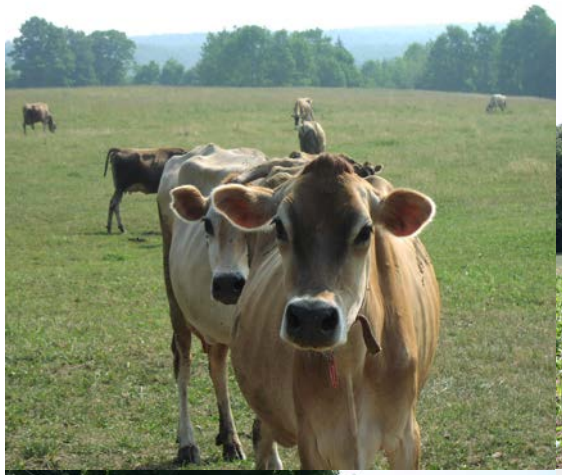
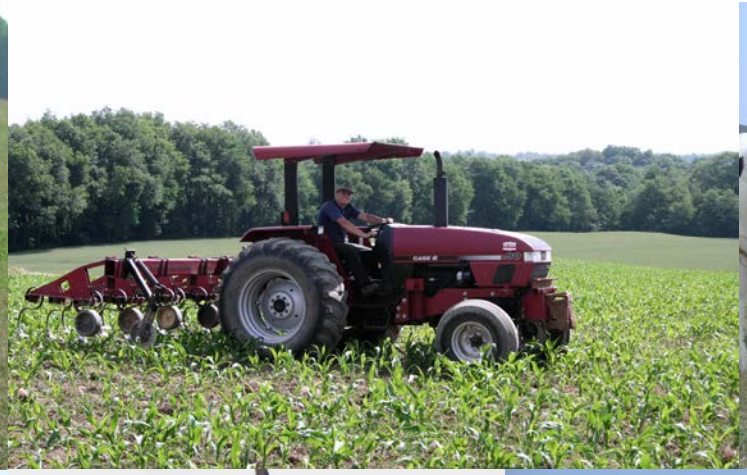
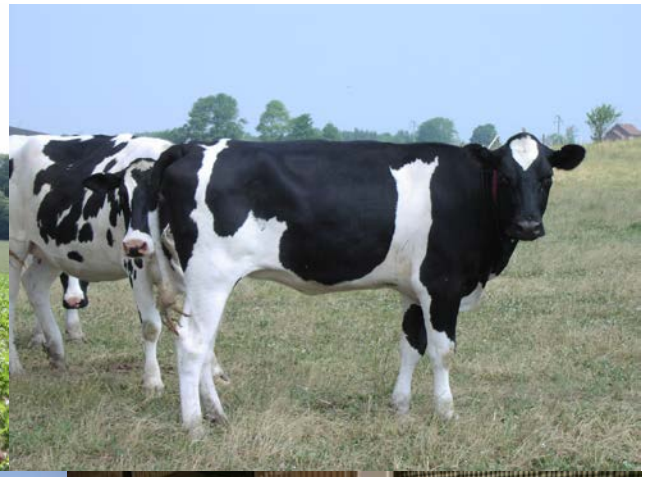
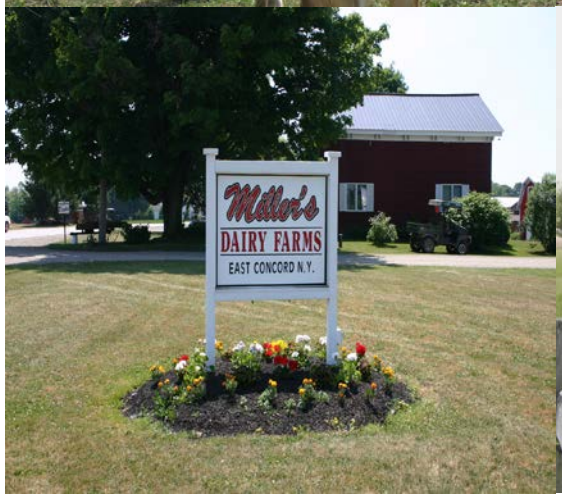
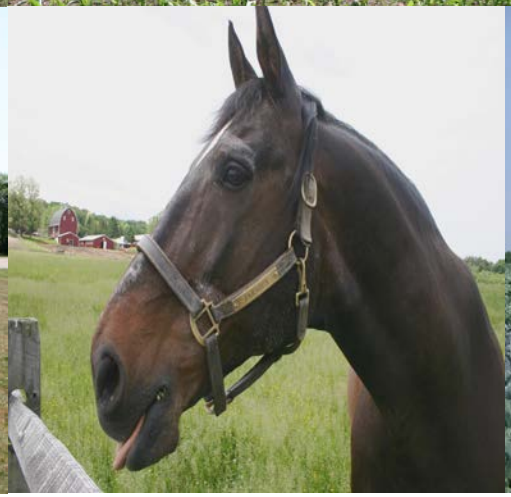
# Erie County Soil and Water Conservation District

## AEM Strategic Plan 2015-2020

**(Revised 4/02/2015)**



## Introduction

Agricultural Environmental Management (AEM), which is a New York State legislated program under the direction of the NYS Soil and Water Conservation Committee and administered through County Soil and Water Conservation Districts, establishes a coordinated framework for agricultural operations to protect and enhance the environment while maintaining their economic viability.

In order to demonstrate that AEM long term goals and objectives are being met and that local resource concerns and agricultural issues are being effectively addressed, the Erie SWCD has developed this strategy to guide the AEM Program in Erie County and to identify the necessary administrative, technical and financial resources that will be necessary to carry out AEM.

The organizations involved with developing and endorsing Erie County's AEM strategy include:

- Cornell Cooperative Extension of Erie County
- Erie County Farm Bureau
- Erie County Soil and Water Conservation District
- Erie County Water Quality Committee
- Local Working Group
- USDA Farm Service Agency
- USDA Natural Resources Conservation Service
- Western New York Crop Management Association
- Western New York Land Conservancy

## Mission Statement

The mission of the Erie County AEM Program is to deliver a coordinated, collaborative and dedicated effort to manage agricultural pollution sources for protecting, enhancing and sustaining the natural resources and economic viability of Erie County agriculture by providing current, sound planning and technical assistance.

## Vision Statement

The Erie County AEM Strategic Plan, the AEM Program framework and local conservation partnerships will be used to efficiently and cost effectively address natural resource concerns associated with the Erie County agricultural industry through a prioritized watershed approach.

