide a context for more recent program activities. Certain activities that were in progress at the conclusion of the reporting period, but not yet completed, have also been included.

### **2.1 STORMWATER MANAGEMENT**

The Stormwater Management Program is a principal priority of New York's Water Management Program and a key component of the Nonpoint Source Management Program. The program's comprehensive approach places special emphasis on consistent implementation of technical standards for management of stormwater from construction sites, development of local legal authority, and on

project review during the local land use planning process. Continuing education to professionals involved with development projects and municipal stormwater management and outreach to local officials are also important elements of the program. Finally, the program provides grant assistance to localities for the development of municipal stormwater management programs. On January 8, 2003, the DEC first issued two general permits to support implementation of the federal Stormwater Phase II program, one for Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas and one for construction activities, as part of the State Pollutant Discharge Elimination System (SPDES).

On April 16, 2008 NYSDEC issued two renewed stormwater permits, one for MS4 (GP-0-08-002) and the other for construction activities (GP-0-08-001). Those permits were designed to address the principal goals of the stormwater program identified above. In response to significant public comments the NYSDEC hosted a series of twelve monthly permit review meetings, starting in July 2008 and ending in July 2009. The input received during these meetings was considered in the development of the renewal permits. On October 28, 2009, the SPDES renewal permits were made available for public comment. On January 29, 2010, the SPDES General Permit for Stormwater Associated with Construction Activities (GP-0-10-001) became effective. Due to substantial public comment received on the MS4 permit, issuance was delayed until May 1, 2010.

The principal goal of the Stormwater Management Program is to reduce the impacts of stormwater discharges that preclude, impair or stress New York's waters, as reported in the NYS Priority Waterbodies List. Another key objective is to prevent stormwater impacts from causing future water quality impairments. The program is intended to prevent or correct such stormwater-related problems as closed beaches and shellfish beds, spoiled fishing and swimming, excessive weed growth, destruction of aquatic habitat, soil erosion, and flooding.

### **Accomplishments for the Reporting Period:**

#### **1. Permit Restrictions and Requirements**

In fiscal year 2009 – 2010, 1346 new construction projects were authorized under the construction stormwater permit.

#### **2. Grants to Regional Planning Agencies for Stormwater Management Program Support**

Despite declining Clean Water Act funding, the NYSDEC continued to provide mini-grants to Regional Planning Boards to assist in MS4 program development and oversight including outreach to MS4s and interested parties as well as assistance to MS4s developing their Stormwater Management Plans (SWMPs).

#### **3. Support of Soil and Water Conservation District Involvement in Stormwater Program**

NYSDEC is working with SWCDs as partners in training interested parties in stormwater concepts, rules and regulations. During the previous year, NYSDEC developed and endorsed its 4-hour course titled "Protecting New York's Natural Resources with Better Construction Site Management." This course was developed in response to the requirements for training set forth in GP-0-08-001. The course was developed for delivery through county SWCDs across the State. Administrative procedures (attendance sheets, scanable trainee forms, certificate/wallet

card templates, access database, and training number system) to track training information were also developed. During FY2009/2010, SWCDs held 4-hour ESC training events across the state; over 10,000 contractors and inspectors have completed training.

#### **4. Other Technical Training for the Stormwater Program**

During the SFY 2008-2009 year, NYSDEC worked with the NYS Builders' Association (NYSBA) to produce an on-line version of the 4-hour course as well. This training option became available in May 2009. During the SFY 2009-2010, 220 contractors have been trained. The feedback on this type of training has been positive

#### **5. New York State Stormwater Design Manual**

During FY 2009/2010, NYSDEC drafted updates to the Stormwater Design Manual. The revisions to the manual incorporated planning and design requirements for incorporation of green infrastructure into Stormwater Pollution Prevention Plans. The Draft Stormwater Design Manual was public noticed on November 11, 2009.

#### **6. Multi-Sector General Permit - Notice of Intent or Termination (NOIT)**

At the end of FY 2009/2010, the Integrated Compliance Information System (ICIS) database reported 1448 effective Multi Sector General Permits (MSGPs). In addition, 525 facilities reported "No Exposure" certifications and received waivers from the stormwater permitting requirements.

## **2.2 AGRICULTURAL ENVIRONMENTAL MANAGEMENT**

The Agricultural Environmental Management (AEM) Program, under the direction of the NYS Soil and Water Conservation Committee (NYSSWCC) and the Department of Agriculture and Markets (NYSDAM), coordinates state and local agencies and the private sector to provide technical and financial assistance to address environmental and nonpoint source issues on farms. AEM is based on a tiered planning and implementation approach on individual farms, and is most effective where accomplished on a comprehensive basis across a priority watershed. AEM assesses farm practices related to environmental concerns, develops management plans to address those concerns, implements Best Management Practices to reduce environmental impacts, and evaluates resulting environmental improvements. AEM is the umbrella initiative used to implement New York's Agricultural Nonpoint Source Abatement and Control Grant Program and the Conservation Reserve Enhancement Program (CREP). AEM is also a key tool in participation in Federal Farm Bill Programs and Concentrated Animal Feeding Operations (CAFO) compliance in New York State. The AEM Certification Program certifies public and private sector professionals as Comprehensive Nutrient Management Planners and provides a foundation for the NYSDEC CAFO Permit Program.

The AEM Program has four general goals. The primary goal is to enhance and grow a voluntary program by encouraging proactive environmental stewardship through adequate technical assistance and incentives. New York intends to reinforce AEM as the primary framework for coordination and delivery of local, state and federal agriculturally related environmental and nonpoint source programs. The AEM Program also is designed to project a consistent message to all stakeholders through

coordinated and comprehensive communication. Finally, the AEM Program is intended to establish and nurture farmer, neighbor and community communications on a broad range of environmental concerns.

The NYS SWCC provides coordination and direction for the AEM Program. Its voting and advisory members represent a broad range of agricultural and community interests, federal, state and local agencies and academic institutions. The AEM partnership also includes other organizations and citizen groups, such as the American Farmland Trust and the Citizens Campaign for the Environment. Linkage to the broader membership of the New York Nonpoint Source Coordinating Committee is provided by NYSSWCC participation in that committee.

The overall priority for funding AEM related projects is to support planning, implementation and evaluation projects on individual farms that form the core of the program. Additionally, a key funding priority is supporting AEM training. AEM planning projects typically address farm environmental assessments or individualized Comprehensive Nutrient Management Plans. Implementation projects cover a wide range of BMPs, including manure storage, barnyard runoff and pasture management, erosion control and waste management. Evaluation projects focus on achievements and stewardship at individual farms. The significant majority of funding for planning and implementation activities is from the NYS Environmental Protection Fund (EPF) through the Agricultural Nonpoint Source Abatement and Control Program. In 2005, the AEM Base program was established to provide non-competitive funding to Districts to carry out annual AEM priorities. This has been continued to provide a stable and reliable level of funding for AEM at the county level.

#### **Principal Accomplishments from Previous Reporting Periods:**

- 1. Round 12 of the Agricultural Nonpoint source Abatement and Control Grant Program -** awarded **\$5,332,233** from the EPF for 31 contracts that help farmers protect the state's soil and water resources from agricultural runoff Projects included 2 planning and 29 implementation contracts.
- 2. Round 13 of the Agricultural Nonpoint source Abatement and Control Grant Program –** awarded **\$10,204,369** from the EPF for 42 contracts that support the AEM Program by funding 2 planning contracts and 39 implementation contracts. The vast majority of projects include multiple farmers and BMPs. A total of 273 farmers will receive assistance to develop CNMPs or employ BMPs for the protection of New York State's watersheds.
- 3. Round 14 of the Agricultural Nonpoint source Abatement and Control Grant Program -** New York awarded **\$13,081,294** from the EPF for 55 contracts that support the AEM Program by funding 2 planning contracts and 53 implementation contracts. The vast majority of projects include multiple farmers and BMPs. Over 375 farmers will receive assistance to develop CNMPs or employ BMPs for the protection of New York State's watersheds. Round 14 represents the single highest allocation of funding for this program.
- 4. Non-competitive funding source for AEM –** With AEM participation exceeding 25 percent of the state's 36,000 farms, the NYSDAM, in partnership with the United States Department of Agriculture's Natural Resource Conservation Service (NRCS), the NYSSWCC and County Soil and Water Conservation Districts (SWCD), accelerated AEM efforts at the local level by establishing a noncompetitive funding source for AEM activities. This program provides

SWCDs with non-competitive funding through the EPF to develop and implement five-year strategic plans. Funded activities include Tier 1, Tier 2, Tier 3a (Conservation Plan), Tier 4 (implementation projects) and Tier 5. In addition to enabling more farms to participate, this initiative has increased conservation planning activities statewide and protected past investments through conservation plan updates and BMP evaluation. As of this date, five years of this program have been completed. A total of 53 out of 58 County Districts have participated in the base program.

### **Principal Accomplishments for the Current Reporting Period:**

#### **1. Round 15 of the Agricultural Nonpoint source Abatement and Control Grant Program**

New York awarded **\$8,048,875** from the EPF for 26 contracts that support the AEM Program by funding conservation practices on 85 farms. The vast majority of projects include multiple farmers and BMPs.

#### **2. Round 16 of the Agricultural Nonpoint source Abatement and Control Grant Program**

The Division continued to build on the momentum of the last round with another highly prescribed request for funding. Pursuant to the Round 16 RFP opening on April 19, 2010, 82 proposals were received requesting nearly \$22 million in Environmental Protection Funding. These proposals are currently being reviewed and ranked by the NYS SWCC Advisory Members.

#### **3. Non-competitive funding source for AEM**

In 2009, Year 5 of the AEM Base Funding Program was launched utilizing \$ 1.8 million from the EPF. Most Districts had the opportunity to earn \$40,000. Select Districts were given the opportunity to pilot an enhanced funding level of up to \$75,000. Districts could apply for the pilot if they had a full time AEM or NRCS Certified Planner on staff, and earned at least 75% of the funds requested in AEM Base Program Year 3. Year 5 concludes on May 6, 2010 and Year 6 commences on May 7, 2010.

