



A publication of Wayne County Soil & Water



Annual Report 2011

Water Quality Protection In Canandaigua Outlet, Lyons, NY

The Wayne County Soil & Water Conservation District has been actively involved in assisting farmers evaluate, install and improve conservation management practices since the District formed in 1944. Recently, focus has turned to a prioritized list of watersheds that need improvement and protection on water quality, soil health and overall natural resources. In partnership with the community, we continue to reach out to offer technical assistance to landowners, and producers to promote the continuation of stewardship and conservation.

This past year, the District became involved with NYS Department of Agriculture and Marketing grant resources through the NYS Soil and Water Conservation Committee's Agriculture Non-point Source Abatement and Control grant program. This grant program is a cost share program that is funded through the NYS Environmental Protection Fund, the landowner and the District. This grant included five (5) farmer businesses for non-point source assistance. Various types of projects, known as Best Management Practices (BMPs) were designed in 2011 and installed in the 2011 field season. (More information about this program is available on pg. 5 of this publication.)

How-Bar Farms Participates in Agriculture Water Quality Program

Owned and Operated by Scott Albrecht

This generational farm is one year away from a centennial status. In the farming world that is a huge accomplishment and honor. It is our greatest pleasure to assist owner and operator Scott Albrecht with installation of water quality best management practices that will not only improve the environment but also assist him with herd health and management of daily operations.

This 60 cow milking facility will have updates both on the heifer barnyard and main barnyard to improve stormwater management and ground water management within the Canandaigua Outlet watershed.

Scott Albrecht actively participated through the planning, design and implementation of the project. He shared, "This is a great program, for not only the landowner, but also the benefit of the environment. It was great to have worked with such knowledgeable people."

Best Management Practices are Barnyard Water Management System, Heavy Use Protection Area, and Laneway/Access Road for the Main Farm.

The Water Quality Impacts:

- Reduced nutrient runoff from on farm sources
- Mitigation of storm water to animal living areas
- Filtering of water before it leaves farm area



Before: Barnyard area



After: Barnyard area



Before: Laneway pre-construction



After: Construction access road



Before: Manure loading area



After: New manure loading area

2011 Board of Directors

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 Catherine Comfort, Conservation Sec./Treasurer
 Ronald Thorn, AEM Specialist, District Technician
 Chris Hotto, Drainage Specialist, District Technician
 Scott DeRue, Water Quality Specialist, District Technician
 Terry Reynolds, Agriculture Implementation Specialist, District Technician



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Lindsey M. Gerstenslager

Impacting Environment Elements in 2011

Lindsey M. Gerstenslager, District Manager

Overall the Wayne County District had a wonderful year of conservation implementation across all programs. Our outreach, education and community awareness has increased allowing for better visibility for the strength in technical services we supply to the community, as well as the growing partnerships between various community organizations. We are currently preparing and looking forward to another exciting 2012 season!

AG - In 2011, the agricultural program began implementing for the Agricultural Non-point Source Abatement and Control program, Round 15. Terry Reynolds along with Chris Creelman, designed and inspected four farms' implementation which included over 15 Best Management Practices (BMPs) (estimated value over \$323,000.00) during this wet season.

Ron Thorn, our agricultural planner for the District's Agricultural Environmental Management program (AEM), has worked with 18 farms to create grazing pasture management plans for 2011. He has also been working on 15 farm plans with USDA's Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP). Lastly, Ron is head of the Agricultural Values Assessment Team for our office. The team completed over 250 soil group worksheets for the spring of 2011. This helps establish tax exemptions for farm land.

SOIL - The Soil Resource Program is operated by District Technician, Christopher Hotto. Although 2011 was a very wet season for Agricultural Drainage, not beginning until late May, 11 maintenance projects and two (2) new projects were completed. In addition to the Agricultural Drainage program, the District implemented three special projects including a stream stabilization, and two stormwater management diversion swales, stabilization and culvert road crossings for agricultural entities that have direct impact on local roadways and infrastructure. Finally, Chris also organizes the District's Grass Carp program which in 2011 was wildly successful; stocking 16 ponds with over 92 permitted Triploid Grass Carp.

This program alone made a huge impact on community infrastructure through technical assistance to eight (8) townships (Arcadia, Galen, Huron, Macedon, Ontario, Sodus, Walworth and Williamson) including 8.94 miles of drainage maintenance and implementation, three (3) road crossings, and permitting/removal of three (3) areas of beaver infestation.

