NEW YORK STATE OF OPPORTUNITY.

Department of Environmental Conservation

NONPOINT SOURCE POLLUTION MANAGEMENT PROGRAM

Annual Report for April 1, 2021 to March 31, 2022

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Nonpoint Source Pollution Program Mission

The goals of New York's Nonpoint Source Program are to control pollution from nonpoint sources to the waters of the state and to protect, maintain and restore waters of the state that are vulnerable to, or are impaired by nonpoint source pollution.

About the Nonpoint Source Pollution Program

New York's NPS Program is established under the leadership of the New York State Department of Environmental Conservation (NYSDEC), as NYSDEC is the state lead agency for the Federal Clean Water Act Section 319 Program and many other closely related programs. Significant state agency partnerships and program roles are shared with:

- New York State Department of Agriculture and Markets (NYSAGM)
- New York State Soil and Water Conservation Committee (NYSSWCC)
- New York State Department of State (NYSDOS)
- New York State Department of Health (NYSDOH)
- New York State Environmental Facilities Corporation (NYSEFC)
- New York State Department of Transportation (NYSDOT)

These state agency partnerships are complemented by regional and local partnerships, with special emphasis on county Soil and Water Conservation Districts (SWCD), county health agencies, county and regional planning agencies, and watershed coalitions. Key federal agency partnerships include the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA). New York's NPS program places highest priority on the management of sources of nutrients in the landscape, with significant priorities also assigned to management of pathogen and sediment sources. The program was updated in 2020 in accordance with EPA's nonpoint source program guidance.

Objectives of the Nonpoint Source Pollution Program

Objective 1: Develop watershed management plans, and other comprehensive and strategic plans to improve the management of nonpoint pollution sources on a watershed basis

Objective 2: Implement watershed projects to reduce nonpoint source pollution of waters of the state

Objective 3: Assess the quality of waters of the state related to nonpoint source pollution

Objective 4: Protect and maintain unimpaired waters of the state from additional nonpoint source pollution, and restore or prevent further degradation of waters of the state impaired by nonpoint source pollution

Objective 5: Integrate management of nonpoint pollution sources into applicable state and local agency programs (including both regulatory and non-regulatory programs), and provide overall policy coordination among state, local and federal agencies

Objective 6: Develop and maintain the capacity of state, regional and local agencies and organizations to provide nonpoint source management assistance to communities and landowners through assessment, planning, technical support and education

Major Accomplishments

During the annual reporting year (April 1, 2021 to March 31, 2022), NYSDEC and its partners initiated and completed a variety of nonpoint source projects and reduced the amount of NPS pollutants entering New York lakes, streams, and rivers through implementation of state programs. Projects initiated during the reporting period resulted in a reduction of 63,831 pounds of nitrogen, 1,948 pounds of phosphorus, and 6,581 tons of sediment per year. $19.57 million of state funding was dedicated, within the reporting period, to projects that implement best management practices (BMPs) to reduce nonpoint source pollution. This report describes New York's reporting measures and accomplishments for each of the nonpoint source program's six objectives.

Objective 1: Develop watershed management plans, and other comprehensive and strategic plans to improve the management of nonpoint pollution sources on a watershed basis

Watershed management planning is conducted directly by, or through the support and guidance of, several NPS Program partner agencies, including NYSDOS and the NYSSWCC. Partnerships for watershed planning have also been established through the state's major basin and estuary programs (e.g. Chesapeake Bay Program, Hudson River Estuary Program, NYC Watershed Program, Mohawk River Basin Program, Lake Champlain Basin Program). The Chesapeake Bay Watershed Program has completed several watershed implementation plans (WIP) to meet the goals and objectives of the Chesapeake Bay Total maximum daily load (TMDL). Several watershed plans were also completed through the NYSDOS, including the Harlem River Watershed and Natural Resources Management Plan for the Bronx; the St. Lawrence River Watershed Management Plan; and the Upper Hudson Watershed Revitalization Plan. Plans currently under development include: Owasco Lake Watershed, Seneca Lake Watershed, Skaneateles Lake Watershed, Oneida Lake Watershed, Canandaigua Lake Watershed, Regional Niagara/Lake Erie Watershed, and Wappinger Creek Watershed.

At the local level, watershed planning is conducted by regional and county planning agencies, watershed coalitions (Appendix A), and Soil and Water Conservation Districts (SWCDs). County Water Quality Coordinating Committees (CWQCC) develop and update County Water Quality Strategies that address NPS issues at the local level. Watershed plans are also developed through partnerships with regional basin planning commissions and other states for New York's significant interstate and international waters. Development of watershed management plans by local governments has also been supported through the New York Coastal Nonpoint Pollution Control Program and funded through the Local Waterfront Revitalization Program (LWRP). Approximately 28,730 square miles of watershed area in New York State are now covered by watershed plans completed by watershed coalitions or other planning entities.

Objective 1: Reporting Measure Accomplishments

Reporting Measure	Accomplishment
Watershed area (cumulative statewide) covered by watershed plans which are consistent with the Section 319 NPS Program and Grant Guidelines	Nine Element plans are in development for the following watersheds: • Canandaigua Lake, • Skaneateles Lake, • Seneca/Keuka Lakes, • Oneida Lake, • Owasco Lake, • Wappinger's Creek, • Nassau County, • Hutchinson River, • Lake Erie/Niagara River watersheds.
Watershed area (cumulative statewide) covered by watershed plans completed by watershed coalitions and other planning entities	No watershed plans were finalized during the reporting period. The area covered by watershed plans remains at 912 square miles.
Number of updated County Water Quality Strategies	No County Water Quality Strategies were updated in this period.
Number of Agricultural Environmental Management (AEM) Strategic Plans updated or revised through the AEM Framework	During the reporting period, 52 Soil and Water Conservation Districts participated in both Round 16 of the AEM Base Program (concluding at the end of 2021) and Round 17 (starting at the beginning of 2022). All 52 Districts have local, five-year AEM Strategic Plans. Based on their AEM Strategies, Districts develop two-year AEM Action Plans to prioritize and deliver technical assistance with farmers progressing through the AEM Tiers; outreach, education, and partnership activities; and AEM Tier 4 BMP implementation projects.
Watershed area (cumulative statewide) addressed by TMDLs or other specific NPS pollutant load reduction goals	No TMDLs were completed during the reporting period. The area covered by TMDLs remains at 6,335 square miles.

Objective 1 Highlight: Agricultural Environmental Management (AEM)

The New York State Department of Agriculture and Markets (NYS AGM) and the NYS Soil and Water Conservation Committee (NYS SWCC) administer the Agricultural Environmental Management (AEM) framework to partner with farmers in their work to improve farm viability and natural resource conservation. Built on decades of conservation work by farmers, Soil and Water Conservation Districts (SWCD), and partners, AEM was developed in NYS through large-scale watershed pilots during the 1990s, formalized in NYS law in 2000, and then put into practice across the State. AEM is available to all farmers and is locally led by county SWCDs. Engaging in AEM is voluntary, incentive-based, centered on trustful conservation partnerships with farmers, and focused on the adoption of conservation practices. The AEM process identifies existing environmental stewardship and resource concerns and supports practical, cost-effective, and science-based decisions to meet farm goals while protecting and conserving New York's natural resources.

County Soil and Water Conservation Districts are the local leaders of AEM. In coordination with their conservation partners and stakeholders, SWCDs develop AEM Strategic Plans to guide the implementation of their agricultural conservation program. The AEM Strategic Plan identifies and prioritizes natural resource concerns and opportunities related to agriculture, including documented water quality concerns, as well as opportunities to advance soil health, greenhouse gas mitigation, and adaptation to climate

change. By identifying and prioritizing natural resource concerns, the strategic plan sets goals and guides the coordination of planning and implementation activities based on targeted priority watersheds, water quality goals, and opportunities to enhance agricultural stewardship of other natural resources.