## Status of Agriculture in Erie County

2002 Census of Agriculture

Number of farms: 1,289

Farms by Size:
- 1 to 49 acres = 584
- 50 to 179 acres = 453
- 180 to 499 acres = 200
- 500 plus acres = 52

** Median size farm = 72 acres

Land in farms:
- 161,747 acres, approximately 24 percent of the County.
- 69.27% is cropland
- 5.63% is pasture
- 16.29% is woodland
- 8.82% is other uses

Farm Types:
- Total cropland = 1113 farms (112,036 acres)
- Total cropland – harvested cropland = 923 farms (85,767 acres)
- Cattle and calves – beef cows = 183 farms
- Cattle and calves – milk cows = 152 farms
- Hogs and pigs = 55 farms
- Sheep and lambs = 81 farms
- Poultry – layers 20 weeks old and older = 56 farms
- Vegetables harvested for sale = 100 farms (3,331 acres)
- Land in orchards = 83 farms (2,257 acres)
- Corn for grain = 138 farms (6416 acres)
- Corn for silage or greenchop = 174 farms (14,643 acres)
- Wheat for grain = 45 farms (1,997 acres)
- Oats for grain = 63 farms (1,551 acres)
- Barley for grain = 14 farms (357 acres)
- Soybeans for beans = 29 farms (2,148 acres)
- Potatoes = 14 farms (576 acres)
- Forage = 657 farms (51,407 acres)

Economics:
- Market value of agricultural products sold = $92, 362,000
- Market value of agricultural products sold – crops = $42,381,000
- Market value of agricultural products sold – livestock, poultry and their products = $49,981,000

2012 Census of Agriculture

Number of farms: 1,044

Farms by Size:
- 1 to 49 acres = 473
- 50 to 179 acres = 391
- 180 to 499 acres = 127
- 500 plus acres = 53

** Median size farm = 55 acres

Land in farms:
- 142,679 acres, approximately 21 percent of the County.
- 65.76% is cropland
- 10.29% is pasture
- 17.02% is woodland
- 6.92% is other uses

Farm Types:
- Total cropland = 846 farms (93,833 acres)
- Total cropland – harvested cropland = 773 farms (84,751 acres)
- Cattle and calves – beef cows = 111 farms
- Cattle and calves – milk cows = 92 farms
- Hogs and pigs = 69 farms
- Sheep and lambs = 65 farms
- Poultry – layers 20 weeks old and older = 135 farms
- Vegetables harvested for sale = 121 farms (3,363 acres)
- Land in orchards = 64 farms (1,846 acres)
- Corn for grain = 128 farms (12,796 acres)
- Corn for silage or greenchop = 117 farms (12,116 acres)
- Wheat for grain = 22 farms (1,404 acres)
- Oats for grain = 58 farms (1,771 acres)
- Barley for grain = 4 farms (114 acres)
- Soybeans for beans = 64 farms (6,890 acres)
- Potatoes = 38 farms (397 acres)
- Forage = 519 farms (41,568 acres)

Economics:
- Market value of agricultural products sold = $133,146,000
- Market value of agricultural products sold – crops = $61,682,000
- Market value of agricultural products sold – livestock, poultry and their products = $71,464,000

Overview of Agriculture in Erie County

The principal agricultural enterprise is dairying which relates to the largest acreage being occupied by silage and grain corn, small grains, hay and pasture. Special crops including nursery stock, processing grapes (vineyard), floricultural and horticultural crops, sod, market vegetable and fruit crops (primarily spinach, peppers, eggplant, squash, pumpkins, cabbage, lettuce, sweet corn, tomatoes, bush fruit, strawberries and melons), are also an important part of Erie County agriculture. While the acreage of these special crops is relatively small in Erie County, these crops are significant in the Eighteenmile Creek and Cattaraugus Creek Watersheds where topographic and lake effect climatic factors are favorable. A few areas are in orchards, horse farms, beef operations and other specialty crops and livestock operations. Horse boarding operations are increasing in number as farmland goes out of production. Production of maple syrup is important in the central and southern part of the county.

According to the 2012 Census of Agriculture about 143 farms practice irrigation for an estimated total of 1,872 acres. Most irrigation occurs in the vegetable growing region of the county.

The acreage in crops and pasture has decreased rapidly in the last few decades as more land is converted to urban and rural residential uses. A large acreage in the central and northern part of the county that was once farmed is now developed for urban and suburban uses.

**General County Natural Resource Concerns**

Many of the soils in the county are suited to a wide variety of farm and non-farm uses. The main exceptions are the organic soil, very wet soils, shallow soils and steep soils. Management of surface and subsurface drainage and runoff is the principal soil management problem on the Erie-Ontario lowland plain in the northern and western parts of the county.

Soil erosion is a potential problem on about one quarter of the cropland in Erie County, especially on hillsides and valley sides in the Allegheny Plateau uplands in the central and southern parts of the county. The hazard of erosion is related to the slope and erodibility of the soil, the amount and intensity of rainfall and the type of vegetative cover. The fringe area between the upland plateau and lowland plain is dominated by shallow and moderately deep soils that require careful management for most uses. Cropland erosion is considered a minor problem, primarily limited to ephemeral erosion and sheet and rill erosion on steeper cropland fields. The average annual erosion rates on nearly all cropland in the priority watersheds is below the “tolerable” soil erosion rate.

About 223,000 acres, or nearly 35 percent of Erie County, meets the soil requirements for prime farmland. Areas of prime farmland are scattered through the county with concentrations of prime farmland in the four priority watersheds. Northern Erie County and the Town of Grand Island have considerable acreage that is considered "prime where drained" though much of this land has been converted to non-agricultural uses or is idle and reverting to wooded wetlands. Much of the prime farmland area is in the first ring suburbs around Buffalo and has already been converted to industrial and residential uses. This loss of prime farmland then encourages the cultivation of "marginal" lands which are generally more erodible, droughty, difficult to cultivate and less productive.

Streams continue to be an important resource for the agricultural community primarily for purposes of irrigation water supply and livestock water supply. Suspected and documented impacts on stream resources from agriculture are lower water levels, excessive algae and aquatic plant growth, and erosion. Streambank erosion is a serious problem in all watersheds of the county and the problem is aggravated in areas where livestock have access to streams and where cropland is farmed up to the top of bank.

Approximately three quarters of Erie County residents are served by municipal water supplies, mainly from Lake Erie and the Niagara River. Rural communities of the county rely on well water (dug and drilled) and to a lesser extent on surface water from small impoundments. Water for most of the rural residents and farms is obtained from drilled bedrock wells and dug wells in valley aquifers. Dug wells are relatively shallow and may dry up when the groundwater table is low. They are very effective in some valley bottoms with gravelly and sandy outwash, though they are subject to contamination. Nitrate contamination has been identified in a number of areas in the county. Salt contamination has also been identified in areas along major highways or near improperly managed salt storage facilities. A small amount of water in rural areas is supplied by springs. Springs occur naturally in confined areas where the water table reaches the surface. Many dairies rely on local ponds to supplement wells during much of the year. Irrigation water is generally provided from surface waters though groundwater sources are adequate in a few of the deep glacial outwash deposits in the western part of the county. Many of the greenhouse operations use a combination of municipal water and local sources.