WATER - The Water Resource program is organized by Technician Scott DeRue. In 2011 there were multiple components to the water program that made large impacts in invasive species removal, water monitoring, storm water partnerships, and education; impacting economic development through recreation and tourism, water quality and water infrastructure management.

In fall of 2010, the District was in partnership for a grant that focuses on Nuisance Aquatic Vegetation Control of Water Chestnuts (*Trapa natans* L.). Many of our efforts for outreach encompassed awareness and eradication efforts of this species. This included addition of Maxwell Bay to the mechanical weed harvesting program for removal of 88 tons of plant materials, two (2) hand pulling events for a total of 6 tons while mobilizing three (3) Boy Scout Troops and over 25 other volunteers.



Did you see us in the news? If not, be on the lookout for opportunities to participate or volunteer.

Water Quality Monitoring and Sampling wrapped up the spring of 2011 with a completion of a published report from SUNY Brockport available to the general public during the fall. This 11 month sampling program of eight (8) priority watersheds across Wayne County was expanded from the 2009 water quality assessment of six (6) priority watersheds. Since there are 19 main watersheds in the County and many of them with priority of DEC these sampling/monitoring assessments are assisting the District with identification of critical areas of concern for installation of best management practices for remediation of pollution.

Finally, the Aquatic Vegetative Control, AKA Weed Harvesting, program that operates now across five embayments of Wayne County to provide community services for aquatic invasive species removal. With the use of the Water Quality Hotline (315)759.3097, the seasonal crew and staff were able to better inform water front property owners the location of the harvesting equipment.

There were other changes in the program with more outreach about harvesting and water quality issues through press releases, print/digital articles and an outreach seminar held in August. For specifics about mechanical weed harvesting specifics between 2010 and 2011 please see the below table:

2010 vs. 2011 Comparison of the Aquatic Vegetative Control program.

	2010	2011
Maintenance Down Time	170 Hours (9%)	183 Hours (8.9%)
Transport Down Time	19 Hours (1%)	62 Hours (3%)
Operation	1,621 Hours (90%)	1,820 Hours (88.1%)
Total Program Hours	1,810 Hours (100%)	2,065 Hours (100%)
Tons Harvested: Sodus Bay	1,610 Tons	1,204 Tons
Tons Harvested: Port Bay	34 Tons	96 Tons
Tons Harvested: East Bay	54 Tons	28 Tons
Tons Harvested: Blind Sodus	12 Tons	10 Tons
Tons Harvested: Maxwell Bay	N/A	88 Tons
Total Tons Harvested	1,710 Tons Total	1,426 Tons Total

Community Involvement

Envirothon is a youth environmental awareness contest for high school aged students in qualifying grades 9 to 12. The students compete for scholastic scholarships for post-secondary education or high level technical training. In 2011 we had four successful teams compete in the CNY Regional Envirothon and Ron networked in the community to bring awareness to the program through outreach which brought in \$750.00 in support for this youth program.

The Tree Sale in 2011 over 12,000 conservation trees and shrubs were sold to the community; along with other conservation supplies such as blue bird, bat and water fowl nesting boxes, conservation marking flags and stakes, fertilizer tablets for plantings and ground cover.

From the Desk of Cathy Comfort:

2011 led many developments in accounting, records management and office management. Over all, the District is now equipped for 2012 to better serve the community through easier acceptance and processing of payments, and better utilization of the QuickBooks program for customer tracking. In addition as the District's Records Management Officer we will be working to plan for easier access

of public documents and storage of mandatory records for our continuing development of environmental programs.

New For 2012!

Beginning in 2012 Wayne County Soil and Water will begin accepting credit/debit cards for payments. In the past we only accepted cash or check for payment for all services including tree sales, Ag value assessments and grass carp sales. Beginning with the New Year we will be able to offer the option of credit/debit card as well. Less and less people are carrying cash and using electronic methods. Wayne County Soil and Water wants to be able to offer services that fit our customers' needs.





Christopher Hotto

Agricultural Group Drainage Program 2011 Accomplishments

Prepared by: Christopher Hotto, District Technician, Soil Resource Specialist

The agricultural group drainage program had another successful year, performing maintenance work on 11 projects and completing two new projects. Accomplishments this year include mowing about nine mile of ditch, dipping and snagging two and a half miles of ditch, as well as installing three stream crossings. We also coordinated the trapping of beaver and dam removal on two projects.