At the farm-scale, SWCDs and farmers use the AEM five-tier, voluntary approach to document on-going environmental stewardship and opportunities for improvement. AEM Tier 1 documents current contact information, basic farm characteristics, and the farmers' interests in environmental conservation and other agricultural topics. Tier 2 documents the farms existing stewardship and assesses potential environmental concerns. To complete Tier 3, resource professionals work with farmers to develop conservation plans to address concerns identified through Tiers 1 and 2 while meeting the farmers' goals. Through Tier 4, AEM partners provide technical, educational, and/or financial assistance to help farmers implement priority best management practices identified in the Tier 3 plans. Tier 5 of the AEM process provides the opportunity to evaluate and update conservation plans and practices on a regular basis to ensure continued compatibility with farm management and environmental performance.

A core element of the AEM framework is its cost-share funding programs. Conservation practice systems planned and prioritized through Tier 3 are eligible for funding through NYS AGM and SWCC cost-share programs, such as the Agricultural Nonpoint Source Abatement and Control Program (AgNPS; https://agriculture.ny.gov/soil-and-water/agricultural-nonpoint-source-abatement-and-control), the Climate Resilient Farming Program (CRF; https://agriculture.ny.gov/soil-and-water/climate-resilient-farming), the Source Water Buffer Program (SWB; https://agriculture.ny.gov/soil-and-water/source-water-buffer-program), and the AEM Base Tier 4 Implementation Track Program (AEM Tier 4; https://agriculture.ny.gov/soil-and-water/agricultural-environmental-management), made possible through the NYS Environmental Protection Fund. Our cost-share funding programs are critical to advancing practice adoption because they pair public and farmer funding to further incentivize conservation, especially when practices are more beneficial to society than farm finances. New rounds of the programs are released annually and locally sponsored and managed by SWCDs. Such consistent effort and investment by farmers, SWCDs, and conservation partners have led to significant impacts:

- AgNPS: over $230 million awarded through 28 rounds since 1994;
- CRF: over $20 million awarded through six rounds since 2015;
- SWB: $300,000 awarded since 2017;
- AEM Tier 4 Track: over $8.5 million awarded through 2 rounds since 2020;
- AEM Base Technical Assistance Track: over $48 million awarded through 17 rounds since 2005 and engaging over 13,000 farms in progress through the five AEM Tiers; and
- when taken together, over 14,000 conservation practices implemented on farms for the benefit of water quality, soil health, greenhouse case mitigation, and climate resiliency.

The AEM process plays an important role in watershed protection by empowering farmers to make decisions that will mutually benefit their farms and the environment. The AEM Strategic Plan priorities, the AEM Tiers, and the associated conservation cost-share funding programs are central to the agricultural components of many local, State, and federal priorities, including the Climate Action Council Scoping Plan, TMDL Watershed Implementation Plans, 9 Element Watershed Plans, Harmful Algal Bloom Action Plans, the CAFO general permit, Source Water Protection Plans, and NYS Grown and Certified. The high level of farmer input and involvement encourages comprehensive conservation plans and supports the adoption of best management practices that are designed to improve water quality and further advance agriculture's positive contributions to our communities, food and bio-systems, the economy, and the environment. For more information about AEM, its opportunities, and cost-share programs within the AEM framework, please visit: https://agriculture.ny.gov/soil-and-water/agricultural-environmental-management.

Objective 2: Implement watershed projects to reduce nonpoint source pollution of waters of the state.

New York continued to implement watershed projects to support NPS Program objectives using state funds. The primary programs used to implement nonpoint source projects include:

- Agricultural Nonpoint Source Control and Abatement (AgNPS) Program, providing support to producers for implementation of agricultural NPS watershed projects; and
- Water Quality Improvement Program (WQIP), providing support to municipalities and SWCDs for implementation of non-agricultural NPS watershed projects.

Both programs are fully supported through New York's Environmental Protection Fund. BMPs initiated through both programs can be found in Appendix B. Other programs used to implement nonpoint source projects include but are not limited to: Local Waterfront Revitalization Program (LWRP), Finger Lakes-Lake Ontario Watershed Protection Alliance (FLLOWPA) Grants, Lake Erie Watershed Protection Alliance (LEWPA), Hudson River Estuary Program Grants, Mohawk River Watershed Grants and New York City Department of Environmental Protection Green Infrastructure Grant Program.

New York leverages state dollars to receive grant funding from federal agencies to implement multiple programs, including but not limited to the following programs:

- Clean Water State Revolving Fund (CWSRF), providing low-cost financing to communities to implement water quality infrastructure projects with funding from EPA;
- Green Innovation Grant Program (GIGP), providing support for implementation of NPS watershed projects with funding from EPA;
- Regional Conservation Partnership Program (RCPP), a partnership between USDA Natural Resource Conservation Program (NRCS) and other agencies to help producers install and maintain conservation activities through existing NRCS conservation programs; and
- Chesapeake Bay Implementation Grant (CBIG), a grant provided by EPA to states located in the Chesapeake Bay watershed for restoration activities that will reduce nutrient pollution.

A full list of funding programs and program descriptions can be found in Appendix C.

Objective 2: Reporting Measure Accomplishments

Reporting Measure	Accomplishment
Number of cost-shared watershed projects initiated	56 Projects were initiated during the reporting period.
Number of specific cost shared BMPs initiated	244 BMPs
Estimated load reductions for initiated projects through AgNPS and non-AgNPS	Nitrogen: 63,831 lbs Phosphorus: 1,947.76 lbs Sediment: 6,582 tons
Funding provided to support cost-shared watershed projects (through AgNPS and WQIP programs)	$9.59 million in local funds
Number cost-shared watershed projects completed	48 Projects were completed during the reporting period.
Number of specific cost shared BMPs completed	271 BMPs

Objective 2 Highlight: Seneca River Watershed Ag Program: Humbert Farms Water Management System and Conservation Cover

Humbert Farms is a fourth-generation family cash crop farm that works approximately 2,400 acres. Water controls and erosion concerns have been indicated as major issues in their cropland soil conservation and Comprehensive Nutrient Management Plans (CNMP). The farm has embraced many NRCS approved Best Management Practices (BMPs) such as Erosion Control, Soil Conservation, and Irrigation Water Management.

The Seneca River Watershed is one of the top priority watersheds in Wayne County's Agricultural Environmental Management (AEM) Strategic Plan. Humbert Farms acreage lies in the Black/Butler/Crusoe Creeks portion of the Seneca River Watershed in the southeastern part of the county; which encompasses approximately 38,893 acres. The watershed is noted for its significant number of protected wetlands, hydrological soil types and wildlife habitat. The farm's proximity to the Seneca River had created a threat and potential for extreme nutrient loading due to lack of best management practices.

BMPs implemented by Humbert Farms were part of the Seneca River Watershed Agriculture Program: Phase III as part of NYS Department of Agriculture & Markets' Agricultural Non-Point Source Pollution and Abatement program. These systems are helping put Wayne County, NY on target to effectively complete the local Soil and Water Conservation District's AEM Strategic Plan by improving water quality through better nutrient management. The parcel where BMPs were implemented has 56 acres of prime soil, 59.1 acres of Statewide Importance Soil (81.9% of the total parcel are prime and statewide important soils) with 72.7 acres (51.7% of the parcel) being Highly Erodible Soils (HEL).