**General County Agricultural Resource Concerns**

The Erie County Soil and Water Conservation District has been conducting AEM activities within the county since 1998. The SWCD has accumulated over 1,000 AEM Tier I survey responses from agricultural operations and agricultural support-land owners. An analysis of the community's Tier I responses reveals the same four primary concerns in all Erie County watersheds; they include: farmland protection, groundwater quality, nutrient management and surface water runoff/quality. Secondary concerns include: erosion control, woodland management, wildlife habitat, stream erosion management, pasture management and agricultural waste management.

Through interactions with partner agencies, landowners, local governments and watershed groups the SWCD has developed the following list of issues and opportunities:

Water quality protection - The Erie County Water Quality Strategy states the following generalization regarding the water resources in Erie County: "Surface and groundwater has been greatly impacted by industry, agriculture, suburban environments and densely populated urban areas, although there is evidence of general improvement. Many of these problems are being addressed while others are just surfacing." AEM assessments that have been completed to date identify that agricultural practices continue to impact water quality.

In 2011, Lake Erie experienced its largest algal bloom in history. In 2012, the International Joint Commission (IJC) established the **Lake Erie Ecosystem Priority (LEEP)** in response to a growing challenge: lake-wide changes in Lake Erie related to problems of phosphorus enrichment from both rural and urban sources, compounded by the influence of climate change and aquatic invasive species. These changes have resulted in impaired water quality, with impacts on ecosystem health, drinking water supplies, fisheries, recreation and tourism, and property values. The report states that "Agricultural operations are a major source of phosphorus loadings into Lake Erie. These loadings result primarily from fertilizer application and manure. The bulk of this input occurs during spring snowmelt and heavy rainstorms, when significant amounts of phosphorus can be transported by runoff water." The IJC recommends that governments focus agri-environmental management programs to explicitly address phosphorus loading with an emphasis on BMPs to reduce phosphorus.

In 2014 the Department of Environmental Conservation released ***New York's Great Lakes Basin: Interim Action Agenda*** as a guidance document that blends the goals and objectives of current state program plans with federal and state initiatives for a comprehensive course of action for improving the Great Lakes region. One of the priority goals in the agenda calls for the cleanup of pollution sources and the restoration of beneficial uses by controlling sediment, nutrient and pathogen loadings so that drinking water quality is protected, desired aquatic communities flourish, humans and wildlife are protected from coastline health hazards, and natural processes are sustained. The Action Agenda describes that sediments, nutrients and pathogens are some of the most common non-point sources of pollution……including.....agricultural areas. This goal includes broad recommendations to reduce nutrient pollution, promote the use of stream buffers and other best management and preventative practices that can benefit all waters.

Farmland conversion – Urban sprawl in the Buffalo metropolitan area is of significant concern in all of the priority watersheds. Conversion to non-agricultural uses includes residential, commercial and recreational uses. In 2012 Erie County completed the Erie County Farmland Protection Plan to guide efforts over a ten year period to support our local farming community by maintaining economic viability of local farms and protecting farmland.

Interest in buffers – Most streams and waterways have some minimal buffering. There are opportunities throughout the priority areas for additional "engineered buffers" along cropland and pasture for improved filtration of runoff and for setback of spraying activities from riparian corridors.

Conservation tillage – Interest in no-till, residue management, zone tillage and related conservation tillage practices continues to grow, however, heavier soils throughout the priority watersheds limit opportunity for no-till.

Agricultural complaints/General public agricultural awareness – With increased sprawl and an increase in rural residents with little or no farm background, agricultural complaints are on the rise. The following circumstances identify this as an important issue:

- An increase in complaints regarding agricultural odor sources.
- An increase in complaints about equine operations.
- Increased activity by local environmental advocacy groups such as Sierra Club who campaign against CAFO farm operations.

There is an opportunity to address public knowledge about farming activity, management and stewardship, and the importance of the agricultural industry in Erie County.

Nutrient management planning – All CAFO farms in Erie County have completed CNMPs. Most non-CAFO dairy farms in Erie County have completed nutrient management plans or comprehensive nutrient management plans and are actively implementing their plans. A small proportion of fruit and vegetable operations and smaller non-dairy livestock farms have completed nutrient management plans and most are actively implementing them. Many smaller livestock farm operations are performing limited soil testing (e.g. pH, P, K) however there is a general lack of soil and manure testing and record keeping for adequate nutrient management. EQIP is helping to promote and sustain the practice of nutrient management.

Manure Spreading & Manure Storage – Manure management practices range from daily spreading to storage; the latter includes spring and fall spreading with increased use of injection or immediate incorporation. Interest in composting manure within composting or bed pack facilities is increasing, but the most interest has been expressed about liquid manure storage by the County's Dairy farms. Manure management has been identified as an area of increased opportunity for "nutrient storage" and odor control.

Animal Mortality – Erie County and most of WNY is now serviced by a single rendering facility. Due to a historical lack of adequate facilities with the capabilities of rendering animal mortalities, the expensive and exhaustive permit for agricultural incinerators, and the adoption of a no burial of incidental mortalities in the USDA NRCS practice standard for Animal Mortality it has become important to explore alternatives. Animal composting is one option that needs further education and outreach effort to demonstrate effective and environmentally safe means of disposing of livestock.

Prescribed Grazing – Animal husbandry requires the intensive use of resources, especially fuel. Livestock farm operations are experiencing a severe economic impact from the rising costs of operational inputs. Livestock farms are also receiving more public scrutiny of animal health and welfare, and public purchasing trends for more humane, healthy and organic agricultural products are increasing. Promoting and implementing prescribed grazing systems is an opportunity to reduce costs on farms and create a more positive outlook on animal husbandry. Over the past decade there has been more interest in grazing in Erie County and as shown in the census data the amount of pasture land in the county has increased by 50% in 10 years. Pasture walks and workshops have been successful in promoting grazing.

Change in Farm Type – Across NY the number of farms has been decreasing and according to agricultural statistics, Erie County has been following this trend since 2002. While the number of farms in Erie County is declining the number of new/beginning farmers is increasing and the agricultural community is becoming more diverse. Another trend both State and County wide is the increase in the average size of farms. New, growing and diversifying operations need manure and nutrient management skills and should be assessed for environmental impact. There is an opportunity to include new types of farms in all watershed protection activities.

Agricultural management costs – Operating costs continue to increase and are causing economic hardship for farm operations. There is an opportunity to discuss with farms the types of practices, such as nutrient management planning and prescribed grazing, that also help with management and efficiency and may help to reduce costs.