Sodus Ditch North: This was a maintenance project in the town of Rose. We began this project last fall, when we trapped beaver and removed their dam, as well as doing some mowing. This spring we finished the mowing, and repaired a crossing that we had installed as part of the original project. Project was ½ mile long and completed by K. M. Excavating, Palmyra, N.Y.



Before



After

Dutch Street Ditch: This was a maintenance project located in the town of Huron. Work on this project consisted of mowing about 2 miles of ditch as well as dipping about 1 mile of ditch that had become choked up by sediment accumulation. Work on the project helps maintain proper drainage for multiple farmers covering hundreds of acres of agricultural land. This project was completed by K. M. Excavating.



Before



After

Fact: It can take up to 1,000 years to make one inch of top soil.

Hydesville Ditch: This was a maintenance project in the town of Arcadia. We mowed over two miles of ditch on this project, mowing both sides wherever possible. The project was completed by K. M. Excavating and took eight days to complete.



Before



After



After



After

Melvin Brook: This was a maintenance project in the town of Galen. Work on this project included mowing about 1 ½ miles of ditch and snagging trees and debris from ¾ of a mile of the project. We also installed a culvert crossing that will allow the landowner and farmer to access a field on the opposite side of the creek. Two sections of this project were skipped, one due to crops and the other because of wetland issues. Ken Morrison completed the maintenance work and Decker Excavating installed the culvert crossing.



Before



1 Week After



Down Ditch



3 Months After

Black Brook: This was a maintenance project in the town of Galen. We mowed our maintenance corridor along about a mile of the creek, mowing both sides on about half of the project. We couldn't mow one section because of abnormally high water levels during the project. The work was completed by K. M. Excavating.



Before



After



Find us on
Facebook

On Facebook?

Friend request Wayne SoilnWater for continued updates and notifications of information on local conservation information.

Mink Creek: This was a maintenance project in the town of Williamson. Work on this project involved mowing about a mile of ditch, as well as clearing some trees along the ditch and dipping about 1000 feet. Project Completed by Ken Morrison.



After

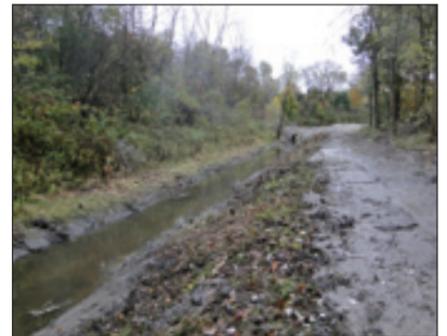


After

Clyde School Ditch: This was a new project in the village of Clyde. The purpose of this project was to help resolve some of the flooding and drainage issues that the Clyde-Savannah school district has suffered from for years. The first step of this project was to mow everything along and in the ditch channel that we could. Next, we removed all trees from the channel that were too large to mow. Once everything was cleared out of the way we began digging out the bottom of the channel, reestablishing its original hard bottom. Excavation ranged from one to two feet throughout the project. We also dug up and then reinstalled a four foot culvert that was originally installed too high and was impeding proper flow. The project covered a total of about three quarters of a mile of ditch and should vastly improve the schools, as well as surrounding residents, storm water drainage. There is still more that could be done to further improve the drainage for this area, although we were not able to this year because it involved a NYS DEC wetland which would require a permit to enter. Ken Morrison completed the excavating work and Decker excavating did some dozer work to level off spoil.



Before



After

Sodus Center Ditch: Beaver moved into the area, plugging up two culvert crossings. We obtained the permit and coordinated a trapper to remove the beavers. We then removed the beaver dams as well as cleared trees from the ditch that the beaver had toppled. Work on this project was completed by Decker Excavating.



Before



After

Culvert Crossing Replacement: We replaced culvert crossings on two maintenance projects, Mill creek and Bills road ditch. The Mill creek crossing was originally constructed using culvert pipe and old tanks together, which were severely degraded and impeding proper flow. We installed 60 feet of two foot pipe on this project as well as brought in gravel and rip-rap to stabilize the crossing. This crossing allows greater access for agricultural activities. The Bills road ditch crossing was replaced because the banks were constantly eroding back and the crossing was too narrow for today's farm equipment. We installed 40 feet of 5 foot culvert pipe for this crossing. We also brought in fill as well as rip-rap to stabilize the inlet and outlet of the pipe. Both of these projects were completed by Decker excavating.