#### **4. Agricultural Environmental Management (AEM):**

- AEM is codified in law (2000)
- Over 12,000 farms are participating in AEM, with local programs established in 54 counties.
- Over \$81 million has been allocated to local AEM programs to assess, plan, and implement BMPs on NYS farms.
- Growing AEM Certification program with 46 planners certified to develop Comprehensive Nutrient Management Plans (CNMP) and over 300 resource professionals have received training on conservation planning by the SWCC since 1999.

- AEM Tier II Worksheets expanded to address NYS's diverse agricultural industry (including: equine operations, irrigation management, greenhouses, fruits and vegetables, and Long Island agricultural operations).
- AEM is recognized as part of USDA-NRCS planning policy in NYS.
- AEM is recognized in the NYS Nonpoint Source Water Quality Management Strategy and the NYS Source Water Assessment as the program to address nonpoint source pollution originating from agriculture.
- AEM addressed objectives of the NPS Management Program by funding the development and implementation of County AEM Strategies that provide an analysis of the problems in priority watersheds caused by agricultural NPS pollution from agriculture.
- Produced and distributed AEM Annual Reports, brochures, CREP marketing materials, Ag. NPS Brochure and CNMP Fact Sheet to Federal, State, and local stakeholders.
- Developed and made available AEM and CREP Display for statewide and local use.
- Produced a national television broadcast on five different states, featuring an AEM segment for NYS.
- Numerous articles published including recognition in EPA's Nonpoint Source Success Stories Volume III.

*AEM Working with the Media –Level 1 & 2 Workshops* have trained approximately 600 AEM partners, including Soil and Water Conservation District employees, AEM Planners, and Farmers.

- AEM information, draft news articles, and media tips were routinely provided to AEM partners through the *AEM Outreach Network*.
- Direct media assistance was also provided by the AEM Outreach Coordinator related to editorial responses, preparation for press interviews and media events.
- AEM Articles continue to be published in the Small Farms Quarterly newspaper.

### **2.3 ONSITE WASTEWATER TREATMENT SYSTEMS MANAGEMENT**

The Onsite Wastewater Treatment Systems (OWTS) Management Program is a coordinated effort involving state, local and inter-municipal agencies, academic institutions and the private sector which is intended to improve the performance and reduce the environmental impacts of onsite systems. The management approach includes providing continuing education to professionals involved with onsite wastewater systems (installers, inspectors, engineers, maintenance providers, regulators and planners) and to owners of onsite systems. The program places special emphasis on encouraging and promoting periodic inspections and maintenance of onsite systems, improved guidance for regulators and other professionals, and the updating of regulations and review of new legislation. Finally, various members

of the OWTS Program provide assistance to localities to find solutions for replacing failed onsite systems and writing grants for local management of onsite systems.

The principal goal of the OWTS Program is to reduce the nonpoint source impacts of failing or improperly installed onsite systems that preclude, impair or stress New York's waters, as reported in the NYS Priority Waterbody List. A "Top Ten Water Quality Issues in New York State" set of updates were developed in 2009-10. Inadequate OWTSs were on the list. Toward the goal of reducing impacts, New York makes available state-funded mini-grants to inspect onsite systems, and works with federal, regional and state organizations to address community wastewater treatment needs with improved onsite systems, hybrid wastewater systems, or centralized sewers and treatment plants. The State Clean Water Revolving Fund is one of the few remaining sources of funding for communities pursuing a solution to inadequate domestic wastewater treatment.

As an important goal of the OWTS Program, the OWTS Workgroup members will be solicited for assistance with the 2012 Clean Water Needs Survey, a critical means of documenting the financial needs communities in NYS. Onsite systems are increasing as an alternative to, or in conjunction with, new sewers and expanded wastewater treatment plants, particularly in difficult topography or in communities that cannot afford the conventional centralized sewer and treatment system upgrades or installation. Centralized management of decentralized wastewater treatment systems has been under-reported in past Clean Water Needs Surveys.

The OWTS Program has placed emphasis on launching a self-sustaining training program for continuing education of OWTS professionals, including fundamentals of OWTSs, site and soil evaluation, and the proper design, installation and inspection of OWTSs. In addition, presentations have been developed for educating municipal officials and residential and commercial owners of onsite systems on OWTS management.

The OWTS Workgroup of the NYS Nonpoint Source Coordinating Committee provides coordination of statewide activities related to these objectives. It includes representation from key state, regional and local agencies, academic institutions, community assistance associations, and the private sector. Key partners at the local level include County Water Quality Coordinating Committees and their members. The New York Onsite Wastewater Treatment Training Network (OTN), administered by the SUNY College at Delhi through March of 2010, has been the primary mechanism for outreach and education related to onsite wastewater treatment.

Through the current reporting period, there have been 2,368 formally trained participants under the MOUs between NYSDEC and SUNY-Delhi (2002-2009). This total does not include "train-the-trainer" events, attendance by state agency staff, or participation in general conferences and symposiums (e.g., Capital District Engineers Week, Soil and Water Conservation District Symposium, Association of Towns, Federation of Lake Associations events).

Emphases in 2009-2010 have been on presenting the OTN's OWTS Design Course I, development and presentation of OWTS Design course II, revisions to the 1988 DEC Design Standards for Intermediate-sized Wastewater Treatment Systems, Phase II Stormwater IDDE inquiries, and assisting with the completion of regulations for the new Water Pollution Control Linked Deposit program to fund residences and small businesses with failing on-site wastewater treatment systems.

The overall priorities for potential future funding of OWTS-related projects are to support OWTS-related education programs, green infrastructure, energy efficient upgrades, and innovative and sustainable decentralized options for wastewater treatment. Local projects have historically included sponsoring OWTS inspection programs, support of pump-out efforts, sampling programs, or feasibility studies (maps, plans and engineering reports).

## **Accomplishments for the Reporting Period**

### **1. Onsite Wastewater Treatment Systems (OWTS) Workgroup**

The OWTS Workgroup, an interagency coordination group, generally provides for coordination of onsite wastewater activities, projects and events between industry partners, academic institutions, watershed groups, and federal, state and county agency staff. The workgroup members advise on state and federal funding priorities, and also address outreach and education through support and involvement in the OTN. With the ending of the State funding of the OTN, emphasis will shift to the OWTS Workgroup, the Clean Water Needs Survey, and TMDL/PWL segment issues. Members of the OWTS Workgroup also participate in the DEC Design Standards Workgroup, and related industry groups. OWTS Workgroup members participated in February 2010 meetings of the NYS Association of Towns, and the NYS Society of Professional Engineers (Capital District). Several OWTS Workgroup members also attended training provided by other multi-state and national associations, such as NEIWPC and NYWEA, and private training groups.

### **2. New York Onsite Wastewater Treatment Training Network**

The OTN serves to enhance New York State's utilization of modern onsite and decentralized wastewater treatment technologies through training of industry professionals, policy makers and property owners. The OTN provides hands-on training to those involved in the onsite industry. Training is designed to improve regulatory compliance as well as the utilization and performance evaluation of new and emerging technologies in the State. Professionals who can greatly benefit from the various training programs include: code enforcement officers, designers, health officials, inspectors, installers, maintenance technicians, planning officials, property owners, and pumpers.

Five primary courses are currently offered through the OTN, with a sixth course, Design of Small OWTS II, completed and presented at a Lake George-Lake Champlain Watershed-sponsored group in March 2010 as a paid-registration training event. All courses are approved for continuing education credit by the NYSDEC, NYSDOS and the State Education Department. The OTN will continue its accreditation through the Practicing Institute Of Engineering (PIE). During the reporting period, OTN instructors exceeded the 2009-2010 training goal of 200 professionals by training 337 professionals at 9 training events comprising 14 days of training in the following courses:

- Fundamentals of Onsite Wastewater Treatment Systems
- Soil Analysis for Onsite Wastewater Treatment Systems
- Inspection of Existing Onsite Wastewater Treatment Systems
- Certified Onsite Wastewater Installer Training, including two design courses

The OTN also presented an onsite wastewater workshop at the NYS Association of Towns in February 2010, and participated in a Skaneateles Lake Demonstration Project's two-day classroom and field tour educational event in May 2009 for state and county agency staff and watershed professionals.

The development of the training program has been supported by Performance Partnership Grant (PPG) funds through MOUs between the NYSDEC and SUNY-Delhi. The PPG funding that passes through NYSDEC to SUNY-Delhi was reduced to \$50,000 in the 2009-2010 state fiscal year. This is the last of the cooperative funding agreements through NYSDEC. The OTN will seek alternative funding sources to continue its training activities.

### **3. NYSDEC Design Standards for Intermediate-sized Wastewater Treatment Systems**

NYSDEC Central office staff continued working to revise the 1988 DEC Design Standards for Intermediate-sized Wastewater Treatment Systems. These standards apply to private, commercial, and institutional systems, and municipal systems discharging to groundwater. An MOU with NYSDOH determines the agency with jurisdiction for treatment system design review. No upper limit of flow rate is identified. However, if the facility is Publicly Owned Treatment Works (POTW) discharging to surface waters a separate set of standards applies - the Great Lakes-Upper Mississippi River Basin (Ten State) Recommended Standards for Wastewater Facilities. The NEIWPC's Technical Reference (TR)-16 is also a reference for professional engineers designing intermediate-sized wastewater treatment systems.

The Design Standards workgroup formed in early 2007 will become part of the DEC internal review process in SFY 2010-11. Several conference calls, many individual phone calls, and many detailed e-mails were used by Central Office staff to gain input from Regional Office staff, OTN/OWTS members, other state agency staff where recent standards/regulation changes took place, and from industry professionals in SFY '09-'10 to improve the draft design standards.