This work included installing Water Management & Erosion Control Systems both structural and cultural. Under the Erosion Control System-Structural, a series of Water & Sediment Control Basins (WASCOBs) along with underground outlets and subsurface drainage were installed to control the water flow and thus reduce erosion and nutrient runoff. A Soil Conservation System was implemented onto the 140-acre parcel which included Cover Cropping, Conservation Crop Rotation and Residue & Tillage Management (no-till/strip till) to improve soil structure and decrease erosion.

These practices created a system of improvements to mitigate the impact that significant rain events have on these hilly, highly erodible, fields by directing, slowing, and diffusing concentrated water flows. These practices are serving to leave the soil with improved water infiltration and increased water holding capacity. Rather than the water running off the field and causing issues noted above, the practices increase the amount of water stored in the soil to be used by crops over a longer period of time. In addition, the project has replaced topsoil that has been displaced. Overall, this combination of systems has greatly enhanced the soils of the parcel, increased the property's agricultural potential, while dramatically reducing environmental issues.

This project addressed the goals and objectives identified in the watershed planning process started with Phase I of the Seneca River Watershed Agricultural Program which has in the past coordinated and implemented projects in a joint effort with Cayuga and Onondaga County SWCDs. The Wayne County SWCD has partnered with the USDA NRCS and FSA, local Farm Bureau and the Water Quality Coordinating Committee (WQCC), as well as with the Ag Advisory Committee (AAC) to organize and kindle participation in the Seneca River Agricultural Project. Objectives of the program were to embed the AEM program and strategy in the watershed planning process, implement BMPs to reduce non-point source pollution, and continue watershed monitoring through stream and segment analysis.

The SWCD staff and partner staff from USDA-NRCS, USDA-FSA, Wayne County AAC, and Wayne County WQCC worked in partnership with a commitment to take an active role in the determination of watershed priorities. The partners used the NYS Department of Environmental Conservation (DEC) Waterbody Inventory/Priority Waterbody List (WI/PWL) and various available water quality reports to identify contributing pollutants associated with agricultural operations. From there, the AEM tiered process was

used to identify participating farms in the watershed that have the most potential to contribute the identified pollutants and to achieve the goals of the Strategic Plan for improving water and soil quality

The Wayne County Soil & Water Conservation District has implemented an operations and maintenance requirement as part of the BMPs in coordination with the standards of NRCS. These will be reviewed annually for the life of the practices as part of standard operation and management practices as part of the AEM program's Tier 5B review.

This work addressed two important goals identified by the Wayne County Soil & Water Conservation District (SWCD) and Agricultural Environmental Management (AEM) Strategic Plan with its Mission Statement. First and foremost is to protect and improve water and soil quality for all residents in Wayne County and New York State. The second, is to support the County's primary industry, agriculture. Successful implementation of the Systems and BMPs in this proposal has achieved these goals.

Humbert Farms – Erosion Control System

Humbert Farms – Erosion Control System

Erosion Control System – Structural

Before & After Aerial Photos of Humbert Farms

Erosion Control System

Before – 2018

After 2021

Humbert Farms Cover Crop Photos

Objective 3: Assess the quality of waters of the state related to nonpoint source pollution

New York evaluates water quality issues related to nonpoint sources within the context of its Statewide Waters Monitoring and Assessment Program (SWMP) and as part of the Rotating Integrated Basin Studies (RIBS) program for flowing and ponded waters. The components of this monitoring program include:

- Lake Classification and Inventory (LCI) program for lakes and ponds;
- The Stream Monitoring Programs (biological and chemical);
- Toxicity Testing Program;
- Citizens Statewide Lake Assessment Program (CSLAP), a volunteer-based lake assessment program;
- Water Assessments by Volunteer Evaluators (WAVE), a volunteer-based stream assessment program; and
- Monitoring activities by other DEC Programs and other state and local agencies.

Monitoring program descriptions can be found in Appendix E. The SWMP includes three types of monitoring activities:

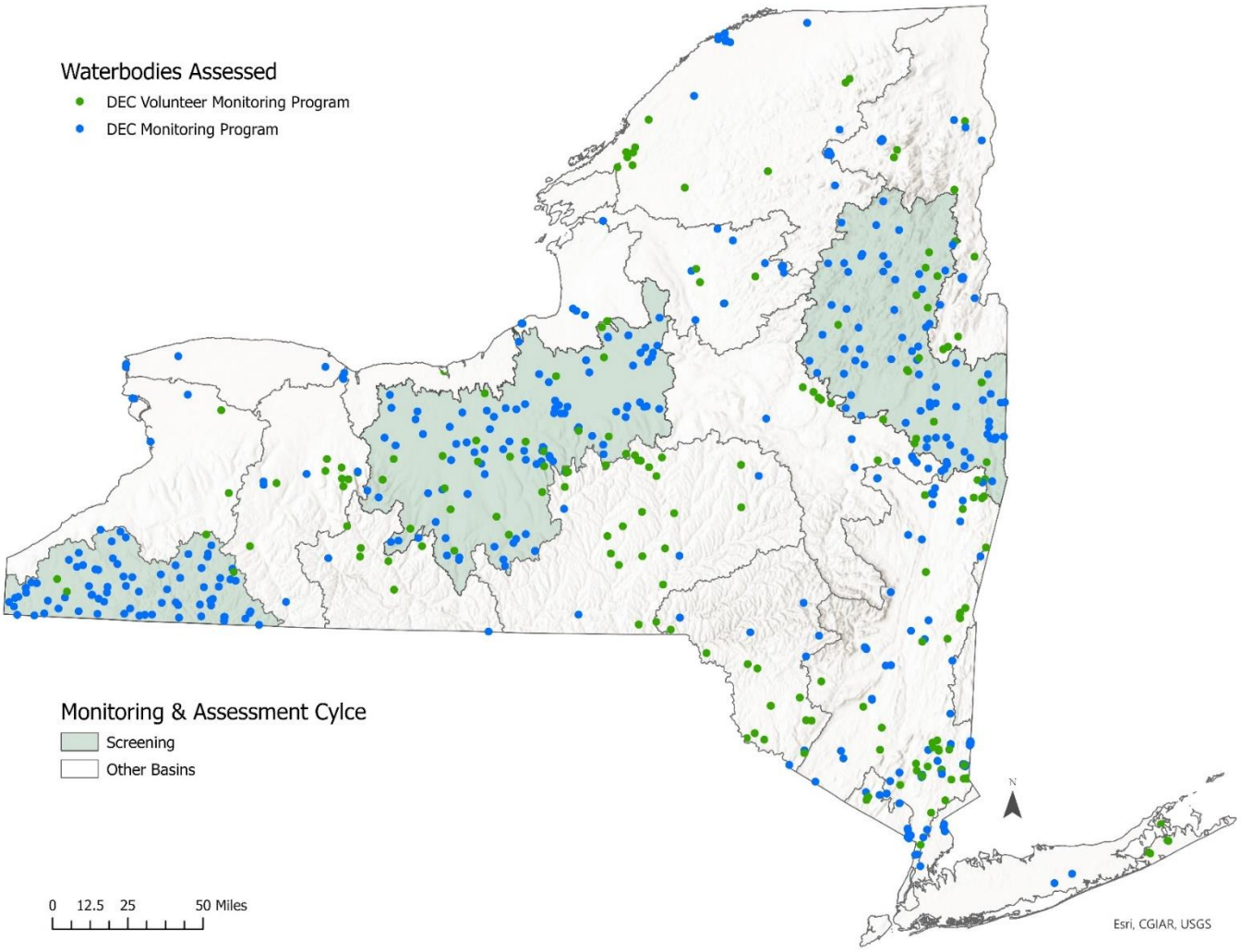
1. Screening sampling is designed and conducted to achieve sampling for multiple objectives. Both lake and stream monitoring programs include a probability-based monitoring component to enable statistically unbiased statements of water quality. Resources are also reserved for sampling to support other core program data needs, reference quality sites, and long-term trend sites.
2. Special studies are conducted in support of specific questions related to water quality and biological integrity and are designed to support core program elements such as assessment of impaired waters, development of clean water plans, and documentation of water quality improvement.
3. Routine trend monitoring in lakes and streams provides yearly sampling at a fixed network of sites across the state to monitor water quality characteristics, establish baseline conditions and evaluate long-term trends.