Jack Creek Extension: This was a quarter mile extension of our Jack Creek project. This extension was done to relieve flooding problems that were occurring where our original project ended. The channel through this section had silted in to the point it was almost non-existence. We re-dug the channel to where our original project ended. The work completed on this project will help relieve residential flooding and improve agricultural drainage. Decker Excavating completed this project.



Before



After



Red Creek Rams: (Left to Right) Gillian Fralick, Elenore Grant, Jarrod Stone, Alyssa Otoski, Brandon Keim

In April 2011 the Regional Envirothon competition was once again hosted in Wayne County at the Montezuma Audubon Society. Four teams of 20 high school students participated from Wayne County. High School students from Wayne, Cayuga, Chenango, Madison and Onondaga counties participated at the event for a chance to compete at the State Envirothon event which was held at Hobart/William Smith Colleges in Geneva. The Red Creek Rams represented Wayne County at that event. For more information about the Envirothon visit www.nysenvirothon.net.



Chris Creelman

Water Quality Protection Continues for Canandaigua Outlet, Lyons, NY

District Technicians, Agricultural Implementation Specialists:
Terry Reynolds & Chris Creelman



Terry Reynolds

Manktelow Farms

Manktelow Farms is owned and operated by Brian Manktelow of Lyons, NY. This commodity grain operation has acreage that covers three different watersheds. Brian is on the fore front of technology and conservation practices in tillage and resource conservation. His participation stems from a long relationship of land planning and stewardship. His thoughts on the Soil and Water District and the Ag. Nonpoint Source program, "Not only are you invaluable for our Ag Community but also for every citizen in Wayne County. Thank you!"

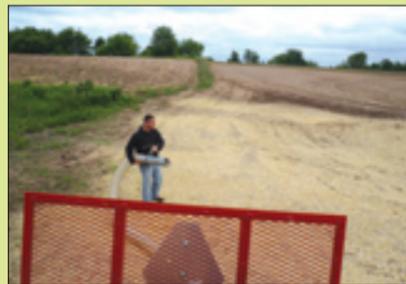
Best Management Practices included on this farm: In field Water Management System - Water and Sediment Control Basin (WASCOB) and shaping/grading of eroded areas. Terry surveyed, designed, and inspected the installation. Project approved by Don Lynch, Engineer.

The components listed make up these installed BMPs:

- outlet and tile – 2030'
- 4' and 6" tile – 4100'
- seeded and mulched



Before



During construction



During construction



After

Impact: This field drains into two ditches directly feeding into the Canandaigua Outlet. Less sediment and erosion!

Maple Lawn Farm

One of the first farms to be implemented this summer will be Maple Lawn Farms, in Lyons, NY. This farm has been actively engaged in evaluating environmental concerns within their business and continues to manage those resource concerns. John Wolf, the fourth generation on Maple Lawn Farm says, "We have been working diligently on improving our environmental footprint for the past 15 years or so. This program is helping us put the finishing touches on some water concern improvements that we have wanted to implement. We are going to improve some things to keep more rain and surface water from coming in contact with feed storage surfaces and we are installing grass filter areas to handle storm water that previously ran into the feed bunkers. These two practices will significantly reduce the amount of mud we track into the road from field application."

Survey by the Natural Resource Conservation Service. Design by Agricultural Engineer Services, Dana Chapman, Engineer. Inspected by Terry Reynolds. Approved by AES.

Best Management Practices include: In field water management system, Silage Leachate System, Heavy Use protection area, Vegetative Filter Area.



Before silage leachate system



After silage leachate system



During construction of silage leachate system: farmer John Wolf (center) gets involved in the process



After Vegetative Treatment area

Impact: Reducing the amount of clean water coming into the farm causing erosion, nutrient movement, mud and now reducing runoff events.