**General County Goal(s)**

It is a primary goal that all waters within the county are able to meet established New York State criteria for their designated best uses. Designated uses may include drinking water supply, recreational activities such as swimming and fishing, or simply use for inherent aesthetic and wildlife value. The AEM Strategic Plan will serve as a roadmap to address agricultural sources of non point source pollution. This goal recognizes that there are many other 'source' issues that impair Erie County's water quality and natural resources, and that other programs and agencies are in place to address some or all of these issues.

Farming is a major land use in each of the county's four priority planning units (watersheds). Farms can help protect and enhance the county's water quality by following soil and water conservation plans, by participating in Erie County's AEM Program and by using environmentally sound farming practices.

As the local farm community participates in this voluntary effort to improve water quality it also becomes important to increase public awareness that farms are working to protect water quality and trying to maintain the family farm as a vital component of Erie

County's economy and rural culture. For this reason a constant and positive education and outreach effort must be incorporated into the AEM Program targeting the five priority planning unit's specific watershed concerns.

Specific goals for each of the four priority watersheds are developed in the Planning Unit Strategies that follow.

**General County Objective**

The AEM framework and tiered approach will be utilized as the primary method to achieve the county's water quality goal. Through utilization of the New York State AEM Base Program funds the Erie County Soil and Water Conservation District will serve as the project leader to plan and prioritize project work. Participating organizations and agencies will be employed whenever possible to further planning, implementation, evaluation and education efforts. Delivery of AEM to Erie County farms will be systematic with a cyclical schedule that rotates from the highest priority watershed planning unit to lower priority watershed planning units. The cyclical schedule will ensure the consistent delivery of AEM to Erie County farms; help the District communicate anticipated timetables for delivery of AEM components (Tiers) to Landowners; and assure Landowners that they will be able to continue to access the program – especially when they know that they can "step into" the rotation when they are financially able to commit to implementation.

**General County Outreach Effort**

A local AEM Program can only be successful if agricultural landowners agree with the program's goals and objectives, and they participate. Erie County's local outreach effort will emphasize consistent and periodic solicitation of agricultural owners and operators in order to maintain an "AEM connection" to the farm and to continue to foster landowner participation at the Field Office. Outreach will be accomplished through a combination of direct mail, press releases, exhibits, workshops and presentations. These outlets will also function to increase public and local government knowledge of and support for agriculture, enhance existing partnerships, seek out new partnerships, and support the District's efforts to maintain adequate local technical and financial support.

In order to promote the AEM Strategy and share program progress with the public and/or key stakeholder groups the District will:

- Post the AEM Strategic Plan on the Districts web page (WWW.ECSWCD.ORG)
- Present to/deliver to stakeholder groups for review, including:
  - Water Quality Committee
  - Cornel Cooperative Extension
  - Erie County Legislature - Energy & Environment Committee
  - Farmland Protection Board
  - Lake Erie Watershed Protection Alliance
  - Western New York Crop Management Association

The AEM Strategy can be used as a tool by AEM partners to identify and promote their value in assisting with the delivery of the AEM Program, and to support their respective efforts. For example, the Water Quality Committee will incorporate the AEM Strategy into the County Water Quality Strategy. As an extension of the County Water Quality Strategy, the AEM Strategy can be used as a measurable goal for the County Strategy. The Cornell Cooperative Extension can use the strategy to help develop and focus their agricultural education and technical assistance programs, and also use the AEM Strategy as a measureable goal. In addition, the AEM Strategy provides local direction for support of Natural Resources Conservation Service goals and programs.

**General County Program Evaluation**

Being able to quantify results and effectiveness of a program can be an effective way to illustrate its value to stakeholders and funding sources. Some of the fundamental successes are hard to measure, such as community support, encouragement of local agricultural enterprises or buying local products that have been produced in an environmentally friendly manner. Farmer's sales and participation of the community in farmer's markets, farm tours and natural resources awareness are all invaluable ways to judge the accomplishments within the County. AEM sign awards are a crowning achievement for the farmers and a chance for them to be recognized by the community for the work they have accomplished to become an environmentally sustainable farm.

The extent to which AEM deliverables are completed can also be a measure of success, such as Tiered assessments completed, or the number of BMPs implemented, or comparison of program participation levels this year versus last year. Each year the results from Tier 2 evaluations are compiled which helps to set priorities for the following year. The evaluation of the effectiveness of Tier 3A planning and completed best management practices is also conducted through Tier 5 follow-up. In addition, farms and their achieved AEM levels are then recorded in a Master AEM ID spreadsheet that can assist with resource concern prioritization within each watershed/Planning Unit. Follow up phone calls and site visits to assist landowners with their plans can help assure that a quality program is being delivered.

A review of programs being implemented compared to watershed needs is an assessment tool that can result in making changes in farming practices to fit the local conservation needs. Other feedback and evaluation mechanisms include the amount of attendance at conservation program education events, the number of inquiries for technical assistance, and the participation levels with the AEM program. Time permitting, the development of a water quality sampling program, possibly in partnership with a local educational institution, for nutrients and/or other water quality parameters in any of the four priority Planning Units can help to mark the success of program implementation over time. Specific evaluation measures for the program, watershed and farm levels are summarized on the following AEM evaluation strategies.

**AEM Evaluation Strategy**

| Evaluation Level | Evaluation Factors | Evaluation Measures | Feedback Mechanism | Personnel |
|---|---|---|---|---|
| **PROGRAM** | Effectiveness/success of conservation program delivery | AEM Tiered Survey Process | Percentage of farms that participated compared to the target number. | SWCD, NRCS |
| | | Tier 3 plans prepared | Number of farm operations that develop conservation plans compared to past years. | |
| | | Nutrient Management Plans prepared. | Number of farm operations that prepare NMPs compared to past years. | |
| | | State and Federal Conservation Program Participation | Comparison of participation levels to past years. | |
| | | Grazing plans prepared/implemented | Comparison of number of plans produced to past years. | |
| | | Water conservation | Implementation of conservation irrigation systems. | |
| | | Implementation of resource management systems and other resource conservation efforts. | Tier 5 Evaluation | |

**AEM Evaluation Strategy**

| Evaluation Level | Evaluation Factors | Evaluation Measures | Feedback Mechanism | Personnel |
|---|---|---|---|---|
| **WATERSHED** | Awareness of agriculture's importance/benefit to the community. | Level of support from local government | Relative amount of communication from municipalities (complaint calls, calls for technical assistance) – being tracked through GIS. | SWCD, NRCS |
| | | Level of support from community | Relative amount of communication from the public. (complaint calls, calls for technical assistance) – being tracked through GIS. | |
| | | Number of agricultural environmental compliance requests that are received from DEC. | Compare requests for compliance assistance to past years. | |
| | Watershed health, water quality improvement | Fish habitat | Observations and inventories of fish populations | DEC, FWS, Sportsmen |
| | | Pollutant levels | Water quality sampling | Buffalo State College, DEP, DEC, USACE |
| | | Wildlife habitat | Observations of indicator species e.g. beaver, otter | Landowners, sportsmen, DEC, FWS |