A rescheduling of the document production was developed in January 2010. Regional Workgroup member comments will now be deferred until the completion of an internal DEC review draft. Changes including generic descriptions of gravelless technologies, updated work on grease interceptors, sand filter technology additions, and alternatives for aggregate and filter media will be made to appropriate sections of the 1988 Design Standards based on other state and national changes. The Design Standards Workgroup referenced and made use of the NYSDOH revisions to the Public Health Code (Appendix 75-A) to maintain consistency with those standards. The official revision was published in the New York State Register on February 3, 2010.

### **4. Funding Local Implementation Projects**

No new local implementation projects related to community management of onsite wastewater treatment systems were funded during the reporting period through the Water Quality Improvement Projects (WQIP) program funded by the state EPF. The county WQCC Mini-Grants program projects which may be used for analysis of local onsite systems are included in Round 10 of WQIP grants, but have not been announced as of this reporting period.

## 2.4 HYDROLOGIC AND HABITAT MODIFICATION

The Hydrologic and Habitat Modification (HHM) initiative addresses one of the top four sources of nonpoint pollution in New York's Nonpoint Source Management Program. HHM includes a wide range of physical modifications to rivers and streams. These physical alterations affect stream-bank erosion, interfere with the water cycle, generate pollutant loadings, impact water quality, reduce or degrade wetlands and other streamside, riparian habitat, exacerbate flooding, and change stream hydrology and hydraulics (including extremely low flows). The HHM program activities promote the implementation of scientifically supported measures to reestablish the structure, function and dynamics of river and stream ecosystems within watersheds.

The goals of the HHM initiative are to collaborate among stakeholders to: facilitate the protection and restoration of rivers and streams; promote needed institutional and administrative improvements; and cultivate local stewardship. The program's objectives include the development of science based tools and guidance, the training of stream professionals and other targeted audiences in appropriate stream restoration and protection methods and practices, raised awareness of projects that demonstrate reduced stream corridor impacts, and the advancing of education at the local level on sound land use and floodplain management. Finally, program staff collaborates with stakeholders both inside and outside of the New York State Department of Environmental Conservation (NYSDEC), recognizing the importance of improvements in regulatory and administrative practices, research, and water quality monitoring.

The HHM Workgroup of the NYS Nonpoint Source Coordinating Committee provides coordination of statewide activities related to these objectives. The Workgroup includes members from over 15 federal, state and local agencies, academic institutions and non-governmental organizations. Key partners at the local level would include County Water Quality Coordinating Committees (WQCC) and their members (Soil and Water Conservation Districts, health and planning agencies, municipal representatives, and citizen and volunteer groups) and other groups that may not be directly involved with the WQCC such as watershed coalitions or other student and citizen volunteer organizations. Workgroup meetings are held at least semi-annually to exchange information on relevant research, tools and stakeholder achievements and to collaborate on needed regulatory and administrative changes. Member stakeholders spearhead subgroup tasks assigned by the Workgroup.

The overall priority established in 2002 for funding HHM related projects was to support training, research and technology implementation for restoring and protecting New York's rivers and streams. Since then, although no additional funding has been targeted for these priorities, these earlier project initiatives have successfully resulted in tools that stream practitioners may use to implement stream corridor projects. Completed HHM-related products include: (1) the USGS regionalizing the geomorphology characteristics for New York State streams; (2) Cornell University's development of stream corridor health maps; (3) Hudson River Estuary Program initiatives to establish riparian buffers; (4) Cornell University research on roadside ditch management; (5) USFWS screening tool for identifying candidate dams for removal and mitigation; (6) "Stream Processes, A Guide to Living In Harmony with Streams" (prepared by the Chemung County Soil and Water Conservation District and distributed throughout DEC and its partners through the HHM Workgroup); and (7) professional training curriculum on applied river and stream morphology (available for use from Greene County Soil and Water Conservation District).

The HHM Workgroup was successful in completing “*The Plan To Restore And Protect New York Rivers And Streams From The Impacts Of Hydrologic And Habitat Modifications*” (May 2005). It contains a mission statement, goals, objectives, a plan for future HHM-related activities, and associated appendices. The document also includes useful information for stream practitioners and watershed coalitions that anticipate sponsorship of projects.

Site-specific stream and aquatic habitat restoration projects have been funded with Performance Partnership Grant or Environmental Protection Fund dollars. In addition, projects have received financial support from other agencies and organizations, including the NYC Department of Environmental Protection (NYCDEP), the NYSDEC Hudson River Estuary Program (HREP), the NYSDEC Division of Fish and Wildlife and Marine Resources (DFWMR), other state and federal agencies, universities and environmental organizations. Multi-partner projects addressing stream and aquatic habitat restoration would be central to the success of reducing the impacts of HHM in New York streams and rivers.

## **Accomplishments for the Reporting Period**

### **1. Education and Information Exchange**

The HHM Workgroup met on June 18, 2009 at the Windham Mountain Center in Greene County and twenty-nine representatives of Federal, State and local agencies, and non-governmental conservation/watershed and academia organizations attended this meeting. The meeting featured presentations on:

- Riparian Characteristic and Mapping of Moodna Creek (a Hudson River Estuary Program funded project);
- Placing Buffers in the Landscape to Maximize Water Quality Benefits; and
- The strategic roadmap and briefing paper of the Collaborative Group on Emergency Flood Response
- NYSDEC development of dam safety rules
- In-Stream Flow TOGS Development
- Interagency Aquatics Connections Team’s draft culvert/barrier standards,
- The Moodna Creek Dam Removal Effort
- Hydraulic-Geometry Regional Curves and its StreamSTATS on-line tools
- Development of the HHM Workgroup guide: *Dam Removal and Barrier Mitigation In New York State - Preliminary Guidance for Dam Owners and Project Applicants*

- *A Top 10 Emergency Flood Response List for Municipalities* was developed by the Emergency Flood Response Collaborative Group

## **2. Post-Flood Emergency Stream Intervention Contractor Training**

In early 2009, the NYC DEP and the Delaware County Soil and Water Conservation District were awarded matching Water Quality Improvement Project funds to pilot Post-Flood Emergency Stream Intervention Contractor Training. On March 31, 2009, the Project Advisory Committee for the Delaware County pilot project met. The contractor training materials were presented to the advisory group for input, and the group discussed longer term outcomes. Staff of New York City Department of Environmental Protection and the Greene County Soil and Water Conservation District presented the Post Flood Emergency Stream Intervention Training to contractors in three classroom locations during early summer of 2009. Subsequent, in-stream contractor training at 3 stream restoration projects were conducted throughout the summer of 2009.

## **3. Flow Standard in 6NYCRR Part 703 Surface Water Quality Standards Regulations**

NYSDEC is developing internal technical standards (TOGS) for implementing the narrative water quality rule for the parameter “flow.” An Advisory Group of non-NYSDEC agency and non-governmental representatives (including SRBC, USGS, and the Nature Conservancy), was convened for input on the draft TOGS in July 2009. The final rule went into effect on February 16, 2008 and is online at <http://www.dec.ny.gov/chemical/27985.html>

## **4. Dam Removal and Barrier Mitigation Applicant’s Guide**

Due to competing priorities to conduct mandated stormwater training for contractors, staff was unable to complete the draft Dam Removal and Barrier Mitigation Guide. Significant changes have been incorporated into the 2008-09 draft of the applicant’s guide, and it will be a priority to complete in 2010. The new dam safety regulatory requirements were effective August 19, 2009.

## **5. Floodplain Management**

### **The NYSDEC Flood Protection Community Assistance Program**

More than 1,400 New York communities participate in the Federal Emergency Management Agency’s (FEMA) National Flood Insurance Program (NFIP). The DEC administers the State Flood Protection Community Assistance Program, to reduce flood risk to life and property, by assisting local communities in implementing NFIP regulations and maintaining State and local participation in the national program.

### **Floodplain Managers Training**

NYSDEC helps to support the NYS Floodplain and Stormwater Managers Association (NYSFSMA) ~ <http://ny.floods.org/>. The NYSFSMA is a state chapter of the Association of State Floodplain Managers. NYSFSMA has an annual conference, newsletters and training activities. In addition, NYSDEC conducts floodplain management training, with at least twelve workshops across the state each year. Generally, over 200 people each year attend the training

sessions. NYSDEC and NYSFSMA promote the Certified Floodplain Manager exam in New York. The number of CFMs in New York exceeds 50 and that number is growing annually.

### **Modernization of Floodplain Maps**

The Federal Emergency Management Agency (FEMA) and NYS Department of Environmental Conservation (DEC) have partnered in the development of modernized Digital Flood Insurance Rate Maps throughout the state. We are now completing the fifth year of a five year Map Modernization plan. Since the beginning of the Map Modernization program, new effective Digital Flood Insurance Rate Maps have been finalized in Cayuga, Niagara, Cortland, Sullivan, Schoharie, Clinton, Monroe, Westchester, Monroe, Orange, Nassau, Suffolk and Greene Counties, part of Erie and Ulster Counties, and the City of New York. Preliminary maps are currently in place in Dutchess, Onondaga, Putnam, Schenectady, Delaware, Otsego, Chenango, Broome and Tioga Counties, and the remainder of Erie County. . Between now and spring of 2011, preliminary maps are anticipated in Montgomery, Herkimer, Oswego, Oneida and Chemung Counties. Albany and Rockland Counties will be completed in the following year. Funding will be needed for new mapping in the remainder of the state. FEMA has entered the follow-up to the map modernization program, called RiskMAP (mapping, assessment and planning), which we hope will help to finish much of the modernization of the state's counties, plus upgrade some of the mapping in areas that already have modernized maps. Current and anticipated FEMA projects include remapping of the entire Great Lakes shoreline, and new coastal flood analyses along the tidal reaches in New York City, Long Island Sound along Westchester County, and along the Hudson River Estuary.

## **2.5 WATERSHED MANAGEMENT**

The Watershed Management Program evaluates and assesses monitoring data and other information to determine the quality of water resources in the state. A key element of the program is the development of specific management plans and recommendations for priority watersheds in New York State. These plans are designed to coordinate the actions of the Division of Water, other DEC divisions and state agencies, along with federal and local partners to restore and protect the designated use of New York's waters. The intent is to provide direction to the nonpoint source management program and other water programs, so that individual actions can be assessed in the context of their importance to water quality.