All monitoring activities, from the multiple programs, are linked with the Waterbody Inventory/Priorities Waterbodies List (WI/PWL). The WI/PWL is a compilation of water quality information for all individual waterbodies (lakes, rivers, streams, estuaries, and coastlines) in the state. The WI/PWL includes waterbody factsheets that outline the most recent assessment of the waterbody. The WI/PWL serves as a basis for setting NPS management priorities to guide the selection of BMP implementation projects for state financial assistance.

Objective 3: Reporting Measure Accomplishments

Reporting Measure	Accomplishment
Percent of waterbodies assessed (cumulative statewide)	55%

Major drainage basins are monitored on a five-year rotating schedule. Screening basin monitoring was conducted in the Allegheny River, Oswego River/Finger Lakes and Upper Hudson River basins during the reporting period. During the reporting year, 923 sampling events occurred on 464 waterbodies were monitored through DEC programs (points shown on map below).



Objective 3 Highlight:

During this reporting period, DOW completed a significant overhaul of the consolidated assessment and listing methodology (CALM). The revised CALM is grounded in science and regulations which results in scientifically defensible assessments. Waterbodies with confirmed impairments are prioritized for TMDLs or other restoration plan and source(s) of pollutants are verified during development of the restoration plan.

Objective 4: Protect and maintain unimpaired waters of the state from additional nonpoint source pollution, and restore or prevent further degradation of waters of the state impaired by nonpoint source pollution

The fundamental priority of New York's NPS Program is to protect and restore all waters of the state, including both surface and ground waters, for beneficial uses. Impaired waters, as identified on the WI/PWL and the federal Section 303(d) list of impaired waters, may be "fully restored" and/or "partially restored" by the strategic implementation of watershed projects selected by priority ranking procedures established in state funding program protocols, and other actions, leading to their removal from the 303(d) list.

"Partially restored" includes either of the following:

- A water that is impaired for more than one use, but is restored for one or more (but not all) of those uses, and
- 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.

The Section 303(d) list is updated every two years. The review and update of the WI/PWL assessment information is a continuous process. Waterbody assessment fact sheets are updated as sampling results and/or other water quality information becomes available. Updates typically align with the DEC's five-year rotating basin schedule; however, fact sheets may be revised more frequently if needed.

New York's Final 2018 Section 303(d) List of Impaired/TMDL Waters is the current 303(d) list.

Objective 4: Reporting Measure Accomplishments

Reporting Measure	Accomplishment
Percent of waters identified as having a significant nonpoint source contribution to an impairment, based on the NYS Waterbody Inventory/Priority Waterbodies List (WI/PWL)	44%
Number of newly identified as "impaired" waters and added to the final Section 303(d) list of impaired waters due to nonpoint sources	The 2018 NYS Section 303(d) list identified 12 additional waterbody segments as "impaired" due to various nonpoint sources.
Percent of waters assessed as having "No Known Impact" (fully supporting), and thus needing protection	43%

Objective 5: Integrate management of nonpoint pollution sources into applicable state and local agency programs (including both regulatory and non-regulatory programs), and provide overall policy coordination among state, local and federal agencies

New York's NPS Program includes statewide and targeted voluntary and regulatory management approaches. Coordination between NPS partner agencies and other relevant environmental quality programs is facilitated through the NPS Program participation in other relevant advisory and technical committees (such as the Lake Champlain Basin Program Technical Advisory Committee, the State Soil and Water Conservation Committee, and the NRCS State Technical Committee).

NPS Program staff and NPS Committee representatives also routinely communicated and consulted on a variety of interagency NPS issues:

- Routine coordination meetings with DOH were conducted to review water supply protection and water quality management concerns.

- Watershed planning coordination meetings were conducted with DOS, which funds watershed planning by localities.
- Coordination meetings with the EFC were conducted to review CWSRF and GIGP issues
- NPS Program staff routinely participated in the Technical Advisory Committee (TAC) of the State Soil and Water Conservation Committee to review AEM Framework issues and implementation of the AgNPS Program.
- NPS partner agencies participated in regular meetings of other advisory and technical committees closely related to NPS management, notably the NYSSWCC State Committee and the NRCS State Technical Committee.
- NPS Program staff and other NPS partner agency staff participated in numerous interstate and federal meetings and conference calls which address national or regional coordination for NPS issues, notably the Coastal States Organization Coastal NPS Workgroup, the New England Interstate Water Pollution Control Commission (NEIWPCC) Nonpoint Source Management Workgroup; the Association of Clean Water Administrators (ACWA) Section 319 Workgroup; the ACWA Watersheds Committee; and the ACWA TMDL Committee.

These state and federal level coordination activities were complemented by the participation of NPS Program staff and NPS partner agency staff in local coordination meetings of County Water Quality Coordinating Committees and meetings of watershed coalitions and local watershed planning and management committees.

Objective 5 Highlight: draft Great Lakes Action Agenda

New York's Great Lakes lands and waters, including Lake Erie, the Niagara River, Lake Ontario, and the St. Lawrence River, are a part of the Great Lakes ecosystem, spanning eight states and two countries. The lakes contain 20% of the world's fresh available water, are home to more than 3,500 native species of plants and animals and support countless local communities and global economies. These important lands and waters are vital to our quality of life, and are valued by those who live, work, and play in this region.

New York State Department of Environmental Conservation’s (NYSDEC) Great Lakes Program works with partners to:

● Improve the quality of the environment;

● Conserve and restore native ecosystems;

● Promote sustainable and resilient communities;

● Coordinate science and adaptive management;

● Provide research, education, and training;

● Coordinate community engagement and stewardship; and

● Provide and identify grant funding.

Implementation of the GLAA relies on partnerships with federal and state agencies, local municipalities, nonprofits, academic and scientific institutions, businesses, landowners, and dedicated volunteers. The goals of the GLAA are to:

1. Reduce or Eliminate Releases of Persistent Toxic Substances;

2. Control Sediment, Nutrient, and Pathogen Loadings;

3. Prevent and Control Invasive Species;

4. Conserve and Restore Native Fish and Wildlife and Their Habitats;

5. Enhance Community Resiliency and Ecosystem Integrity; and 6.

Revitalize Local Communities and Economies.

These six goals highlight the most urgent actions needed to:

● Achieve water quality, resiliency, restoration, and sustainable management outcomes for New York's Great Lakes and communities;

● Promote coordination and collaboration among local, regional, state, and federal partners implementing these actions to achieve shared goals and sustainable outcomes; and

● Leverage the capacity, human capital, and financial resources needed to achieve results.

The draft New York Great Lakes Action Agenda (GLAA or Action Agenda) is under development in this reporting period.