**AEM Evaluation Strategy**

| Evaluation Level | Evaluation Factors | Evaluation Measures | Feedback Mechanism | Personnel |
|---|---|---|---|---|
| **FARM** | Farm operation willingness to follow-through on planning efforts. | Implementation and continued planning of resource management systems and other resource conservation efforts with or without funding. | Tier 5 Evaluation<br><br>Participation in grant funding proposals<br><br>Requests for technical assistance for planning and implementation.<br><br>Demonstrates appropriate use and updating of NMP, CNMP including soil sampling, manure testing, water testing, feed testing, crop rotations, conservation covers, record keeping etc. | SWCD, NRCS |

**County Priority Planning Units**

The Erie County Local Working Group completed the Erie County Priority Area Assessment in 1997. The assessment documents natural resource, environmental and agricultural conditions in Erie County. The Assessment used the 1996 Priority Waterbodies Lists and other resource reports; the Local Working Group's knowledge of agricultural and environmental issues in the County; and a county-wide "Priority Assessment Survey" to identify resource conditions and to capture concerns of agricultural landowners and agricultural trends in the County. The Priority Area Assessment identified priority watershed areas and therefore provided a reliable benchmark for identifying Planning Units and developing the original AEM Strategy in Erie County. With consideration of the historic priority watershed areas and understanding the current conditions, concerns and trends of the County watersheds the current designated Planning Units for Erie County are listed below along with a listing of the 12 digit hydrologic unit codes of the sub-watershed within the priority planning units:

1.) Upper Buffalo River Watershed – 041201030(101, 102, 103, 104, 105, 201, 202, 203, 204, 205, 301, 302, 303, 304, 305)
2.) Eighteenmile Creek Watershed – 041201030(501, 502, 503, 504, 505, 506)
3.) Cattaraugus Creek Watershed – 041201020(101, 102, 103, 104, 105, 106, 107, 108, 109, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210)
4.) Tonawanda Creek Watershed – 041201040(101, 102, 103, 104, 105, 106, 107, 108, 201, 202, 203, 301, 302, 303, 304, 305, 306, 401, 402, 403, 404, 405, 406, 501, 502, 503, 504, 505)
5.) Seven Creeks Watershed – 041201030(601, 602, 603, 604)

These planning units are identified on the attached map.

**Historical AEM Perspective**

The Erie County AEM Program has included multiple AEM projects to identify farm-based resource concerns and environmental impacts, to prioritize sites based on an empirical formulation developed by the local AEM Team, to complete different levels of planning, to implement the practices necessary to address environmental concerns and to enhance water quality and watershed health. Following is a chronology of the AEM Program projects in Erie County:

<u>AEM delivered through the Agricultural Nonpoint Source Abatement and Control Grant Program:</u>

- Round 4 – *Buffalo River Riparian Corridor Planning Project C700519*, 1997-1998: Tier 1, Tier 2 and Tier 3A completed - $31,671 total project / $15,009 state

- Round 5 – *Eighteenmile Creek Watershed Planning Project C700565*, 1998-1999: Tier I, Tier 2 and Tier 3A completed - $59,131.43 total project / $40,825.50 state
- Round 6 – *Upper Buffalo River Watershed Project Phase II C700604*, 2000-2006: Tier 1, Tier 2, Tier 3A surveys and Tier 3B plans completed in Wyoming County; Tier 4 Implementation completed in Wyoming County and on 16 Erie County farms – $762,784.67 total project / $551,084.69 state

- Round 6 – *Cattaraugus Creek AEM Planning Project C700630*, 2000-2003: Tier 1, Tier 2 and Tier 3A surveys completed - $25,902.75 total project / $15,075 state

- Round 7 – *Erie County CAFO/CNMP Project C700663* (County Wide), 2000-2004: CNMP's completed on all of Erie County's sixteen Concentrated Animal Feeding Operations - $144,548.39 total project / $67,762.03 state

- Round 7 – *Buffalo River Ag Implementation Project Phase III*, 2000-2006: Tier 4 Implementation of additional best management practices on 7 priority farms in Erie County and 11 priority farms in Wyoming County – $81,648.09 total project / $26,474.50 state

- Round 9 – *Eighteenmile Creek Ag Planning Project C700709*, 2002-2005: 12 CNMP's on priority non-CAFO farms completed - $65,993.87 total project / $48,884.54 state

- Round 9 – *Tonawanda Creek Watershed AEM Tier 1 and Tier 2 Assessment Project C700710*, 2002-2006: Tier 1 and Tier 2 surveys in Erie, Genesee, Niagara and Wyoming Counties completed.

- Round 11 – *Eighteenmile Creek Watershed Ag Implementation Project* C700778, 2005-2010: Tier 4 Implementation of BMPs on 5 priority farms – $325,135.13 total project / $174,820.47 state.

- Round 12 – *Cattaraugus Creek Watershed Ag Implementation Project* C700811, 2006 – 2011: Tier 4 implementation of BMPs on 5 priority farms – $135,600.92 total project / $96,447.52 state.

- Round 13 – *Tonawanda Creek Watershed Ag Implementation Project* C700843, 2006 – 2011: Tier 4 implementation of BMPs on 4 priority farms – $305687.23 total project / $123,580.50 state.

- Round 14 – *Seven Creeks Watershed Ag Implementation Project* C700938, 2009 – 2013: Tier 4 Implementation of BMPs on 1 priority farm – $940,830.48 total project / $268,195.00 state.