Ag NPS Abatement & Control Grant Program

This grant program was established in 1994 by the State of New York to assist farmers in preventing water pollution from agricultural activities by providing technical assistance and financial incentives. County Soil & Water Conservation Districts apply for the competitive grants on behalf of farmers and coordinate funded activities. Grants can cost-share up to 75% of project costs or more if farm owners or operators contribute, in the following two areas:

1. Planning; funds awarded to conduct environmental planning
2. Implementation; funds awarded to construct or apply management practices

The New York State Soil & Water Conservation Committee and the Department of Agriculture & Markets coordinate the statewide program and allocate funds provided by the NYS Environmental Protection Fund on a semi-annual basis. Since the program began in 1994 more than \$50 million has been awarded to 53 Soil & Water Conservation Districts across the state to help farmers reduce and prevent agricultural sources of Nonpoint Source (NPS) Pollution.

Wayne County Soil and Water Conservation District began agricultural planning strategically in 2009 and has over 40 farm plans in the works. Prior to

planning at the District, the Natural Resource Conservation Service did farm planning and the District assessed in implementation of Best Management Practices (BMPs) through grant programs in the Sodus Bay Watershed, in 2005.

Because of these efforts, the District has been able to secure five (5) grants through this program to assist over 25 farms with cost share for environmental impacts through BMP installation.

Program Update

In 2011 the District was awarded funding for two projects within the grant program of Round 17 for priority watersheds of the Port Bay Watershed Agricultural Program – Phase one and the Central Canal Corridor Agricultural Program-Phase two Black Brook Farms. The District also partnered with SWCD's from Onondaga, Cayuga, and Seneca counties for farming projects in the Seneca River Watershed.

Two proposals are planned to be submitted for Round 18 they include the Ganaguga Creek watershed and a planning grant for the same watershed.



Agricultural Environmental Management (AEM) has been adopted by New York State as a process to assist farmers in evaluating potential environmental risks on their land and to provide assistance in implementing practical, cost effective means to address those risks. Participation in the program is voluntary, and the Wayne County Soil and Water Conservation District, USDA Natural Resources Conservation staff and private sector crop advisors are ready to partner with individual farmers in assessing concerns and identifying realistic solutions.

AEM has five levels or "Tiers" of planning and assessment

Tier 1 – Farm Inventory or Summary

Basic farm data is recorded: owner and/or operator's names, location of the farm, products, livestock numbers, and acres farmed. General questions about practices such as crop rotation, manure management, and pesticide use are asked.

Tier 2 – Farm Assessment

These worksheets ask about characteristics and operational procedures on the farm. A potential level of risk is assigned based on that information. Existing stewardship and conservation practices are recorded. SWCD staff process the information from Tier 2, creating a summary which will include basic recommendations for the farmer to consider if planning continues to Tier 3.

Tier 3 – Development of a Conservation Plan

The farmer may choose to address one or more concerns identified in Tier 2. Projects undertaken range from simple cropland erosion control plans (Tier 3A) barnyard water management plans and Agricultural Mixing Facilities. Tier 3B includes a Comprehensive Nutrient Management Plan (CNMP) that addresses agricultural runoff, agricultural waste and nutrient management issues. Tier 3B plans are required by federal and state law for large livestock operations designated as Confined Animal Feeding Operations (CAFOs). Tier 3 plans are used to prepare cost estimates and to apply for cost-share funding from state and federal sources.

Tier 4 – Implementation of Best Management Practices (BMPs)

When both grant and personal funding sources are committed, implementation of BMPs can take place. SWCD and NRCS staff assist in preparation of designs and construction plans and will work with contractors to ensure proper installation.

Tier 5 – Follow Up and Evaluation

After conservation practices or management recommendations have been implemented, evaluation takes place to assess the effectiveness of the practices. Tier 5 is similar to the Tier 2 process. A revised farm assessment is prepared to again evaluate potential risk levels for farm operations. For example, if a leachate collection system was installed for a bunker silo, the potential should be considerably reduced.

Tier 5A is used for non-CAFO farms; **Tier 5B** is required for CAFOs.

What is Nonpoint Source (NPS) Pollution?

The primary cause of New York's remaining water quality challenges can be attributed to NPS pollutants. According to the Federal Environmental Protection Agency:

NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. These pollutants include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas;
- Oil, grease, and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks;
- Salt from irrigation practices and acid drainage from abandoned mines;
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems;
- (taken from EPA's Polluted brochure EPA-841-F-94-005, 1994)

Information from <http://www.nys-soilandwater.org/aem/nonpoint.html>



GrazeNY



Ron Thorn,
Ag Planner

The GrazeNY Program is a partnership between Congressman Michael Arcuri, 13 CNY County Soil and Water Conservation Districts, The Natural Resources Conservation Service (NRCS) Cornell Cooperative Extension, local agriculture agencies and farmers. The mission is to help farms with the adoption of prescribed grazing management systems that contribute to the financial, environmental and social well-being of local watersheds.