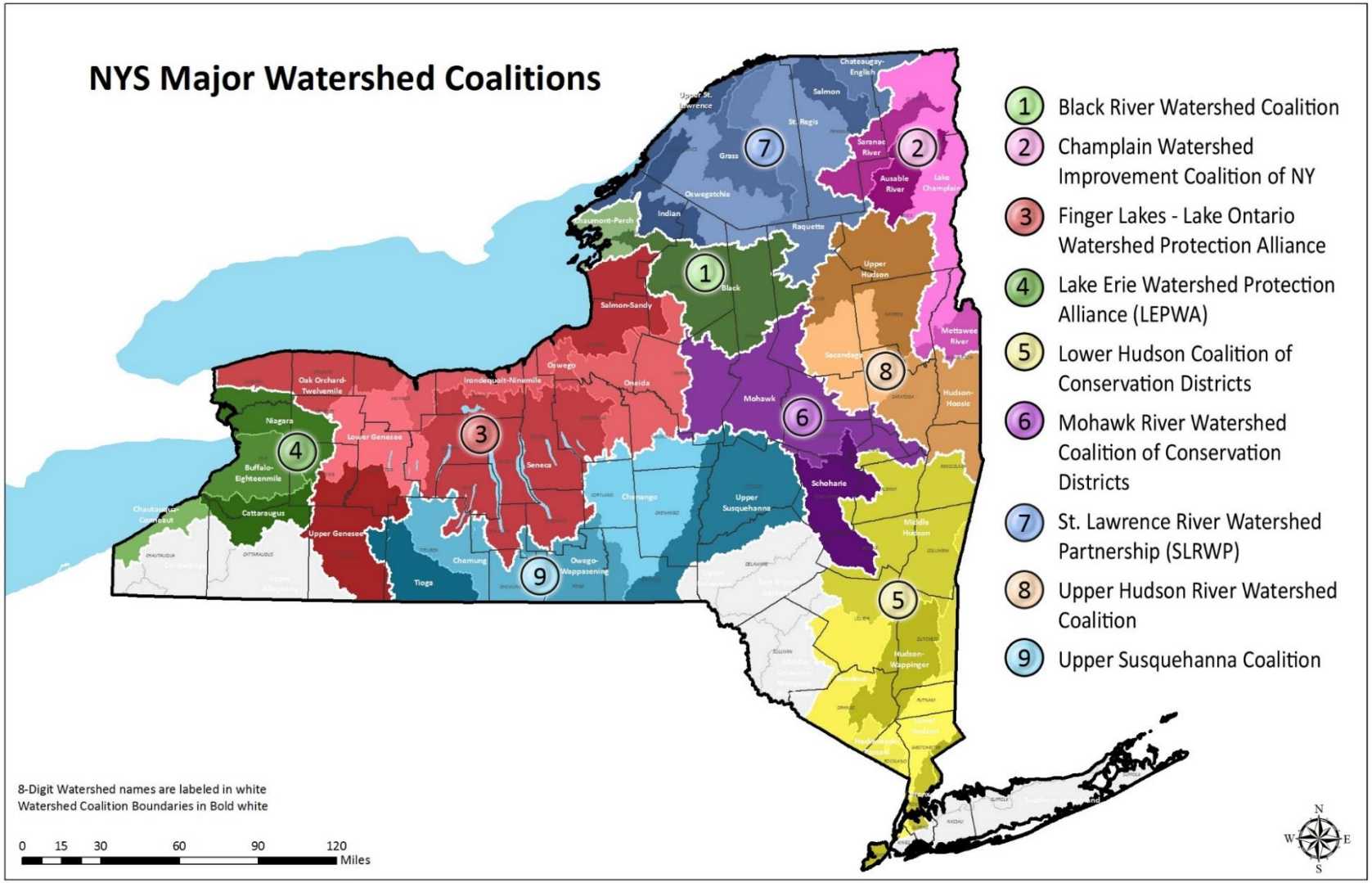
Objective 6: Develop and maintain the capacity of state, regional and local agencies, and organizations to provide nonpoint source management assistance to communities and landowners through assessment, planning, technical support, and education

A key emphasis of the NPS Program has been to support local agency outreach to municipalities and landowners. Local partners providing outreach include County Water Quality Coordinating Committees, Soil and Water Conservation Districts (SWCDs), watershed coalitions, and planning and health agencies. Contributions from Cornell Cooperative Extension, Cornell Pro-Dairy, public water suppliers, and citizen groups complement this network to provide nonpoint source-related technical assistance and guidance to municipalities and landowners.

Trainings and technical guidance documents created to support local agencies' outreach efforts included:

- The NYS Annual Water Quality Symposium, conducted through a partnership with the New York State Conservation District Employees Association, provides an important forum for delivering nonpoint source technical guidance to local agencies. Nonpoint source management topics addressed during the 2022 Symposium included: soil health, forest management and afforestation, alternative manure management, and nutrient management,
- Dairy Advancement Program, coordinated through Cornell University Pro-Dairy and Cornell University Cooperative Extension, provides education and planning services to dairy farmers to create more economically viable and environmentally sustainable operations.
- Conservation Skills Workshops, held in 2021, conducted through a partnership with New York State Conservation District Employees Association, USDA NRCS, and NYSSWCC, provide class and field trainings annually on various agricultural nonpoint source topics. Topics covered in 2021 workshops included: surveying, AEM Tier 3A farmstead and cropland planning, water management BMPs, and silvopasturing,
- Post-Flood Emergency Stream Intervention Trainings were given by DEC staff, in cooperation with Soil and Water Conservation Districts. Trainings are geared toward municipal employees, local contractors, district staff, environmental organizations, and county legislators.
- NPS staff work to provide the most current technical guidance through practice design manuals and fact sheets that are available for free on various state agency websites.

Appendix A: Watershed Coalition Map



Appendix B: Initiated Cost Shared BMPs

BMP Type	Units to be Installed	
Agrochemical Mixing Facility	21	units
Bioretention	3.16	acres treated
Brush Management	17.15	acres
Conservation Tillage	2,250	acre
Cover Crop	6,947	acres
Dry Detention Ponds	200	acres treated
Fence	84,131	feet
Forage and Biomass Planting	18.95	acres
Grass Buffer	42.5	acres
Grassed Waterway	600	acres
Loafing Lot Management	3.4	acres
Integrated Pest Management	77	acres
Land Retirement	5.9	acres
Permeable Pavement	0.28	acres
Prescribed Grazing	14	acres
Raingarden	0.1	acres
Riparian Forest Buffer	35.7	acres
Road Ditch Stabilization	221	acres
Soil and Water Conservation Plans	60.6	acres
Streambank & Shoreline Protection	18,305	feet
Tree/Shrub Establishment	5.73	acres
Vegetative Treatment Area	1.74	acres
Wet Ponds & Wetlands	3.5	acre

Appendix C: Nonpoint Source Funding Program Description

STATE AND LOCAL FUNDING SOURCES

New York State Agricultural Environmental Management (AEM) Program

Eligible applicants: Soil and Water Conservation Districts administer and implement AEM at the county level based on the local AEM Strategic Plan. SWCDs engage local partners such as Cooperative Extension, NRCS, AEM Certified Planners, Certified Crop Advisors, USDA Technical Service Providers, and agri-businesses.