- Round 16 – *Buffalo River Watershed / Lake Erie Ag Nonpoint Pollution Control Grant Program* C700971, 2010 – 2014: Tier 4 Implementation of BMPs on 12 priority farms – Complete/ closeout pending

- Round 17 – *Cattaraugus Creek Watershed / Clear Lake Ag Nonpoint Source Pollution Control Grant Program* C701015, 2011- 2015 Tier4 Implementation of BMPs on 10 priority farms – In progress

- Round 19 – *Eighteenmile Creek Watershed / Lake Erie Direct Protection Project* C701112, 2013 – 2017: Tier 4 Implementation of BMPs on 7 priority farms – In progress

- Round 19 – *Tonawanda Creek Watershed Ag Implementation Project Phase 2* C701113, 2013 – 2018: Tier 4 Implementation of BMPs on 7 priority farms – In progress

<u>Other agricultural conservation programs</u>

*Environmental Quality Incentives Program*:

- FY2000 – 2014, 193 contracts have been awarded to farms to complete BMPs and Conservation Activity Plans.
  - ✓ Buffalo Creek Watershed, 61 contracts
  - ✓ Eighteenmile Creek Watershed, 49 contracts
  - ✓ Cattaraugus Creek Watershed, 46 contracts
  - ✓ Tonawanda Creek Watershed, 29 contracts
  - ✓ Seven Creeks Watershed, 8 contracts

*Agricultural and Farmland Protection Program*:

- Town of Amherst Farmland Protection Project – 860 ac.
- Town of Marilla PACE – 880 ac.
- Town of Clarence Greenprint – 1,025 ac.
- Town of Eden –
- Town of Elma – 60 ac.
- USDA Grassland Reserve Program – 93 ac.
- Others under development

*Conservation Reserve Program (includes CREP)*:

- FY1996 – 4 contracts, 98.8 total acres, payments $3002.00
- FY1997 – 1 contract, 50 total acres, payments $1600.00
- FY1998 – 29 contracts, 1,004.5 total acres, payments $38,187.00
- FY1999 – 17 contracts, 444.8 total acres, payments $17,168.00
- FY2000 – 1 contract, 34 total acres, payments $1,277.00
- FY2001 – 8 contracts, 244.5 total acres, payments $10,246.00
- FY2004 – 4 contracts, 122.6 total acres, payments $4,816.00
- FY2006 – 6 contracts, 127.9 total acres, payments $4,611.00
- FY2007 – 4 contracts, 61.1 total acres, payments $3,277.00
- FY2008 – 10 contracts, 207 total acres, payments $8,223.00
- FY2009 – 3 contracts, 100 total acres, payments $3,904.00
- FY2011 – 4 contracts, 39.3 total acres, payments $2,255.00
- FY2013 – 2 contracts, 21.7 total acres, payments $1,063.00
- FY2014 – 3 contracts, 18.3 total acres, payments $1,310.00

*Agricultural Management Assistance Program*:

- FY2001 - 2011 (35 contracts) -
    - ✓ Buffalo Creek Watershed, 9 contracts
    - ✓ Eighteenmile Creek Watershed, 19 contracts
    - ✓ Cattaraugus Creek Watershed, 7 contracts
    - ✓ Tonawanda Creek Watershed, 3 contracts
    - ✓ Seven Creeks Watershed, 2 contracts

*Conservation Stewardship Program*:

- FY2009 - 2014 (35 contracts) -
    - ✓ Eighteenmile Creek Watershed, 13 contracts
    - ✓ Buffalo Creek Watershed, 14 contracts
    - ✓ Cattaraugus Creek Watershed, 2 contracts
    - ✓ Tonawanda Creek Watershed, 3 contracts
    - ✓ Seven Creeks Watershed, 3 contracts

*Wildlife Habitat Incentive Program*:

- FY2006 - 2014 (2 contracts) -
  - ✓ Eighteenmile Creek Watershed, 1 contract
  - ✓ Buffalo Creek Watershed, 1 contract

Other AEM Activities

*Educational Workshops 2008 – April 2014*: 23 events

*Outreach Events 2008 – April 2014:* 20 events

AEM has and will continue to support and supplement the agricultural and non-agricultural conservation work that is occurring in Erie County and surrounding counties into which priority watersheds extend. The AEM Program is providing survey information, targeting priority sites of concern, and producing conservation plans and comprehensive nutrient management plans. These AEM products are being used by the District, the Natural Resources Conservation Service and private agricultural consulting firms to meet the technical and financial needs of Erie County's agricultural industry. AEM has supported multiple efforts for applications for State and Federal funding. The AEM information collected to date is being referenced by the Water Quality Committee to update the Erie County Water Quality Strategy. AEM is not only identifying resource concerns but also social, economic and cultural concerns that can be addressed in collaboration with Cornell Cooperative Extension, the Erie County Agriculture and Farmland Protection Board, the Erie County Environmental Management Council and the Energy and Environment Committee of the Erie County Legislature.