The primary objective of watershed management is to analyze the assimilative capacity of all water bodies to maintain their designated uses. For commonly monitored pollutants, this objective would be to quantify loads from point and nonpoint sources through a watershed-based plan or, where warranted, a more formal Total Maximum Daily Load (TMDL). Ideally, the water quality impact on all downstream water bodies could be assessed for any action that would guide regulatory and voluntary incentive-based programs. The federal government, primarily through the Natural Resource Conservation Service (NRCS) and EPA, is a major funding source for nonpoint source actions directed by water quality management. The state's water quality management activities establish the need for action and set priorities that address federal mandates and state objectives. Local governments help to identify water quality problems, and opportunities to protect or restore water quality while leveraging local resources to achieve broader natural resource and community benefits.

Coordination of New York's Watershed Management Program activities is achieved through several mechanisms. First, the New York Water Management Advisory Committee provides for general coordination and communication among state, federal and local agencies, along with academic institutions, citizen and community groups and the business and private sector. Additional coordination regarding nonpoint source and watershed management activities is provided by the New York Nonpoint Source Coordinating Committee. Coordination for activities for specific watersheds and basins is provided by participation in various watershed or basin commissions, coalitions and workgroups. Examples include the Delaware River Basin Commission, the Susquehanna River Basin Commission, the Great Lakes Basin Commission, the Upper Susquehanna Coalition and other groups.

The funding priority for watershed management focuses on achieving nonpoint source reductions to support the reasonable assurance provisions of TMDLs, and resolve other impairments on the 303(d) list. This priority is balanced with the state commitment to address lesser impacts or protection concerns expressed on the Priority Waterbodies List, and provide the groundwater protection and remediation directed by the Brownfields legislation. An example of a watershed based plan that has substantially addressed the nonpoint source concerns from agriculture, is the Skaneateles Lake Watershed, where the City of Syracuse has successfully leveraged its resources to protect its source of drinking water with Farm Bill and EPF funds.

Watershed planning and implementation activities generally continue through a number of years. Therefore, the following summary of accomplishments includes important highlights from previous reporting periods to provide a context for current watershed management activities.

## **Accomplishments for the Reporting Period**

### **1. Long Island Sound (LIS)**

There are two Total Maximum Daily Loads (TMDLs) developed for water of LIS; one for pathogens in embayments and one for dissolved oxygen in the open waters of the sound. As a result of these TMDLs, and other areas of the sound where shellfishing has been affected, many local watershed groups have developed and implemented watershed management plans to mitigate affected areas. The following identifies some of the actions taken by either watershed management groups or local governments to address non-point source pollution:

- The Hempstead Harbor Watershed Group completed collection of water quality sampling to support the re-opening of 2 closed shellfishing beds located in the open waters of the Sound just at the mouth of Hempstead Harbor. The data indicate that these areas can be opened for shellfishing and the group is working with the DEC and DOH to complete the reporting to re-open these areas.
- Nassau County is undertaking a stormwater management program which involved delineating all sub-watersheds within the county, assessing the land use as well as the total impervious cover with the sub-watersheds and estimating the pollutant loads from these sub-watersheds. This is an ongoing project that began in 2007.
- Nassau County has passed a fertilizer use law which restricts the use of fertilizers.

- Suffolk County prepared a North Shore Embayment Watershed Management Plan in 2008 and is continuing to implement the activities identified in that plan.
- Westchester County has implemented a fertilizer use law which restricts the use of fertilizers.
- The Long Island Sound Study has a Non-Point Source Workgroup which actively promotes public awareness of non-point source pollution. This workgroup also works with the National Fish and Wildlife Federation (NFWF) to implement the Long Island Sound Future Fund (LISFF) grant program and the Bronx River Watershed Initiative (BRWI) grant program. In the federal fiscal year 09-10 approximately \$500,000 was allocated through the grant programs.
- The Connecticut River Workgroup continued the evaluation of a report titled “An Evaluation of Potential Nitrogen Load reductions to Long Island Sound from the Connecticut River Basin”. This report had been prepared in response to quantifying the loads from the upstream states which are delivered to the LIS via the Connecticut River. Evaluation of the results from the study is ongoing.

## **2. Croton Reservoir (NYC Drinking Water Supply)**

The Croton Watershed Phase II Phosphorus Total Maximum Daily Load (TMDL) Implementation Plan was formally issued on January 14, 2009. The implementation plan includes, among other recommendations, specific phosphorus load reductions for traditional MS4s and New York State Department of Transportation in order for those entities to undertake an approvable retrofit program as required by the MS4 General Permit. Both Westchester and Putnam Counties are the recipients of grants from the New York State Department of State (NYS DOS) which will enable them to develop a retrofit plan and continue to work with MS4s in this effort. The implementation plan utilized the MS4 General Permit heightened requirements as a driver for pollution reduction; it utilized high intensity developed areas and their modeled outputs to allocate reduction loads to individual MS4s. Retrofit plans, phosphorus reduction calculations, construction schedules and funding source descriptions are all due to the Department annually.

## **3. Hudson River**

Watershed groups are actively planning and implementing watershed conservation projects in approximately 12 tributaries. Engaging over 750 volunteers on 50 projects, the Estuary Trees for Tribes program has planted over 7,000 shrubs and trees on over 22,000 feet of streambank this past spring and fall.

The program completed course scale mapping of riparian health and vulnerability analysis for entire estuarine watershed and a fine scale mapping in the Moodna Creek watershed using with aerial photos with six –inch resolution aerial to hand digitize boundaries.

The Hudson River Estuary Program has assisted in establishing and supporting the development of 11 watershed conservation programs on the tributaries of the Hudson. As evidenced of the success of the Estuary Program’s support to local watershed capacity building, the Saw Mill

River Coalition received a Targeted Watershed Grant from EPA for \$890,000. The Estuary Program has provided education for more than 30 local governments and watershed groups on local laws and techniques to reduce stormwater impacts on local water resources through low impact development, better site design, and floodplain management. Also, several municipalities adopted local land use ordinances to protect important habitats and water quality.

#### **4. Long Island South Shore Estuary Waters**

- **The Western Bays:** The area of the South Shore Estuary Reserve (SSER) known as the Western Bays was placed on the 303(d) list in 2008 as being impaired for nutrients based on perceived excessive macro algae (*Ulva*) growth. A major source of nutrient pollution is from stormwater. EPA provided funding (approximately \$500,000) for a study of “Nutrient Assessment and Management in Shallow Coastal Embayments in Hempstead Bay”. This study will produce an ecosystem conceptual model of nitrogen loadings mass balance, transport, cycling, and natural stressors will examine causality between nutrients and possible use impairments. Additionally, DEC provided funding (approximately \$250,000) to the USGS for a new water quality and tide gage monitoring station in an inner bay of the Western Bays. The USGS expects to install the monitor in 2010. Both of these actions will provide necessary data to develop a TMDL for the Western Bay assuming the studies find a correlation between nutrient loading and the waters impairment.
- **Great South Bay:** Based on data collected through 2009 and the formation of brown tides during the summer of 2009, the Great South Bay (GSB) will be on the 2010 303(d) list. The GSB is impaired for nutrients with the predominant source of nutrient loading coming from stormwater.

#### **5. Great Lakes**

The Lake Erie LaMP 2008 Report features information about Remedial Action Plans in Areas of Concern and watershed implementation projects; assessment and monitoring; and significant and emerging issues. The 2008 Report also sets into motion a two-year intensive focus on the state of nutrient science within the lake and development of strategies to improve the management of nutrient loadings to the lake.

With EPA contractor support, the program has assessed relative loads, including nonpoint sources, of PCBs to Lake Ontario, in preparation for a TMDL to restore the impairment to fish consumption.

The Lake Ontario LaMP partners are getting to the bottom of changes to the lower food web. This year, LaMP agencies are working together on a detailed science investigation of the entire lake focusing on:

- the lower food web and its relationship to declining populations of fish, including impacts of invasive species and low nutrient levels;
- understanding altered lake dynamics that have led to relatively low nutrient levels in offshore waters coupled with much higher nutrient levels in the nearshore zone; and
- the status of legacy and new chemical pollutants and their impact on the lake.

### **Specific projects to reduce NPS:**

- Reducing Agricultural Erosion and Sediment in the Oak Orchard Watershed, \$33,250 Orleans County Soil & Water Conservation District, Albion, NY (2008)
- Sensitive Site Erosion Control, \$18,620 Yates County Soil & Water Conservation District, Penn Yan, NY (2008)
- Reducing Agricultural Soil Loss in Onondaga County, NY, \$40,000 Skaneateles Lake Watershed Agricultural Program, LaFayette, NY (2008)

### **6. Peconic Estuary**

In an effort to employ highly concentrated and comprehensive watershed based stormwater management in the Peconic Estuary, a USEPA recognized "Estuary of National Significance" located on the eastern tip of Long Island, NY, the Peconic Estuary Program (PEP) has developed and initiated implementation of detailed subwatershed management plans for several embayments impaired by nonpoint sources. Through the PEP Impacted Shellfishing Waters Management Initiative, Program staff have worked closely with, and engaged Towns, citizens, civic associations and various other parties to address necessary structural and non structural improvements on the watershed scale and integrate Phase II stormwater programs in order to meet water quality goals and watershed management priorities.

By focusing efforts in and around pathogen impaired waters with approved Total Maximum Daily Loads (TMDLs) and shellfish growing areas (SGA's), PEP anticipates improving water quality, reopening closed SGA's and preventing additional closures, enhancing critical habitat, and fostering community awareness of nonpoint source and stormwater pollution. PEP's efforts to protect and restore the biologic, ecologic, economic, and aesthetic integrity of its impaired creek system watersheds has been met with overwhelming support, and millions of dollars of funding to support this effort has been secured from federal, state, county and municipal entities. Increased coordinated monitoring between NYSDEC and Suffolk County Department of Health Services will help assess the level of success of highly concentrated efforts in meeting water quality restoration goals and restoring beneficial uses. This stormwater focus is done within the broader program for nonpoint source management which addresses sources such as waterfowl/domestic pet wastes, agricultural stewardship and the golf course challenge.