Summary of program:	The New York State Agricultural Environmental Management (AEM) Program supports farmers in their efforts to protect water quality and conserve natural resources, while enhancing farm viability. New York's AEM Program helps farmers protect water quality by providing a framework to assess environmental stewardship and coordinate technical and financial assistance from the Federal, State, and local levels to address priority water quality and other natural resource opportunities on the farm.
Website:	https://agriculture.ny.gov/soil-and-water/agricultural-environmental-management

Agricultural Nonpoint Source Abatement and Control Program (ANSACP)

Eligible applicants:	Soil and Water Conservation Districts
Summary of program:	Competitive financial assistance program available to Soil and Water Conservation Districts that provides funding to plan, design, and implement priority BMPs, as well as cost-share funding to farmers to implement BMPs.
Website:	https://agriculture.ny.gov/soil-and-water/agricultural-non-point-source-abatement-and-control

Climate Resilient Farming Program (CRF)

Eligible applicants:	Soil and Water Conservation Districts
Summary of program:	Competitive financial assistance program with funds applied for and awarded through county Soil and Water Conservation Districts on behalf of farmers in one of three project categories: agricultural waste storage cover and flare for methane reduction, on-farm water management, and soil health systems.
Website:	https://agriculture.ny.gov/soil-and-water/climate-resilient-farming

Water Quality Improvement Project (WQIP) Program

Eligible applicants:	Municipalities, municipal corporations, soil and water conservation districts
Summary of program:	Provides funding statewide for non-agricultural nonpoint source projects implementing best management practices

Website: http://www.dec.ny.gov/pubs/4774.html

Non-Agricultural Nonpoint Source Planning Grant

Eligible applicants: Municipalities, soil and water conservation districts

Summary of program: Provides funding for the initial planning of non-agricultural nonpoint source best management practices

Website: https://www.dec.ny.gov/pubs/116725.html

Clean Water Act Section 604(b) Funding

Eligible applicants: Regional public comprehensive planning organizations in New York State and interstate planning organizations working in New York State

Summary of program: Provides funding for to regional planning organizations for planning activities

Website: http://www.dec.ny.gov/lands/53122.html

Finger Lakes – Lake Ontario Watershed Protection Alliance (FLLOWPA)

Eligible applicants: 25 counties in the Finger Lakes and Lake Ontario watershed receive FLLOWPA funding. Those eligible to receive a portion of the funding distributed to the 25 counties varies by county.

Summary of program: Provides funding for to regional planning organizations for planning activities

Website: http://www.fllowpa.org/county.html

Hudson River Estuary Program Grants

Eligible applicants: Municipalities and not-for-profit corporations with a 501(c)(3) designation. Projects must be within the Hudson River estuary geographic boundaries.

Summary of program:	In prior years, funds have been awarded for green infrastructure improvements for stormwater management.
Website:	http://www.dec.ny.gov/lands/5091.html

Environmental Justice Community Impact Grant Program

Eligible applicants:	Community-based organizations that must also meet several other criteria, as explained on the below website.
Summary of program:	Previously awarded projects have included green infrastructure demonstration projects. In the 2012 grant cycle, smaller "Green Gems" projects must involve education, stewardship, and/or monitoring activities related to parks, open space, community gardens or green infrastructure.
Website:	http://www.dec.ny.gov/public/31226.html

Urban & Community Forestry Program Cost Share Grants

Eligible applicants:	Municipalities and not-for-profit corporations acting on behalf of a public ownership interest in the property or acting on behalf of a public property owner.
Summary of program:	Street tree planting, one eligible project type, may fit well with green infrastructure projects.
Website:	http://www.dec.ny.gov/lands/5285.html

Environmental Facilities Corporation Green Innovation Grant Program (GIGP)

Eligible applicants:	Any county, city, town, village, district corporation, county or town improvement district, Indian reservation wholly within NYS, any public benefit corporation, public authority and certain New York State agencies, as well as other organizations empowered to develop a project, as described on the below website.
Summary of program:	Provides funding for eight specific green infrastructure practices: permeable pavement; bio-retention; green roofs and green walls; stormwater street trees/urban forestry programs; riparian buffers, floodplains and/or wetlands; downspout disconnection; stream daylighting; and stormwater harvesting and reuse.
Website:	https://www.efc.ny.gov/GIGP

Department of State Local Waterfront Revitalization Program (LWRP) Grants

Eligible applicants:	Villages, towns, or cities, and counties which are located along New York's costs or inland waterways designated pursuant to Executive Law, Article 42.
Summary of program:	The LWRP grant program provides matching grants on a competitive basis to revitalize communities and waterfronts. Funding is available for both planning and implementation, and funded projects may include green infrastructure components.
Website:	https://dos.ny.gov/local-waterfront-revitalization-program

NYS Homes & Community Renewal Community Development Block Grant – Public Infrastructure Funds

Eligible applicants:	Town, Cities or Villages with population less than 50,000, counties with a population less than 200,000 designated principal cities of Metropolitan Statistical Areas.
Summary of program:	Funding is available for drinking water, clean water and stormwater, and public works. Green infrastructure components may be a part of these larger public infrastructure projects.
Website:	http://www.nyshcr.org/AboutUs/Offices/CommunityRenewal/FundingOpportunities.htm

Greenway Communities Grant Program

Eligible applicants:	Municipalities that have adopted a resolution stating the community's agreement with the Greenway criteria.
Summary of program:	Site planning/design projects may include green infrastructure.
Website:	https://hudsongreenway.ny.gov/grants-funding

New York City Department of Environmental Protection Green Infrastructure Grant Program

Eligible applicants:	Private property owners in combined sewer areas of New York City

Summary of program:	Funds are available for design and construction of green infrastructure projects such as blue or green roofs, rain gardens, porous pavement, and rainwater harvesting.
Website:	https://www1.nyc.gov/site/dep/water/green-infrastructure-grant-program.page

City of Binghamton Green Stormwater and Landscaping Management Fund

Eligible applicants:	Residential property owners, non-profits, and small business owners in the City of Binghamton.
Summary of program:	This grant was created to help homeowners and businesses pursue small green infrastructure projects that will contribute to the City's resilience to flooding and help improve water quality. Total project area must be less than 5,000 square feet.
Website:	https://www.binghamton-ny.gov/government/departments/engineering/water-management

Onondaga County "Save the Rain" Program: Green Improvement Fund (GIF)

Eligible applicants:	Owners of a commercial business or not-for-profit facility located within the Green Improvement Fund boundary.
Summary of program:	The grant is intended to offer assistance to applicants installing GI technologies as an aspect of the development, and/or retrofitting of certain classes of privately owned properties (commercial, business, and not-for-profit owned properties) in specific geographical locations within the Clinton, Harbor Brook, and Midland combined sewer system, as outlined in the Green Improvement Fund Program Boundary Map, and generally located in the City of Syracuse.
Website:	https://savetherain.us/programs/green-improvement-fund/

FEDERAL FUNDING SOURCES

EPA Urban Water Small Grants

Eligible applicants:	States, local governments, territories, Indian Tribes, and possessions of the U.S., public and private universities and colleges, public or private nonprofit institutions/organizations, intertribal consortia, and interstate agencies.
Summary of program:	Grants are available to fund research, investigations, experiments, training, surveys, studies, and demonstrations that will advance the restoration of urban waters by

	improving water quality through activities that also support community revitalization and other local priorities. Depending on each fiscal year's Request for Proposals, this may include green infrastructure.
Website:	https://www.epa.gov/urbanwaters/urban-waters-small-grants

EPA Great Lakes Restoration Initiative (GLRI)

Eligible applicants:	Non-federal governmental entities, including state agencies, interstate agencies, federal-recognized Indian tribes and tribal organizations, and local governments; institutions of higher learning; and nonprofit organizations. In 2014, green infrastructure projects conducted by a municipality located directly on the shore of a Great Lake or a Great Lakes connecting channel are ineligible. Green infrastructure projects conducted by other eligible applicants are eligible.
Summary of program:	Green infrastructure projects that improve habitat and other ecosystem functions in the Great Lakes are eligible for funding.
Website:	https://www.epa.gov/great-lakes-funding/great-lakes-restoration-initiative-glri

EPA Challenge Cost Share Grant Program

Eligible applicants:	U.S. non-federal organization and tribal agencies
Summary of program:	Green infrastructure projects that improve habitat and other ecosystem functions in the Great Lakes are eligible for funding.
Website:	https://www.epa.gov/great-lakes-funding/great-lakes-restoration-initiative-glri

National Fish and Wildlife Foundation Chesapeake Bay Stewardship Fund

Eligible applicants:	Non-profit 501© organizations, local governments and agencies, state government agencies and academic institutions. Projects must be implemented entirely within the Chesapeake Bay watershed.
Summary of program:	Nonpoint source best management practices meeting Chesapeake Bay priorities
Website:	https://www.nfwf.org/chesapeake/Pages/home.aspx