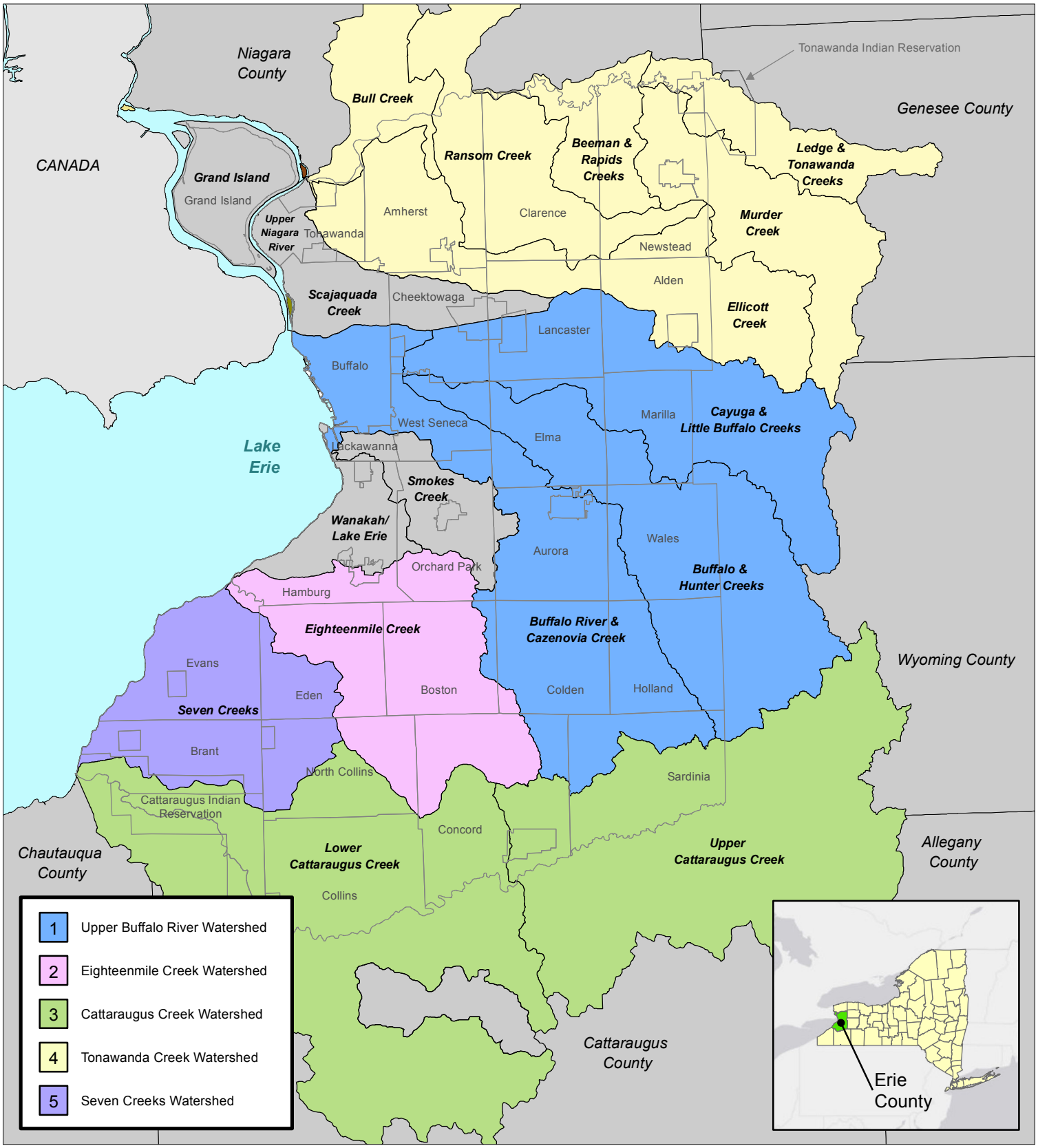
## Local AEM Team Capacity Assessment

| Expertise | SWCD | NRCS | Cooperative Extension | FSA | Farm Bureau | Ag. Planning Consultants | NYS DEC | County Planning | Ag. Business | Local University | Private Sector | Local Working Group | WQC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Develop AEM Plans | X | X | X | | | X | | | | | X | | |
| Certified Planner | | X | | | | X | | | | | X | | |
| CCA | X | X | | | | X | | | | | X | | |
| Engineering Job Approval | X | X | | | | | | | | | X | | |
| Biological Monitoring | | | | | | | X | | | X | | | |
| Outreach | X | X | X | X | X | X | | X | X | | | | |
| Education | X | X | X | | | X | | X | | | | | |
| Program Evaluation | X | X | | | | | X | | | X | | X | X |
| Program Administration | X | X | | X | | | | | | | | | |
| Grant Writing | X | X | X | | | | | X | | | | X | X |

**Training Needs –** Training for agency staff and consultants involved in the AEM Program may be needed in order to keep up to date on revisions and updates to AEM worksheets, planning requirements, NRCS standards and specifications, etc.

**Additional partnerships –** Other groups/organizations that may provide assistance to the Erie County AEM Program and help the District to meet its AEM objectives include: Erie County Farmland Protection Board, Friends of the Buffalo Niagara Rivers, Seneca Nation of Indians, Tonawanda Senecas, Seneca Trail Resource Conservation and Development Council and the Cattaraugus Creek Watershed Task Force. Per the *AEM Communications Strategy* these organizations as well as future identified groups will be included as necessary to meet the needs of the Erie County AEM Program.

# Erie County Soil and Water Conservation District
# AEM Strategic Plan 2015 - 2020
# Prioritized Planning Units




Map produced by:
Erie County Soil and Water Conservation District
& USDA Natural Resources Conservation Service
East Aurora, New York

**Planning Unit Strategy for**
**UPPER BUFFALO RIVER WATERSHED**

## WATER QUALITY ASSESSMENT:

### 2010 PWL

The 2010 PWL finds that water quality in the Upper Buffalo River Watershed is similar to previous assessments where water bodies are identified as having slightly impacted conditions from non-point sources and should continue to be monitored but do not warrant listing. There are several lower reaches of major tributaries that are listed as having minor impacts from silt/sediment and nutrients associated with urban runoff, streambank erosion and agriculture. Impacts from intense urban use in the Buffalo River reach and from land use areas in the upper subwatersheds continue to contribute primary pollutant stressors including silt/sediment, nonpoint source nutrient enrichment and thermal changes. The PWL notes that agricultural land use is a possible or suspected source of pollutants in this watershed and that poor agricultural practices in the upper Buffalo Creek Watershed such as cattle access to streams exacerbate streambank erosion and silt /sediment loads. Aquatic life support and recreational uses are generally cited as use impairments in portions of this watershed basin.

### 2002 PWL

The 2002 PWL finds that water quality in the Upper Buffalo River Watershed continues to gradually improve but that there are still impacts from intense urban use in the Buffalo River reach and from land use areas in the upper subwatersheds that continue to contribute primary pollutant stressors including silt/sediment, nonpoint source nutrient enrichment and thermal changes. The PWL notes that agricultural land use is a possible or suspected source of pollutants in this watershed and that poor agricultural practices in the upper Buffalo Creek Watershed such as cattle access to streams exacerbate streambank erosion and silt /sediment loads. Aquatic life support and recreational uses are generally cited as use impairments in portions of this watershed basin.

### 1996 PWL

The 1996 PWL indicates that Fish habitat is threatened in all subwatersheds of the Upper Buffalo River Watershed. Fish propagation and fish survival are impaired primarily by sediment and thermal changes. The 1996 PWL also indicates that high nutrient values and increased nutrient loading threaten fish habitat.

**1997 Local Working Group Priority Area Assessment**
The 1997 LWG Priority Area Assessment identifies that agricultural activities and runoff in this watershed are contributing sources to siltation, higher water temperatures and high nutrient values; it also indicates that pastures and feedlots are often near streams and drainageways. The Assessment also identifies animal waste odors, land application and farmland protection as concerns in this watershed.

**Source Water Assessment Program (SWAP)**
For community and non-community source well sites pathogens from animal pasture are cited as potential contaminants.

**Other Assessments**

Buffalo Niagara Riverkeeper's **Healthy Niagara – Niagara River Watershed Management Plan (Phase 1) 2014** a regional, community based initiative to develop a watershed plan focused on action steps to protect and restore water resources in the community and the watershed. The Healthy Niagara plan includes planning units 1 Upper Buffalo River Watershed, 2 Eighteenmile Creek Watershed and 4 Tonawanda Creek Watershed. Several of the key findings from the Healthy Niagara Plan state that a high number of the watershed's stream segments are impacted and do not have sufficient water quality to meet their best use; there is lack of a sufficient regional Living Infrastructure network that is contributing to water quality impairments and the watershed's highly agricultural sub-watersheds create sedimentation and nutrient loading impacts.

**The Buffalo River Remedial Action Plan (RAP) 2008 Status Report** identifies that sediments impair aquatic habitat.

The thesis project "Use of Macroinvertebrates to Assess Water Quality in a Great Lakes Watershed," completed by Christopher Riley under the advisement of Shreeram Inamdar at the Great Lakes Center and Geography Department, SUNY College at Buffalo, Buffalo, NY, identified that testing sites in the Cazenovia Creek Watershed in agricultural land use areas had much higher levels of nitrogen compounds, and one agricultural test area had overall "worse habitat quality."