In 2011 District Technician, Ron Thorn, completed nine grazing plans along with 10 tier 5 updates and other requirements. Grazing plans were completed for dairy, beef, sheep, and horse operations. GrazeNY and AEM can be paired together to create a strong farm plan that will increase affective conservation practices in addition to over all economics of management within the farm business.

For more information visit www.grazeny.org

Community Common Concerns:

These practices help reduce the chance of pollution:

Manure and Nutrient Management - Balancing rates and timing of manure and fertilizer applications with the nutrient needs of crops prevents leaching or runoff of excess nutrients to groundwater or surface water bodies.

Barnyard and Farmstead Runoff Prevention - Farmsteads are areas of concentrated activities with collections of feedstocks, manure, silage leachate, milkhouse waste and agricultural fuels and chemicals. There is high risk of runoff from these areas.

Pesticide Storage and Application - Farmers who do not hire custom applicators and who store and apply pesticides must follow safety restrictions for proper storage, mixing and application.

Petroleum Storage - Farms with 1100 or more gallons of total petroleum storage capacity must be registered with DEC. Provisions must be in place to prevent spills and leakage.

Water Supply - Farmers need to prevent contamination risks to their own well and those of their neighbors. Close proximity and condition of the wells may increase risk of contamination.

Pasture Management - Proper grazing management insures maximum utilization of forage, as well as reducing damage to pastures by overgrazing. Alternative water sources for livestock keep animals out of streams.

Stream and Floodplain Management - Riparian buffer areas filter runoff and provide other benefits such as channel and stream bank stability, wildlife habitat, enhanced water quality and aquatic habitat.



Wondering
where the
weed harvesting crew
is located during the
summer months?

Call the Water Quality Hotline
for updates:

315.759.3097

Special Projects

Three special projects were completed this year. They included a stream bank stabilization project and a diversion swale, both in the town of Macedon. The third project involved stabilizing a ditch down a steep slope to reduce erosion and stabilize a farm driveway. Decker excavating completed all three of these projects.

Trap Brook: This was a small stream bank stabilization project. The goal of this project was to stop trap brook from continuing to undercut a steep bank. We accomplished this by bringing in heavy rip-rap, average size of about 24 inches in diameter, to place along the toe of the bank. Protecting the toe of the bank should completely stop the undercutting that was occurring, hopefully allowing the bank to stabilize by re-vegetating naturally.



Contestible Diversion Swale: The purpose of this project was to stabilize a failing diversion swale and route it to a suitable outlet. To complete this we re-dug the existing swale to an appropriate depth and width that would allow us to bring in light rip-rap to stabilize the steeper section of the diversion. We also seeded and mulched the entire swale to further reduce erosion. The work completed on this project protects the landowners house and garage as well as reduces erosion and sedimentation issues.



Grass Carp Stocking

Grass carp stocking was successful again this year. Sam and I completed one large pond stocking, which took two days to complete. Over the two days we stocked 16 ponds with a total of 92 grass carp. This stocking was completed in the middle of July; there wasn't enough interest after the first stocking to complete a second. However, I do already have a few people on the list for next year's stocking. If you are interested in stocking your pond for the 2012 season please call, 315.946.4136



For additional information about Grass Carp, please visit: www.dec.ny.gov/outdoor/7973.html

Defisher Road Project: The major issue on this project involved a severely eroded ditch that flows directly down a steep slope and into a road ditch perpendicular to it at the base of the hill. There is also a farm lane that goes up the hill along the ditch experiencing constant erosion problems. The idea on this project was to first stabilize the ditch going up the hill using rip-rap to armor the channel and slow down the flow. With the ditch stabilized we can then divert water off the farm driveway into it by installing two or three small diversion swales across the driveway. These diversion swales will cut water off, forcing it into the ditch instead of continuing straight down the driveway. We were only able to complete the stabilization of the ditch this fall, but plan on completing the driveway work in the spring.