National Fish and Wildlife Foundation Delaware River Restoration Fund

Eligible applicants:	Non-profit organizations and local governments. Projects must be implemented entirely within the Delaware River watershed.
Summary of program:	Nonpoint source best management practices to benefit the Delaware River basin.
Website:	https://www.nfwf.org/delaware/Pages/home.aspx

National Fish and Wildlife Foundation Urban Waters Restoration

Eligible applicants:	Any entity that can receive grants. While partnerships are encouraged to include state and federal agencies as partners, those entities **may not** serve as the grantee **unless** the community partners demonstrate that the state or federal agency is best suited to coordinate the community-based project.
Summary of program:	In 2014, project priorities include addressing developing educational programs to provide training to schools, businesses, community groups and homeowners on how to implement green infrastructure practices including sustainable forestry practices; or designing projects intended to control rain water though green infrastructure tools such as tree canopy, permeable pavement, green street designs, bioswales, planter boxes and green roofs, to reduce stormwater flow, controlling flooding and slowing run-off into surface water.
Website:	http://www.nfwf.org/fivestar/Pages/home.aspx#.VDblP1OZ1gp

National Fish and Wildlife Foundation Long Island Sound Futures Fund

Eligible applicants:	Non-profit 501© organizations; state, tribal, and local governments; and academic or educational institutions. Nonpoint source or stormwater management, education, and fish passage projects may be in any portion of the Long Island Sound and its watersheds within the states of Connecticut and New York, but must demonstrate a quantifiable and measurable impact on improving Long Island Sound or its ecosystem.
Summary of program:	Funding priorities include planning and implementing green infrastructure projects.
Website:	http://www.nfwf.org/lisff/Pages/home.aspx#.VdbnIlOZ1gp

FEMA Hazard Mitigation Grants

Eligible applicants:	States, local governments, tribes, private non-profit organizations
Summary of program:	Provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. FEMA Hazard Mitigation grants will fund green infrastructure if a benefit-cost analysis shows that the damages saved from the project exceed the cost of the project.

Website:	https://www.fema.gov/hazard-mitigation-grant-program

USDA-FSA Conservation Reserve Program (CRP)

Eligible applicants:	Landowners with eligible land
Summary of program:	CRP is a voluntary program for agricultural landowners. Through CRP, farmers can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland.
Website:	http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index

USDA-FSA Conservation Reserve Enhancement Program (CREP)

Eligible applicants:	Landowners with eligible land
Summary of program:	The Conservation Reserve Enhancement Program (CREP) is an offshoot of the Conservation Reserve Program (CRP). CREP targets high-priority conservation issues identified by local, state, or tribal governments or non-governmental organizations. In exchange for removing environmentally sensitive land from production and introducing conservation practices, farmers, ranchers, and agricultural landowners are paid an annual rental rate and incentive payments.
Website:	http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-enhancement/index

USDA-FSA Debt for Nature (DFN) Program

Eligible applicants:	Landowners with eligible FSA loans and land
Summary of program:	Debt for Nature (DFN) is available to persons with Farm Service Agency (FSA) loans secured by real estate. These individuals may qualify for cancellation of a portion of their FSA indebtedness in exchange for a conservation contract with a term of 50, 30, or 10 years. The conservation contract is a voluntary legal agreement that restricts the type and amount of development that may take place on portions of the landowner's property. Contracts may be established on marginal cropland and other environmentally sensitive lands for conservation, recreation, and wildlife purposes.
Website:	https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/archived-fact-sheets/debtfornature07.pdf

USDA-FSA Farmable Wetlands Program (FWP)

Eligible applicants:	Landowners with eligible land
Summary of program:	The Farmable Wetlands Program (FWP) is a voluntary program is designed to restore previously farmed wetlands and wetland buffer to improve both vegetation and water flow. Participants must agree to restore the wetlands, establish plant cover, and to not use enrolled land for commercial purposes.
Website:	http://www.fsa.usda.gov/programs-and-services/conservation-programs/farmable-wetlands/index

USDA-NRCS Agricultural Conservation Easement Program (ACEP)

Eligible applicants:	Landowners with eligible land
Summary of program:	The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, NRCS helps Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect, and enhance enrolled wetlands.
Website:	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/

USDA-NRCS Agricultural Management Assistance (AMA) Program

Eligible applicants:	Landowners with eligible land
Summary of program:	The Agricultural Management Assistance (AMA) provides financial and technical assistance to agricultural producers to voluntarily address issues such as water management, water quality, and erosion control by incorporating conservation into their farming operations.
Website:	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ama/

USDA-NRCS Conservation Stewardship Program (CSP)

Eligible applicants:	Landowners with eligible land

Summary of program:	The Conservation Stewardship Program (CSP) helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns.
Website:	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/

USDA-NRCS Environmental Quality Incentives Program (EQIP)

Eligible applicants:	Landowners with eligible land
Summary of program:	The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air and related natural resources on agricultural land and non-industrial private forestland. EQIP may also help producers meet Federal, State, Tribal, and local environmental regulations.
Website:	http://www.nrcs.usda.gov/wps/portal/nrcs/main/ny/programs/financial/eqip/

USDA-NRCS Healthy Forests Reserve Program (HFRP)

Eligible applicants:	Landowners with eligible land
Summary of program:	The purpose of the Healthy Forests Reserve Program (HFRP) is to assist landowners, on a voluntary basis, in restoring, enhancing and protecting forestland resources on private lands through easements, 30-year contracts and 10-year cost-share agreements.
Website:	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/forests/

Regional Conservation Partnership Program (RCPP)

Eligible applicants:	Agricultural or silvicultural producer associations, farmer cooperatives or other groups of producers, state or local governments, American Indian tribes, municipal water treatment entities, water and irrigation districts, conservation-driven nongovernmental organizations and institutions of higher education
Summary of program:	The Regional Conservation Partnership Program (RCPP) promotes coordination between Natural Resource Conservation Service (NRCS) and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements.
Website:	https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/

USDA-NRCS Watershed and Flood Prevention Operations (WFPO) Program

Eligible applicants:	States, local governments, and Tribes
Summary of program:	The Watershed and Flood Prevention Operations (WFPO) Program provides technical and financial assistance to plan and implement authorized watershed project plans for the purpose of watershed protection, flood mitigation, water quality improvements, soil erosion reduction, rural, municipal, and industrial water supply, irrigation, water management, sediment control, fish and wildlife enhancement, and hydropower.
Website:	https://www.nrcs.usda.gov/programs-initiatives/watershed-and-flood-prevention-operations-wfpo-program

Appendix D: Completed Projects and Reductions

Project Title	Nitrogen Reduction (lbs./yr.)	Phosphorus Reduction (lbs./yr.)	Sediment Reduction (tons/yr.)
Wilmar Farm Waste Storage System	2.9	0.3	0.1
Beeman Creek Nutrient Pathogen Reduction Project	948.6	76.9	20.5
Buffalo Creek Nutrient & Sediment Reduction Project	7.4	1.1	697.1
CAFO Waste Storage and Transfer System	1,137.4	165.4	108,220.1
Cayuga Lake - Nutrient and Sediment Reduction	12.6	1.8	1,194.8
Cayuga Lake Watershed TMDL Nutrient Reduction and Habitat Improvement Project	0.2	0.0	0.0
Ceresna-Waste Storage and Transfer System	68.9	4.4	0.8
Chautauqua County Highway Erosion Control	3.4	0.5	0.2
Conewango Creek Water Quality Improvement Project	9.3	1.2	882.3
Conewango Watershed Water Quality Improvement Project	28.8	4.2	2,731.8
Coon Bros Farm Silage Leachate Control System	0.7	0.1	0.0
County Wide Hydroseeding Project	60.0	9.0	2.9
Critical Area Stabilization--Hydro-seeder	12.0	1.8	0.6
Dan Carey Farm Waste Storage and Transfer Project	2.5	0.4	237.1