### **7. Chesapeake Bay Tributary Strategy**

New York, The Upper Susquehanna Coalition (USC), and the Department of Agriculture and Markets prepare for the TMDL that EPA will issue by December 31, 2010. USC updated a watershed implementation plan based on the new EPA watershed model. USC continues its focus on wetlands restoration, effective nutrient farm nutrient utilization, and stream buffers. Also, Southern Tier Central Regional Planning Board worked with EPA and DEC to help determine rates of urban runoff for BMP's associated with New York CSO's, and MS4's.

### **8. Small Lakes Nutrient Reduction Plans**

DEC continued to collect nonpoint source and lake water quality data to assess nonpoint source contribution to lake impairments and work with EPA provided contract support to calibrate

watershed models for NY watersheds, and to draft TMDLs for DEC proposal. Five additional lake TMDL's for phosphorus were drafted and went out for public notice.

## **9. Groundwater**

New York State will complete, in the summer of 2010, an Environmental Information Management System (EIMS) to support a state-wide groundwater protection and remediation strategy. An EIMS User Group will be established in late 2010.

## **10. Genesee Watershed**

The program continued to assess NPS loads to impaired lakes, and through Department of State funding continued a watershed management plan in the Black Creek watershed.

## **11. Forge River**

The Forge River is on the 2008 303(d) list part 2c – Multiple Segment/Categorical Impaired Waterbody Segments (shellfishing), based on pathogens with the source including urban/stormwater and agriculture. There are also problems with fish kills due to low dissolved oxygen. In 2009 the Town of Brookhaven issued a Request for Proposals for a study to produce an ecosystem conceptual model for pathogen and nitrogen loadings mass balance, transport, cycling within the Forge River watershed. This work will act as the foundation for the Town to then do a third party TMDL based on the results of the study.

## **12. Bronx River Watershed**

In 2007, the Center for Watershed Protection and Biohabitats prepared the “Bronx River Watershed Management Plan” for the Westchester County Department of Planning. The plan included a detailed review of past studies and a watershed wide restoration strategy. Restoration activities identified in the plan are ongoing. Additionally, as the result of a Consent Order dated December 30, 2008, Westchester County initiated a study to develop a planning tool to identify sub-watersheds, neighborhoods and parcels where stormwater management practices (SMPs) would be most cost-effective for different locations. The results of this study are expected in 2010 or early 2011.

## **13. Black River Watershed**

The Tug Hill Coalition and the Lewis County Soil and Water District in 2008 contracted with Bergmann Associates to develop a Watershed Management Plan for the Black River. A number of draft documents were completed in 2009:

- Watershed Characterization Report for the Black River Watershed Management Plan
  - Watershed Prioritization Report for the Black River Watershed Management Plan
  - Regulatory and Programmatic Environment Report for the Black River Watershed Management Plan
  - Draft Recommendations and Strategies for the Black River Watershed Management Plan
- Work continues to evaluate these reports and begin implementation of the recommendations and strategies identified as priorities for management of the Black River Watershed.

## **14. Byram River Water Quality Management Planning Program**

The Byram Watershed Coalition was formed in 2008 to create a watershed based plan to restore and maintain the watershed as a public and natural resource by achieving a balance between development and watershed restoration and protection. In 2009, funding was provided through the Clean Water Act Section 604(b) Projects and American Recovery and Reinvestment Act (ARRA) to develop that watershed plan. The project will determine the baseline of the current water quality and identify component contributions of various point and non-point sources of pollution in the Byram River Watershed.

### **2.6 COASTAL NONPOINT POLLUTION CONTROL PROGRAM**

New York's Coastal Nonpoint Pollution Control Program builds on existing coastal management and nonpoint source pollution control programs to protect and restore coastal water quality. The program document was jointly prepared by the Departments of State and Environmental Conservation pursuant to the Federal Coastal Zone Act Reauthorization Amendment, Section 6217, and was submitted to the NOAA Office of Coastal Resource Management and EPA in June 1995. Rather than creating a separate program, New York's approach was to advance the implementation of management measures to control nonpoint pollution to coastal waters by building upon existing regulatory and incentive based programs that collectively address nonpoint sources of pollution from agriculture, forestry, urban areas (construction, onsite wastewater disposal, road runoff), marinas and boating, and hydrologic modification.

New York's coastal nonpoint area is large, covering over 60 percent of New York State, including the watersheds of Lake Ontario, Lake Erie, the Finger Lakes, the St. Lawrence River, the Hudson River, the Atlantic Ocean and Long Island Sound. Conditional approval of the program was given in November 1997. New York State provided supplemental information, describing existing strength and building capacity where needed, and New York's Coastal Nonpoint Pollution Control Program was fully approved in December 2006.

The overriding goal of New York's Coastal Nonpoint Pollution Control Program is to protect and restore coastal water quality by preventing and reducing pollution. This is advanced through the implementation of a suite of management measures known to be effective in significantly reducing and preventing pollution from sources contributing to water quality impairments or posing threats to water quality.

A key objective of the program is to enhance coordination and technical and financial assistance to municipalities in New York's many nonpoint related programs. Coordination of the different elements of the Coastal Nonpoint Pollution Control Program is accomplished primarily through regular meeting of the New York Nonpoint Source Coordinating Committee and its workgroups. The Departments of State and Environmental Conservation communicate with other key state agencies (Agriculture and Markets, Transportation, Health), federal agencies, regional councils, and local agencies and organizations, legislative commissions and citizen groups, and academic institutions, largely through this forum.

Funding priorities for coastal nonpoint source pollution control efforts in New York include the support of watershed management planning, and providing technical and financial assistance to municipalities for specific projects in key watersheds to implement these plans. Watershed management planning priorities include education and outreach, technical assistance and direct financial support for the preparation of specific watershed management plans. The priorities for municipal technical assistance include assistance in planning and design for streambank stabilization, stormwater treatment system retrofits, acquisition of land, and assessment of local laws and practices related to pollution management. Funds have been provided for specific projects across the state, including the Great Lakes Basin, Long Island's South Shore Estuary, the Long Island Sound, the Lake George Watershed, the Finger Lakes Watershed, and the Hudson River Basin.

## **Accomplishments for the Reporting Period**

### **1. New York State Framework for Local Watershed Management Planning**

The framework for the preparation of local watershed management plans developed in cooperation with the Department of Environmental Conservation's Division of Water in May 2003 continued to be advanced and refined as an effective means for local governments to follow when developing locally specific plans to advance local and statewide water quality goals. The framework was incorporated into the watershed planning multi-media project described below.

### **2. Preparation of Watershed Management Plans**

Technical and financial assistance to prepare watershed management plans was provided to municipalities by the New York Department of State's Local Waterfront Revitalization Program through the NYS Environmental Protection Fund. These plans include characterization of the watershed, identification of water quality and quantity (including altered hydrology) and habitat impairments or threats, as well as known or suspected causes. These plans have identified stormwater outfalls and focus on identifying opportunities and setting priorities for protective and corrective actions to protect and improve water quality and aquatic habitats. Recommendations include capital projects to reduce point and nonpoint sources of pollution, and changes in local laws and municipal operations to be advanced through implementation strategies. The Department of State works with local and state agencies, local watershed groups, and other community groups to prepare and implement watershed management plans.

Across New York State there are 458 communities covering 11,500 square miles of watershed, that have prepared or are working on inter-municipal watershed plans in partnership with the Department of State. This represents 21% of New York's land mass and 55% of the communities eligible for funding from the Department of State through the NYS Environmental Protection Fund Local Waterfront Revitalization Program. Since 1994, the Department of State has awarded over \$38 million to prepare and implement waterbody and watershed management plans, with \$2 million having been awarded in 2009. In 2009, the Department of State awarded 8 grants to local municipalities for the completion or implementation of watershed plans in the Mohawk River Watershed; Salmon River Watershed; Otisco Lake Watershed; Lake Sacandaga-Lake Pleasant Watershed; Quassaic Creek Watershed; Rondout Creek Watershed; Dering Harbor Watershed and; Alley Creek Watershed.

Between 2008 and 2009 the Department of State and its municipal partners have completed 19 water quality/ nonpoint source projects including:

- Mill River Watershed Study, Town of Oyster Bay
- Stormwater Mitigation at Mill Pond Park, North Hempstead
- Roosevelt Pond Rehabilitation, Nassau County
- Manhasset Bay Water Quality Improvement Plan Implementation, Town of North Hempstead

Throughout 2010, the Department will encourage preparation of new watershed management plans for the tributaries and embayments of Lake Ontario, Lake Erie, the St. Lawrence River, the Hudson River, the Mohawk River and the Long Island Sound. To complement ongoing efforts, in early 2010, the Department submitted applications to the US EPA Great Lakes Restoration Initiative Grant Program. The applications were designed to build on the successes of the Department's Environmental Protection Fund Local Waterfront Revitalization Grant Program. The new federal funding if obtained from EPA will enable New York communities, through Finger Lakes Nonpoint Source Reduction Grants, to implement priority actions in existing watershed management plans, and to prepare new watershed management plans for tributaries and embayments of New York's Great lakes and St Lawrence River where plans are lacking. Additionally, federal funds would facilitate the preparation of a Watershed Restoration and Protection Plan for the Eastern Lake Ontario Dunes and Wetland System and continue the Tug Hill Aquifer Study in the Black River Watershed to gather data critical to the protection of nearshore waters, wetlands, and groundwater dependent ecosystems.

### **3. Water Pollution Control Linked Deposit Program**

The Department of State, in cooperation with the Environmental Facilities Corporation the Department of Agriculture and Markets, and the Department of Health, is establishing the Water Pollution Control Linked Deposit Program. The Water Pollution Control Linked Deposit Program will provide reduced-interest loans to owners of residential and small business on-site wastewater treatment systems in order to prevent an increase in nutrients in waterbodies and to enhance source water or ensure watershed protection. Reduced interest loans will also be available for agricultural nonpoint source pollution control projects to reduce, abate, control, or prevent nonpoint source pollution originating from agricultural sources. Application materials have been drafted and rule-making is underway.