Aquatic Vegetation Mechanical Harvesting Policy

Revised March 27, 2012

Criteria which determines when and where aquatic vegetation is to be harvested includes:

- 1.) Climate: Increased light, high water temperatures and low water levels associated with the harvesting season increase the likelihood of excessive plant growth. Harvesting operations will be delayed if environmental conditions jeopardize the safety of the crew members and equipment.
- 2.) Funding: Securing funds from multiple agencies and municipalities determines the duration of the harvesting season and prioritizes areas to be harvested.
- 3.) Plant Species: Although native plants have the potential to cause congestion of navigable water, the removal of invasive plant species is important to a healthy balanced ecosystem. Areas with excessive non-native plants will receive precedence.
- 4.) No-Cut Areas:
 - a.) Native Plants – These areas have significant populations of beneficial or protected native plants. Native plants are encouraged to spread into areas where invasive plants have been removed. These areas are the most difficult to determine because of constantly changing climate and environmental conditions.
 - b.) Machinery Hazards – These are areas of rocky structure, submerged cribs, ruins and shallow areas where harvesting equipment cannot operate due to potential damage to equipment. These areas include in between and around docks.
 - c.) Undeveloped Shoreline – These are undeveloped areas where constant access is not needed.
 - d.) Sensitive Habitat – These are important fish spawning and juvenile fish cover areas and sanctuaries for various turtle species identified by the NYS DEC.

The SWCD staff will perform regular reconnaissance surveys in order to evaluate areas and determine when and to what extent mechanical harvesting is appropriate.

Mechanical harvesting effectiveness is dependent on access location for the programs shoreline conveyors and dump trucks. The closer the access point, the more effect the harvesting operation can be.



Scott DeRue,
District Technician

Aquatic Vegetation Control Program

Reported by: Scott DeRue, District Technician

Mechanical harvesting has proven to be a short-term, effective and environmentally safe means by which to control excessive aquatic plant growth. The Wayne County Soil & Water Conservation District has administered and managed aquatic plant harvesting services on Sodus Bay, East Bay, Port Bay, and Blind Sodus Bay for numerous years. In 2011, the small embayment known as Maxwell Bay was added due to the dense concentration of an invasive species; Water chestnut (*Trapa natans*). Reference: <http://newyorkinvasivespecies.info/plants/WaterChestnut.aspx>

Preparation for each season begins in May and continues through a planned period of maintenance into November. Actual harvesting operations are performed, on average, from early June to mid September, employs five crew members for four, 10-hour work days a week. In 2011, the crew actually extended working through Columbus Day Weekend to remove additional late growth of invasive weeds. Annual startup and end dates are dependent on seasonal growth variations dependent on numerous factors. Final determination of when and where the harvesting operation will begin is made based on observations by District staff and described in the *Aquatic Plant Mechanical Harvesting Policy* (see page 7).

Results and Discussion

Harvesting operations were carried out for 75 days between June and October 2011. The final removal amounts for each bay are as follows; Sodus Bay – 1204 tons, East Bay – 28 tons, Port Bay – 96 tons, Blind Sodus Bay – 10 tons, and Maxwell Bay – 88 tons. Total amount removed from all Five (5) embayments was 1426 tons. The general rule has been that one (1) harvester load is equal to two (2) tons of wet plant material.

Table 1. Distribution of Daily Activities and illustrates the time distribution of daily activities in the harvesting operation. The results represent 10 hours of operation per machine, meaning three machines equal 30 hours of operation per day.

Table 1. Distribution of Daily Activities

Activity	Hours	%
Maintenance DT	183	8.9%
Transport DT	62	3%
Operation	1820	88.1%
Total	2065	

DT=Down Time

Variations in the amount removed and time spent between the five bays are due to the physical characteristics of each. Sodus Bay being the largest (3,150 acres and 20 miles of shoreline) will annually have the potential to grow more 'weeds.' Another important characteristic is the size of each bay's Littoral Zone; the portion of the water body where adequate sunlight penetrates to promote photosynthetic activity in plants and is usually defined by a certain depth. In Wayne County's bays, the littoral depth is approximately 10-12 feet. The littoral zone of each bay is as follows: Sodus Bay – 1,575 acres (50%); Port Bay – 132 acres of 475 total acres (28%); East Bay – 174 acres of 189 total acres (92%); and Blind Sodus Bay – 46 acres of 235 total acres (21%). Based on observations of plant growth in Maxwell Bay, the littoral zone would include approximately 95% of the 7 acre embayment. With nutrients entering the bays from multiple sources and with adequate sunlight penetration to extended depths, aquatic plants have the ability to form expansive 'weed beds' within each bay.