Project Title	Nitrogen Reduction (lbs./yr.)	Phosphorus Reduction (lbs./yr.)	Sediment Reduction (tons/yr.)
Downtown Green Infrastructure	3.3	0.5	0.2
East Bay Watershed Ag Program - Phase I	416.9	60.6	39,659.8
Farmstead Improvement HTW	6.2	0.9	591.9
Fuel Tank Replacement to Protect Suffolk's Sole Source Aquifer & Surface Waters	43.2	6.3	4,105.3
Headwaters of Eighteenmile Creek Nutrient Reduction Project	1.9	0.2	0.0
Jerry Dell Farms Waste Storage and Transfer System & Silage Leachate Control	2.8	0.4	263.8
Keuka Lake Watershed Phase VI Implementation Grant	2,210.7	19.9	153.1
Kingsbury CAFO Improvement	372.0	54.1	35,387.8
Kortright Cattle, Inc. - Silage Leachate Control and Transfer	1.1	0.1	0.0
Lake Ontario Watershed Ag Program - Phase II - Salmon Creek West	401.3	58.3	38,184.0
Lake Shenorock Stormwater Improvement Project	40.3	5.9	1.9
Mirror Lake Dr Mt Whitney Rd Drainage Improvements	1.0	0.1	0.0
Otsego County Buffer Project III	43.1	6.3	4,097.7
Peaceful Valley Farm LLC - Heavy Use Area Runoff Management	1,484.4	120.3	32.0
Saw Mill River Daylighting Phase 4	11.0		
Saw Mill River Daylighting Phase 5		1.6	
Saw Mill River Daylighting Phase 6			0.5
Schultz Bros. Ag Waste Storage Project	5.8	0.8	552.6
Schuyler County Multi Barrier Phase III	1.6	0.2	0.1
Seneca River Watershed Agriculture Program - Phase III - Humbert Farms	268.0	39.0	25,496.8
Shamansky Waste Water Control Project	1.9	0.3	183.7
Stummer Farm Implementation	351.7	51.2	33,466.1
Susquehanna River Stream Restoration and Water Quality Improvement Phase II	0.3	0.0	0.0

Project Title	Nitrogen Reduction (lbs./yr.)	Phosphorus Reduction (lbs./yr.)	Sediment Reduction (tons/yr.)
Swiss Valley Waste Storage Project	6.5	0.8	618.9
Tillapaugh Waste Storage System Project	2.5	0.4	233.9
Tioga County Hydroseeding Program	17.0	2.6	0.8
Tivoli Lake Preserve Stream Daylighting Project	0.4	0.1	0.0
Upper Tioughnioga Ag. NPS Reduction Project	18.1	2.7	1,722.3
Village of Sodus Points South Ontario Street Climate Resiliency stormwater management project	1.9	0.3	0.1
Wappinger Lake Inflow Quality Improvements	0.2	0.0	0.0
Warren County Erosion and Sediment Control Project	15.0	2.3	0.7
Washington County Erosion Control and Stormwater Mitigation Program	1.8	0.3	0.1
Water Quality Improvement on River Breeze Farm	6.1	0.7	582.5
Wilmar Farm Waste Storage System	2.9	0.3	270.0
Zero Nitrogen Leaching	4.1	0.6	392.5

Appendix E: Monitoring Program Descriptions

Rotating Integrated Basin Studies (RIBS) Program: The objectives of DEC's RIBS program are program are to assess water quality of all waters of the state, including the documentation of good quality waters and the identification of water quality problems; identify long-term water quality trends; characterize naturally occurring or background conditions; and establish baseline conditions for use in measuring the effectiveness of site-specific restoration and protection activities. The program is designed so that all major drainage basins in the state are monitored every five years. RIBS program water quality data and information are used to support assessment and management functions within NYSDEC Division of Water (DOW), including the Waterbody Inventory/Priority Waterbodies List (WI/PWL), New York State's Clean Water Act Section 305(b) Water Quality Report, and Section 303(d) List of Impaired Waters of the state. This program includes both ponded and flowing waters and includes the programs described below. For more information about the program can be found at: http://www.dec.ny.gov/chemical/30951.html.

Citizens Statewide Lake Assessment Program (CSLAP): CSLAP is a volunteer lake monitoring and education program managed by DEC and the New York Federation of Lake Associations (NYSFOLA). The data collected through the program is used to understand lake conditions and develop lake management plans. To participate in the program, lakes first need to be a member of the NYSFOLA (http://www.nysfola.org/). More information about the program can be found at: http://www.dec.ny.gov/chemical/81576.html.

Lake Classification and Inventory (LCI) Program: DEC conducts water quality sampling of lakes, ponds, and reservoirs through the LCI program. The LCI monitoring program collects data that supports water quality assessments and management activities including: updating the WI/PWL, identifying water bodies not meeting their designated uses for inclusion on the New York State Section 303(d) List, preparing the New York State 305(b) Water Quality Report, supporting the development of TMDL plans and evaluating the effectiveness of TMDL implementation, expanding the inventory of waterbodies infested with aquatic invasive species, and aiding in the identification of and response to harmful algal blooms. For more information about the program can be found at: http://www.dec.ny.gov/chemical/31411.html.

Stream Monitoring Programs: Water Chemistry Monitoring: DEC conducts water quality sampling of flowing waters across the state to provide data in support of water quality assessment and management activities. These efforts inform updating the WI/PWL, identifying water bodies not meeting their designated uses for inclusion on the New York State Section 303(d) List, preparing the New York State 305(b) Water Quality Report, supporting the development of TMDL plans and evaluating the effectiveness of TMDL implementation. This program combined with the Stream Biomonitoring Program provide overall evaluation of conditions in flowing waters.

Stream Biomonitoring: DEC's Stream Biomonitoring Unit Department of uses aquatic macroinvertebrates to monitor the water quality of the State's rivers and streams. Biomonitoring surveys are primarily assessed by collecting benthic (bottom dwelling) macroinvertebrate samples from riffle habitats in streams and rivers. Fish and algae communities are also used in intensive surveys to assess the magnitude and type of environmental stress or impact in waterbodies. More information about the program can be found at: http://www.dec.ny.gov/chemical/23847.html.

Toxicity Testing Unit (TTU): DEC's Toxicity Testing program is a component of the RIBS program. Bioassays are used to identify toxicity in surface waters and sediments. Tests on ambient surface waters are conducted using the water flea (*Ceriodaphnia dubia*), to identify toxic effects on survival and reproduction. Collected sediments are also analyzed using the Microtox® toxicity testing system, which uses the bioluminescent bacterium, *Vibrio fischeri*, to look for the presence of toxicity in bottom sediments. The TTU also provides technical oversight of Whole Effluent Toxicity (WET) testing programs required at some industrial, municipal and remediation facilities as part of the State Pollutant Discharge Elimination Systems (SPDES) permit program. More information about the program can be found at: http://www.dec.ny.gov/chemical/29854.html.

Water Assessments by Volunteer Evaluators (WAVE) Program: WAVE is a citizen-based water quality assessment developed by DEC. The purpose of WAVE is to enable citizen scientists to collect biological data for assessment of water quality on streams in New York State. The WAVE data augment the professional monitoring conducted by DEC's Stream Biomonitoring Unit. WAVE data classified as "Possibly Impaired" serve as a red flag for sites that may deserve further investigation at the professional level.