### **4. Watershed Planning and Implementation Multimedia Project**

The New York Department of State, in partnership with the state's Department of Environmental Conservation, recently released a watershed planning multimedia informational package to meet the growing demand for assistance in watershed planning. The multi-media informational package, *Watershed Plans: Protecting and Restoring Water Quality* is available on-line at [www.nyswaterfronts.com/communities\\_guidebooks.asp](http://www.nyswaterfronts.com/communities_guidebooks.asp)

The guidebook, *Watershed Plans: Protecting and Restoring Water Quality*, summarizes this approach to help characterize watersheds, assess water quality and natural resources, evaluate local controls and practices, develop actions and recommendations, and create implementation strategies. The guidebook builds on a shared approach to watershed management as a means to reduce nonpoint source pollution and protect water resources. It presents a flexible step-wise approach to watershed planning and implementation that highlights local and regional successes in a series of case studies across New York State. The video was designed to encourage local governments and groups to form networks and strengthen partnerships with other state agencies and educational institutions in order to capitalize on the

wealth of expertise available to protect and restore shared water resources. Each of these educational materials is designed to stand alone and complement one another. Coordination by the Department of State and the Department of Environmental Conservation ensured that the materials complement and advance New York's Phase II Stormwater Management Program, in addition to implementing New York's Coastal Nonpoint Program.

The Department of State continues to provide training and presentations related to the guidebook and watershed planning throughout the State and also encourages the assessment of programs, practices and local laws to protect water quality following the methodology described in "Protecting Water Resources through Local Controls and Practices: An Assessment Manual for New York Municipalities."

### **3.0 WATERSHED ASSESSMENT AND NONPOINT SOURCES**

New York's Watershed Assessment Program addresses water quality issues related to nonpoint sources within the context of its comprehensive Statewide Waters Monitoring and Assessment Program. This program, described in more detail in the following section, includes rotating drainage basin studies which form the basis of the analysis for this annual report, as presented in Section 3.2.

#### **3.1 STATEWIDE WATERS MONITORING PROGRAM - BACKGROUND**

The Statewide Waters Monitoring Program (SWMP) is a conglomeration of various component monitoring programs within the Division of Water. These component programs include the Division's long-running statewide ambient water quality monitoring programs for rivers (the Rotating Integrated Basin Studies, or RIBS, Sampling Program) and for lakes (the Lake Classification and Inventory), the Citizens Statewide Lake Assessment Program (CSLAP) which uses volunteers to conduct additional lake monitoring, the Stream Biomonitoring Program and Toxicity Testing Program which provide biological monitoring components, a regulatory sampling program to monitor point source compliance, and other efforts. Monitoring activities by other divisions of NYSDEC, as well as in other agencies and groups outside the department also contribute information to the evaluation and assessment of rivers, lakes, groundwater, marine waters and estuaries, and wetlands in New York State. But the foundation of the department's ambient water quality monitoring and assessment effort remains the Statewide Waters Monitoring Program.

The SWMP represents the latest iteration of a state water quality monitoring program that was established in the 1960s. The stated objectives of the program are numerous and varied. These objectives include: the comprehensive assessment of water quality of all waters of the state, including the documentation of *good* quality waters; analysis of long-term water quality trends; comprehensive and integrated multi-media sampling; the characterization of naturally occurring or background conditions; and the establishment of baseline conditions for measuring the effectiveness of site-specific restoration and protection activities.

In order to address the number and variety of monitoring objectives, component programs within the Statewide Waters Monitoring Program are designed around three separate types of monitoring networks and activities. Each of these operates concurrently, yet somewhat independently, and focuses on distinctly different objectives.

1. **Water Quality Screening** is conducted to provide a *qualitative* assessment of water quality at a large number of sampling sites with minimal resource (staff and analytic) expense. On-site biological (macroinvertebrate) sampling and visual lake surveys are examples of screening efforts.
2. **Intensive Basin Monitoring** employs more frequent as well as more comprehensive and integrated multi-media sampling (water chemistry, bottom sediment chemistry, toxicity testing, macroinvertebrates, fish, habitat assessments) to provide more detailed water quality information for a smaller number waterbodies in selected drainage basins.
3. **Routine Trend Monitoring** provides continuous (annual) sampling of water quality and conditions at fixed sites across the state. This effort is designed to monitor basic water quality characteristics, establish baseline conditions and evaluate long-term trends. The water quality data and information currently generated by the SWMP are used to support many water quality monitoring and assessment functions within DOW. Specifically, SWMP data/information is used in the compiling of the Waterbody Inventory/Priority Waterbody List (WI/PWL), the compilation of New York State's Clean Water Act Section 305(b) Water Quality Report and Section 303(d) Impaired Waters List, and the selection of locations for intensive surveys and special water quality monitoring projects.

### **Comprehensive Assessment Strategy**

Once collected, monitoring data is reviewed to determine water quality conditions and the degree to which various waterbody uses are supported. The Clean Water Act directs states to consider not only state-generated data, but all existing and readily available water quality data and information in conducting their assessments. Given the public interest in environmental issues and the wide range of water quality monitoring activities currently being conducted at a variety of levels, consideration of such a volume of information could be an overwhelming task. In response, DOW has adopted a continuous water quality assessment process that accommodates a wide range of participants, and various levels of water quality data and information. This process is the division's *Comprehensive Assessment Strategy*. Three key elements of this strategy are described below.

### **Rotating Drainage Basin Schedules**

A rotating drainage basin strategy focuses monitoring and assessment activities on smaller portions of the state for a period of time and then turns attention to other parts of the state. The rotating schedule adopted by New York State calls for the initiation of coordinated efforts in two or three drainage basins each year, resulting in an assessment of the entire state within a five-year cycle. The rotating basin schedule was first used by division monitoring programs in response to diminishing resources which prevented sampling the whole state at one time. But due to the success of this approach in delivering the monitoring program, the adoption of a common basin rotation schedule has since been extended to other division assessment and management programs as well. This coordinated schedule also facilitates the integration of monitoring, assessment and management programs and moves the division toward a more unified water program. Because of these aspects, the rotating basin schedule was adopted as the framework for the Comprehensive Assessment Strategy.

### **Enhanced Communication and Information Sharing**

The goal of incorporating "all available data and information" into the Comprehensive Assessment Strategy requires communication with and information sharing among not only DOW program staff, but with water quality "partners" in other NYSDEC divisions, other state and county agencies and local groups outside the department. Realization of this goal also requires a process that actively facilitates communication and encourages the exchange of information. The schedule of Comprehensive Assessment Strategy activities (outlined below) institutionalizes interagency and public participation in the process with a series of water quality partnership meetings and workshops throughout the five-year monitoring, assessment and management cycle.

### **The Waterbody Inventory/Priority Waterbodies List (WI/PWL)**

A third critical aspect of the Comprehensive Assessment Strategy is the linkage of all these monitoring activities with the Waterbody Inventory/Priority Waterbodies List (WI/PWL), the division's inventory of water quality information for waterbodies throughout the state. The WI/PWL incorporates monitoring data and information from DOW programs, as well as other NYSDEC divisions and other agencies. The WI/PWL also includes a significant public participation component, incorporating input from the public through a Water Management Advisory Committee, NPSCC, WQCCs, citizen advisory committees for Remedial Action Plans and Lake Management Plans, and other means.

Each year two or three major drainage basins (encompassing, on average, about 20% of the state) become the focus of new three-year Comprehensive Assessment Strategy efforts. At the conclusion of these monitoring and assessment activities, water quality management components become the focus of Years 4 and 5 (and beyond). As the cycle runs its course, new studies on 2 or 3 other basins (comprising another 20% of the state) begin each year.

### **Year One: Identification of Water Quality Issues and Water Quality Screening**

The first year of a Comprehensive Assessment Strategy effort in a basin begins with a review of current available information – including the division's Waterbody Inventory/Priority Waterbodies List (WI/PWL) – to identify pertinent water quality problems and issues. Regional staff, other division and agency monitoring units and the network of local/county WQCC and other water quality partners are also consulted to determine where monitoring efforts in the basin should focus. In addition to the identification of water quality issues, *Year One* Statewide Waters Monitoring Program activities include Biological Screening Network sampling. This effort uses qualitative biological assessments to identify waters that support uses and waters that require further study. A similar screening effort for lake waterbodies and lake use assessments at previously unassessed lakes is also under development; as are attempts to incorporate water quality screening and problem verification efforts (fishery community and habitat assessment, facility toxicity testing, shellfish area assessment, etc.) by other NYS DEC monitoring programs at other waters in the targeted basins.

The goal of these screening activities is to conduct an evaluation of **all** river and lake waterbodies in a basin study area over a period of two sampling cycles (10 years). Such a *census* approach has distinct advantages over *targeted* monitoring designs (which are often biased toward "problem" waters and result in skewed inferences regarding statewide use support) and *random/probabilistic* monitoring (which provides a statistical evaluation of statewide water quality, but limited segment-specific information). However, targeted monitoring is a key

component in the second year of monitoring (see below). Additionally, a pilot study to determine a possible role for random/probabilistic monitoring in the Statewide Waters Monitoring Program is continuing.