Transportation time represents the time it takes to remove a harvester from one bay to launch into another. This increased for 2011 due to being able to harvest certain areas multiple times associated with extending the season. Maintenance related down time has gradually increased from 2009 to 2011. Maintenance time for 2009, 2010, and 2011 are as follows: 109.5; 170; and 183 hours, respectively. The increase in maintenance down time can be attributed to the aging the Machines #1 and #2, which were manufactured in 2002 and 2005, respectively. Mechanical issues were related to the moving parts systems of the harvesters including the diesel engine and hydraulic system. Structurally, #1 and #2 are in satisfactory condition. The operating crew and crew leading make a superb effort to return the harvesters to operation when mechanical issues occur. Harvester #3, built in 2009, continued to perform at an extremely high level and with its barge design, is able to handle and be more stable with heavy loads of plant material compared to the pontoon design of the older machines. In general, mechanical harvesters are proficient machines that design engineers are continuously improving to increase their efficiency.

The extension of the harvesting season further into the fall, there is an opportunity to harvest more plant material. Another major factor that affected plant biomass production for the 2011 season was the higher-than-average water levels for the Lake Ontario basin due to snow melt and seasonal precipitation, termed event conditions. High water levels have an influence on what depth plants are able to grow due to the ability of sunlight to reach them for photosynthesis. The event conditions also contribute suspended and dissolved nutrients and sediment to the bays through watershed runoff and tributary inputs. A high concentration of suspended material also prevents sunlight from penetrating to certain depths. Dissolved nutrients entering the bays are readily available to production of planktonic algae, which can also limit sunlight penetration for the use of rooted aquatic plants.



Fully loaded harvester

Maxwell Bay, a small embayment directly west of the Village of Sodus Point, was included with this year's AVC program. Maxwell Bay's entire open water area is completely infested with invasive Water chestnut (*Trapa natans*). Water chestnut is an annual with a simple, elongated stem with a rosette of floating leaves. Starting in July, the plant develops numerous hard fruit nuts that grow to about an inch in size with 4 solid spines. Once the nuts are mature, they detach



from the rosette and sink to the bottom sediment and may germinate for 1 year. If left unchecked, water chestnuts form large, dense populations that impede navigation and recreation. High water level associated with Lake Ontario allow for a harvester to access Maxwell Bay and significantly reduce the water chestnut population. A drop in water levels forced the program to remove the harvest prior to completely the area. Plans are made to incorporate Maxwell Bay into the AVC program on an annual basis due to the aggressiveness of water chestnut.

Problems Encountered and Recommendations

1. For the 2011 season, the District incorporated the use of a Water Quality Hotline to the public could find more information related to the AVC program and other water quality related news. This proved to be extremely valuable and efforts will be made to build on this.
2. An issue that is apparent each year is the need for more and closer access sites for off-loading plant material. A significant majority of the shoreline is privately owned and heavily developed. Access depends on permission from the land owner. Harvesting efficiency can increase up to 3 to 5 times with unloading equipment in close proximity to the work area. SWCD staff actively pursue access sites on both public and private lands. A new direction of the District is to identify and improve sites through cost-share projects and in-kind services. As of fall 2011, the District is aware of and taking steps to acquire, for use, three new access sites on Sodus Bay that would drastically improve the program's operations.
3. As stated above the program has three harvesters, two of which are showing declines in efficiency. The equipment is kept in very good condition due to a rigorous maintenance program, but overall wear is a factor. If the District continues to obtain funding under Finger Lake – Lake Ontario Watershed Protection Alliance, some money must be set aside every year into the District's dedicated equipment funds to support equipment upgrade. If FL – LOWPA funding continues to decline, the District must work with County and towns to obtain systematic, planned funding.
4. The final recommendation is to continue the numerous effort of watershed education. The District made valuable steps at providing the public with information on various watershed management initiatives throughout the County. The most important aspect of this effort is the realization that we, as a community, are responsible for protecting our watershed and the valuable natural resources within it.