### **Year Two: Intensive/Chemical Network Monitoring**

The results of the *Year One* water quality review and water quality screening are used to develop more intensive basin monitoring plans for selected waters in the target watersheds. The Intensive/Chemical Network monitoring component of the Statewide Waters Monitoring Program incorporates a wide range of water quality monitoring including chemical analyses of contaminants in water, bottom sediment, whole organisms (benthic macroinvertebrates) and fish flesh samples, as well as more detailed biological assessments and ambient toxicity evaluations. Much of this sampling is conducted by the Statewide Waters Monitoring Program staff. However, the goals of the Comprehensive Assessment Strategy have led to the incorporation of data and information from other sources into its water quality evaluations. These may include a number of other division/department activities, such as lake studies and management programs, fishery habitat and community assessment, fish tissue contaminant sampling, chemical sampling of facility effluents, groundwater quality evaluation, pollutant track-down efforts, and nonpoint source monitoring. Additional data for water quality assessments are also generated by monitoring programs conducted by many other governmental agencies and public interest groups outside NYS DEC. These monitoring programs, which may focus on large watersheds or individual waterbody segments, provide chemical constituent data and/or aquatic resource information including macroinvertebrate, plant and fish community assessments. Efforts to better incorporate other agency (USGS, USF&W, USEPA, local health and planning agencies) as well as citizen volunteer (lake associations, county WQCCs, colleges and universities) monitoring activities into the intensive monitoring plan are also being developed.

### **Year Three: Water Quality Evaluation/Assessment and WI/PWL Update**

The third year of the Comprehensive Assessment Strategy focuses on the evaluation and assessment of results from the multi-faceted monitoring during the first two years of effort. This evaluation and assessment component uses monitoring data and information to compare against a wide range of water quality indicators to determine the level of use support in the waters of the state. The water quality evaluation and assessment culminates in an update of the WI/PWL for the basin study area. The methodology for evaluating monitoring data and information against specific indicators to determine the level of use support and an assessment of water quality is integral to Section 303(d) List development. Like the monitoring effort, the WI/PWL update process involves the solicitation of input from a wide range of water quality professionals (from both within and outside the division/department) as well as a significant public participation component. Accommodation of such a wide range of participants is managed through NYS DEC regional staff involvement and a network of local/county WQCCs.

### **Year Four: Watershed Restoration and Protection Strategies Development**

The completion of a basin WI/PWL marks the end of the monitoring and assessment efforts within that basin. Armed with all available water quality information, the focus of division programs turns toward the management, protection and, where necessary, the restoration of water resources in the state. The primary activity in the fourth year of the cycle is the development of strategies to address restoration and protection of waters assessed in the targeted basins. These strategies strive to bring together all appropriate agencies and stakeholders to

focus all available tools (grant dollars, technical assistance and other resources) to address the priority water quality and natural resource needs of a basin and identify a detailed action plan.

### **Year Five (and beyond): Implementation of Management Strategies**

Completed strategies may include recommendations and specific commitments by water quality partners to implement various components of the strategy. The development and implementation of management/restoration strategies and activities extends through Years 4 and 5 and beyond. In practice, the strategy development and implementation phases outlined above have not been limited to Year 4 and 5, respectively. Rather these activities have tended to span the entire five-year rotating cycle and have been dictated by availability of resources to conduct this work both within and outside the Department. Nonetheless, the results of the rotating monitoring and assessment program continue to inform the priorities for management strategy development and implementation, as well as guide the direction of the approaches to be considered.

## **3.2 UPDATED DRAINAGE BASIN STUDIES - NONPOINT SOURCE FACTORS**

For the purposes of this report, the waterbody assessment contained in the updated WI/PWL reports for selected drainage basins provide the basis for interpreting progress of the Nonpoint Source Management Program since 2000. Summary results for these waters are presented in Tables 3-1 through 3-12. Tables 3-11 and 3-12 provide updates for the current reporting period, while Tables 3-1 through 3-10 are included to provide a perspective from earlier reporting periods.

These tables show measures of improvements, no change, or decline in water quality in waters of the targeted basin. These are summarized according to different categories of nonpoint sources and also reflect different levels of water quality impacts.

The information presented in the tables shows the number of waterbody segments in each basin which have shown improvements (change from one level of impact to a lower level of impact, such as "stressed/threatened >NKI (no known impact)"). These improved segments are associated with major sources of impacts, which are primarily nonpoint sources. The source categories are abbreviated in the tables as follows:

Ag -	agriculture
Atm -	atmospheric
Spill -	petroleum spills
Constr -	construction
Deicer -	winter deicing salts & abrasives
HHM -	hydrologic habitat modification
Sed -	contaminated sediments
Landfill -	solid waste disposal sites
OWTS -	onsite wastewater treatment systems
SBE -	streambank erosion (distinguished from contaminated sediments)
SW -	stormwater
UKN/Other -	unknown or other categories
Urban -	urban sources

The results in Tables 3-1 through 3-12 only present information on waterbody segments for which data were available from earlier rounds of studies, i.e. only those segments for which a baseline assessment was available and for which some change or trend could be assessed.

The specific observations from the results shown in each of the tables vary somewhat from basin to basin. However the primary observation from the combined results is that the assessed waterbody segments show a significant trend toward improvement, with 221 waterbody segments showing improvement, as compared with 70 showing some decline (while 218 segments showed no change). Of the 221 segments showing improvements, 100 experienced improvement that reflected the restoration of uses; while approximately one-half as many (49) had loss of use. The principal categories of nonpoint source pollution associated with improvements in the basins assessed are agriculture, hydrologic habitat modification, streambank erosion, and onsite wastewater treatment systems.

The overall trend from these results is toward improvement, based on the system of defined waterbody impacts. These improvements are generally associated with the priority categories of nonpoint sources that are the emphasis of New York's Nonpoint Source Management Program. Additional rounds of rotating drainage basin studies are expected to affirm a continuation of these trends into the future.

**Note:** Tables 3-1 through 3-12 do not include 45 segments where acid rain is the source of impact/impairment. Changes in the assessment for these segments are largely the result of modifications to the assessment methodology and not reflective of improved water quality.

Additional information regarding the quality of New York State Waters, including trends in water quality improvement, is available through the state Section 305(b) water quality reporting effort. This assessment information is located on the NYSDEC website at: <http://www.dec.ny.gov/chemical/66532.html>.

**Table 3-1: NPS Update December 2004 (from 2000 Baseline) -Mohawk**

Change in Assessment		All Sources	Agr	Spill	Cons	Deice	HHM	Con Sed	Land fill	OWTS	SBE	SW	Unk/Oth	Urb
Stressed/Threatened>NKI		14	7		1	1					2	1		2
Precluded/Impaired>NKI	Restored	3									1		2	
Impair/Precl>Stress/Threat	Restored	11	1		1		5		1		1	1		1
Stressed>Threatened		4				1	1			2				
Precluded>Impaired		0												
<b>TOTAL IMPROVED</b>		<b>32</b>	<b>8</b>		<b>2</b>	<b>2</b>	<b>6</b>		<b>1</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>3</b>
Precluded/Impaired>No Change		4	2				1							1
Stressed/Threaten>No Change		21	10				3			4	1			3
<b>TOTAL NO CHANGE</b>		<b>25</b>	<b>12</b>				<b>4</b>			<b>4</b>	<b>1</b>			<b>4</b>
Stress/Threat>Precl/Impair	Degraded	8	2	2	1					2				1
Threatened>Stressed		4					3				1			
Impaired>Precluded		1											1	
<b>TOTAL DECLINED</b>		<b>13</b>	<b>2</b>	<b>2</b>	<b>1</b>		<b>3</b>			<b>2</b>	<b>1</b>		<b>1</b>	<b>1</b>
<b>Total Segments</b>		<b>70</b>	<b>22</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>13</b>		<b>1</b>	<b>8</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>8</b>

**Table 3-2: NPS Update December 2004 (from 2000 Baseline) -Niagara**

Change in Assessment		All Sources	Agr	Spill	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb
Stressed/Threatened>NKI		9	3								6			
Precluded/Impaired>NKI	Restored	0												
Impair/Precl>Stress/Threat	Restored	3	2							1				
Stressed>Threatened		0												
Precluded>Impaired		2						2						
<b>TOTAL IMPROVED</b>		<b>14</b>	<b>5</b>					<b>2</b>		<b>1</b>	<b>6</b>			
Precluded/Impaired>No Change		8	1					2	1	1	1		2	
Stressed/Threaten>No Change		8									6			2
<b>TOTAL NO CHANGE</b>		<b>16</b>	<b>1</b>					<b>2</b>	<b>1</b>	<b>1</b>	<b>7</b>		<b>2</b>	<b>2</b>
Stress/Threat>Precl/Impair	Degraded	5					1	2		1			1	
Threatened>Stressed		7	3								3		1	
Impaired>Precluded		0												
<b>TOTAL DECLINED</b>		<b>12</b>	<b>3</b>				<b>1</b>	<b>2</b>		<b>1</b>	<b>3</b>		<b>2</b>	
<b>Total Segments</b>		<b>42</b>	<b>9</b>				<b>1</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>16</b>		<b>4</b>	<b>2</b>

**Table 3-3: NPS Update December 2006 (from 2000 Baseline) -Allegheny**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		6	2	3							1				
Precluded/Impaired>NKI	Restored														
Impair/Precl>Stress/Threat	Restored	3	2	1											
Stressed>Threatened															
Precluded>Impaired															
<b>TOTAL IMPROVED</b>		9	4	4							1				
Precluded/Impaired>No Change		5	4							1					
Stressed/Threaten>No Change		8	6								1		1		
<b>TOTAL NO CHANGE</b>		13	10							1	1		1		
Stress/Threat>Precl/Impair	Degraded														
Threatened>Stressed		2	1		1										
Impaired>Precluded															
<b>TOTAL DECLINED</b>		2	1		1										
Total Segments															

**Table 3-4: NPS Update December 2006 (from 2000 Baseline) -Black**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		1								1					
Precluded/Impaired>NKI	Restored														
Impair/Precl>Stress/Threat	Restored	1									1				
Stressed>Threatened		1								1					
Precluded>Impaired															
<b>TOTAL IMPROVED</b>		<b>3</b>								<b>2</b>	<b>1</b>				
Precluded/Impaired>No Change		7	1							1			5		
Stressed/Threaten>No Change		7	1				1			4			1		
<b>TOTAL NO CHANGE</b>		<b>14</b>	<b>2</b>				<b>1</b>			<b>5</b>			<b>6</b>		
Stress/Threat>Precl/Impair	Degraded	1								1					
Threatened>Stressed															
Impaired>Precluded															
<b>TOTAL DECLINED</b>		<b>1</b>								<b>1</b>					
<b>Total Segments</b>		<b>18</b>													

**Table 3-5: NPS Update December 2006 (from 2000 Baseline) -Chemung**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		4	2				1				1				
Precluded/Impaired>NKI	Restored														
Impair/Precl>Stress/Threat	Restored	11		2					1	5	2		1		
Stressed>Threatened		2	1										1		
Precluded>Impaired															
<b>TOTAL IMPROVED</b>		<b>17</b>	<b>3</b>	<b>2</b>			<b>1</b>		<b>1</b>	<b>5</b>	<b>3</b>		<b>2</b>		
Precluded/Impaired>No Change		1											1		
Stressed/Threaten>No Change		6	2							1	3				
<b>TOTAL NO CHANGE</b>		<b>7</b>	<b>2</b>							<b>1</b>	<b>3</b>		<b>1</b>		
Stress/Threat>Precl/Impair	Degraded														
Threatened>Stressed		1									1				
Impaired>Precluded															
<b>TOTAL DECLINED</b>		<b>1</b>									<b>1</b>				
<b>Total Segments</b>		<b>25</b>													

**Table 3-6: NPS Update December 2006 (from 2000 Baseline) -Oswego/Finger Lakes**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		13	6	1	2				1		3				
Precluded/Impaired>NKI	Restored	5	3				1			1					
Impair/Precl>Stress/Threat	Restored	20	5					1	1	3		1	6	3	
Stressed>Threatened		1	1												
Precluded>Impaired															
<b>TOTAL IMPROVED</b>		<b>39</b>	<b>15</b>	<b>1</b>	<b>2</b>		<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>3</b>	
Precluded/Impaired>No Change		5		1				2		1			1		
Stressed/Threaten>No Change		12	5				2		1	1	1		1	1	
<b>TOTAL NO CHANGE</b>		<b>17</b>	<b>5</b>	<b>1</b>			<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>		<b>2</b>	<b>1</b>	
Stress/Threat>Precl/Impair	Degraded	4					1				1			2	
Threatened>Stressed		5	5												
Impaired>Precluded		0													
<b>TOTAL DECLINED</b>		<b>9</b>	<b>5</b>				<b>1</b>				<b>1</b>			<b>2</b>	
<b>Total Segments</b>		<b>65</b>	<b>25</b>	<b>2</b>	<b>2</b>		<b>4</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>5</b>	<b>1</b>	<b>8</b>	<b>6</b>	

**Table 3-7: NPS Update December 2006 (from 2000 Baseline) - Upper Hudson**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		10	2	1	1	4					1		1		
Precluded/Impaired>NKI	Restored	3				1		1		1					
Impair/Precl>Stress/Threat	Restored	11	1				5	1		2			2		
Stressed>Threatened		2								1			1		
Precluded>Impaired		2			1		1								
<b>TOTAL IMPROVED</b>		<b>28</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>2</b>		<b>4</b>	<b>1</b>		<b>4</b>		
Precluded/Impaired>No Change		2						1					1		
Stressed/Threaten>No Change		12			2	2	1		1	3	1		1	1	
<b>TOTAL NO CHANGE</b>		<b>14</b>			<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>		<b>2</b>	<b>1</b>	
Stress/Threat>Precl/Impair	Degraded														
Threatened>Stressed		2	1		1										
Impaired>Precluded															
<b>TOTAL DECLINED</b>		<b>2</b>	<b>1</b>		<b>1</b>										
<b>Total Segments</b>		<b>44</b>													

**Table 3-8: NPS Update December 2007 (from 2000 Baseline) -Lake Ontario Tribs**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		6	3				1		1				1		
Precluded/Impaired>NKI	Restored	1								1					
Impair/Precl>Stress/Threat	Restored	6	1		1				1	3					
Stressed>Threatened		1	1												
Precluded>Impaired		0													
<b>TOTAL IMPROVED</b>		<b>14</b>	<b>5</b>		<b>1</b>		<b>1</b>		<b>2</b>	<b>4</b>			<b>1</b>		
Precluded/Impaired>No Change		4						2						2	
Stressed/Threaten>No Change		12	8							2			1	1	
<b>TOTAL NO CHANGE</b>		<b>16</b>	<b>8</b>					<b>2</b>		<b>2</b>			<b>1</b>	<b>3</b>	
Stress/Threat>Precl/Impair	Degraded	7	1		2				1	3					
Threatened>Stressed		6	2		1		1		1	1					
Impaired>Precluded		0													
<b>TOTAL DECLINED</b>		<b>13</b>	<b>3</b>		<b>3</b>		<b>1</b>		<b>2</b>	<b>4</b>					
<b>Total Segments</b>		<b>43</b>	<b>16</b>		<b>4</b>		<b>2</b>	<b>2</b>	<b>4</b>	<b>10</b>			<b>2</b>	<b>3</b>	

**Table 3-9: NPS Update December 2008 (from 2000 Baseline) – Lower Hudson Basin (incl. Ramapo)**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		12	3							2				6	1
Precluded/Impaired>NKI	Restored	1												1	
Impair/Precl>Stress/Threat	Restored	8	1				3			2				2	
Stressed>Threatened		3			1		1				1				
Precluded>Impaired		1							1						
<b>TOTAL IMPROVED</b>		<b>25</b>	<b>4</b>		<b>1</b>		<b>4</b>		<b>1</b>	<b>4</b>	<b>1</b>			<b>9</b>	<b>1</b>
Precluded/Impaired>No Change		25						6	1	1	2			14	1
Stressed/Threaten>No Change		24	2	1	1				1	6			3	9	1
<b>TOTAL NO CHANGE</b>		<b>49</b>	<b>2</b>	<b>1</b>	<b>1</b>			<b>6</b>	<b>2</b>	<b>7</b>	<b>2</b>		<b>3</b>	<b>23</b>	<b>2</b>
Stress/Threat>Precl/Impair	Degraded	8	1		2					4				1	
Threatened>Stressed		0													
Impaired>Precluded		0													
<b>TOTAL DECLINED</b>		<b>8</b>	<b>1</b>		<b>2</b>					<b>4</b>				<b>1</b>	
<b>Total Segments</b>		<b>82</b>	<b>7</b>	<b>1</b>	<b>4</b>		<b>4</b>	<b>6</b>	<b>3</b>	<b>15</b>	<b>3</b>		<b>3</b>	<b>33</b>	<b>3</b>

**Table 3-10: NPS Update December 2008 (from 2000 Baseline) –St. Lawrence Basin**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		3	2												1
Precluded/Impaired>NKI	Restored	1	1												
Impair/Precl>Stress/Threat	Restored	2								1			1		
Stressed>Threatened		1					1								
Precluded>Impaired		0													
<b>TOTAL IMPROVED</b>		<b>7</b>	<b>3</b>				<b>1</b>			<b>1</b>			<b>1</b>		<b>1</b>
Precluded/Impaired>No Change		9						2		2			5		
Stressed/Threaten>No Change		17	8				1			4			3	1	
<b>TOTAL NO CHANGE</b>		<b>26</b>	<b>8</b>				<b>1</b>	<b>2</b>		<b>6</b>			<b>8</b>	<b>1</b>	
Stress/Threat>Precl/Impair	Degraded	4	1							2					1
Threatened>Stressed		1		1											
Impaired>Precluded		0													
<b>TOTAL DECLINED</b>		<b>5</b>	<b>1</b>	<b>1</b>						<b>2</b>					<b>1</b>
<b>Total Segments</b>		<b>38</b>	<b>12</b>	<b>1</b>			<b>2</b>	<b>2</b>		<b>9</b>			<b>9</b>	<b>1</b>	<b>2</b>

**Table 3-11: NPS Update December 2009 (from 2000 Baseline) – Lake Champlain**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI															
Precluded/Impaired>NKI	Restored														
Impair/Precl>Stress/Threat	Restored	3	2										1		
Stressed>Threatened															
Precluded>Impaired															
<b>TOTAL IMPROVED</b>		<b>3</b>	<b>2</b>										<b>1</b>		
Precluded/Impaired>No Change		2	1										1		
Stressed/Threaten>No Change		5				1				1			2	1	
<b>TOTAL NO CHANGE</b>		<b>7</b>	<b>1</b>			<b>1</b>				<b>1</b>			<b>3</b>	<b>1</b>	
Stress/Threat>Precl/Impair	Degraded														
Threatened>Stressed															
Impaired>Precluded															
<b>TOTAL DECLINED</b>															
Total Segments		10	3			1				1			4	1	

**Table 3-12: NPS Update December 2009 (from 2000 Baseline) – Susquehanna**

Change in Assessment		All Sources	Agr	Rex	Cons	Deice	HHM	Con Sed	Landfill	OWTS	SBE	SW	Unk/Oth	Urb	ATM*
Stressed/Threatened>NKI		19	9		1		1		1	4	3				
Precluded/Impaired>NKI	Restored	2	1										1		
Impair/Precl>Stress/Threat	Restored	6	4							1	1				
Stressed>Threatened		3	2							1					
Precluded>Impaired															
<b>TOTAL IMPROVED</b>		<b>30</b>	<b>16</b>		<b>1</b>		<b>1</b>		<b>1</b>	<b>6</b>	<b>4</b>		<b>1</b>		
Precluded/Impaired>No Change		1	1												
Stressed/Threaten>No Change		13	5		3		1			4					
<b>TOTAL NO CHANGE</b>		<b>14</b>	<b>6</b>		<b>3</b>		<b>1</b>			<b>4</b>					
Stress/Threat>Precl/Impair	Degraded	2								1			1		
Threatened>Stressed		2	2												
Impaired>Precluded															
<b>TOTAL DECLINED</b>		<b>4</b>	<b>2</b>							<b>1</b>			<b>1</b>		
<b>Total Segments</b>		<b>48</b>	<b>24</b>		<b>4</b>		<b>2</b>		<b>1</b>	<b>11</b>	<b>4</b>		<b>2</b>		