**Agricultural Environmental Management (AEM)**
AEM identified that priority agricultural concerns include: silage leachate; barnyard runoff; milking center waste; livestock access to streams; overgrazed pastures; nutrient management (lack of record keeping, lack of manure testing, excessive manure application and need for manure storage).

**PRIORITY POLLUTANTS:**
*Sediment:* agricultural land use practices/lack of riparian buffer, livestock access to streams and streambanks, farmstead sources
*Thermal changes:* removal of streambank vegetation due to agricultural practices and livestock access to streambanks
*Nutrients:* poor agricultural management practices
*Odor:* manure storage, land application.

**GOALS AND OBJECTIVES:**

See the following charts

**PRACTICES AND MANAGEMENT CHANGES TO BE PROMOTED:**

See the following charts

## Goals & Objectives

Upper Buffalo River Watershed

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| Farmstead Pollution Sources | Abate and control agricultural pollutants on farmsteads | Sediment, nutrients | Complete AEM planning process |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| Nutrient Management | Encourage development and maintenance of Comprehensive/Nutrient Management Plans | Nutrients | Promote nutrient management planning during AEM assessment |
| | | | Promote EQIP incentives for developing plans |
| | | | Partner with CCE to host C/NMP workshops |
| | | | Maintain a current list of planners for distribution |
| | | | |
| Land Application & Distribution of Livestock Waste | Promote proper storage, transfer and application of livestock waste | Sediment, nutrients, odor | Encourage development of Comprehensive /Nutrient Management Plans |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| HSA/Riparian Area Protection | Protect and restore hydrologically sensitive and riparian areas | Sediment, nutrients, thermal changes | Provide technical assistance |
| | | | Implement filter strips and buffers |
| | | | Implement prescribed grazing systems |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Promote/deliver Conservation Reserve Enhancement |
| | | | Program (CREP) |

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| | | | |
| Pasture Management | Promote and establish prescribed grazing systems | Sediment, nutrients, thermal changes | Train technician to be grazing systems expert |
| | | | Provide technical assistance |
| | | | Implement grazing systems |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Utilize the NYS Grazing Lands Coalition (GLC) to support a local program. |
| | | | Host grazing workshops |
| | | | Develop a "Master Grazer Network" |
| | | | |
| Streambank Erosion | Reduce sediment loading to streams and protect tillable land. | Sediment, thermal changes | Provide technical assistance to agricultural and non-agricultural landowners. |
| | | | Restore Riparian buffers |
| | | | Prepare grant applications for BMP Implementation |
| | | | |
| Equine Operations | Help equine operations to function as environmentally sound agricultural operations | Sediment, nutrients, thermal changes | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Partner with Western Chapter of the New York Horse Council to deliver assistance. |
| | | | |
| Ag Woodland Management | Support efforts to sustain agricultural forestry | Sediment, thermal changes | Complete AEM Planning Process. |
| | | | Promote Farm Bill Funding Opportunities. |
| | | | Disseminate information regarding woodland management assistance. |
| | | | Promote annual WNY Rural Landowners Workshop |
| | | | |
| Operational Costs | Help farm operations explore ways to reduce costs | N/A | Complete AEM planning process |
| | | | Encourage nutrient management planning on the farm. |
| | | | Explore use of prescribed grazing systems |

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| | | | Partner with CCE to deliver related workshop |
| Farmland Protection | Support existing farmland protection efforts | N/A | Discuss opportunities about farmland protection and provide referrals during AEM assessments |
| | | | Support Erie County Farm Bureau “Local Right to Farm Law” initiative. |
| | | | Provide information about Agricultural Districts and the Agricultural Assessment Program. |

**Practices and Management Changes to be Promoted:**

| PRIORITY AG ISSUES | PRIORITY POLLUTANTS ADDRESSED | Practices & Management Changes to be Promoted |
|---|---|---|
| Farmstead Pollution Sources | Sediment, nutrients | Waste handling and collection/treatment systems to control pollution from concentrated sources such as barnyards, manure loading areas, silage storages and milking centers. |
| | | Improve management, layout, structure and size of livestock holding and traffic areas |
| | | Improve separation of clean water from pollution sources |
| | | |
| Nutrient Management | Nutrients | Nutrient Management Planning |
| | | Waste storage/Composting |
| | | Improve efficient use of on-site nutrients/waste utilization |
| | | Improve efficient use of fertilizers |
| | | |
| Land Application & Distribution of Livestock Waste | Sediment, nutrients, odor | Nutrient Management Planning – waste utilization assessment, runoff risk assessment, soil sampling, scheduling, record keeping |
| | | Waste Storage/Composting |
| | | Improve coordination of owner/operators with municipalities and neighbors |
| | | |
| HSA/Riparian Area Protection | Sediment, nutrients, thermal changes | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | Filter Strips |
| | | Riparian Buffers |
| | | Prescribed Grazing systems |
| | | Streambank stabilization practices |
| | | |
| Pasture Management | Sediment, nutrients, thermal changes | Prescribed Grazing Systems |
| | | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | |
| Streambank Erosion | Sediment, thermal | Streambank erosion control system |
| | | Riparian buffer systems – restoration and maintenance |
| | | Use exclusion of livestock |
| | | |
| | | |

| PRIORITY AG ISSUES | PRIORITY POLLUTANTS ADDRESSED | Practices & Management Changes to be Promoted |
|---|---|---|
| Equine Operations | Sediment, nutrients, thermal changes | Waste handling and collection/treatment systems |
| | | Nutrient Management |
| | | Improve land application & distribution of livestock waste |
| | | Improve HSA/riparian area protection |
| | | Improve pasture and paddock management |
| | | |
| Ag Woodland Management | Sediment, nutrients, thermal changes | Forest Steward Plan development and implementation |
| | | |
| Operational Costs | N/A | Nutrient Management Planning |
| | | Waste Utilization |
| | | Prescribed grazing |
| | | |
| Farmland Protection | N/A | N/A |

**Attachment No. 1**

**AEM ACCOMPLISHMENTS TO DATE**

- *AEM Base (2005 – 2014)*

  Tier 1 – 36
  Tier 2 – 29
  Tier 3A – 11
  Tier 4 – 26
  Tier 5b - 18

- *Buffalo River Riparian Corridor Planning Project* (Round IV*)* – completed

  Tier 1 surveys – 190
  Tier 2 surveys – 29
  Tier 3A plans – 19

- *Upper Buffalo River Watershed Project Phase II* (Round VI) – completed
  Joint project with Wyoming Co. SWCD to implement best management practices on 23 farms in Erie and Wyoming Counties. The following best management practices were implemented on 17 farms in Erie County:

  Barnyard Water Management System – 12
  Fencing (use exclusion) – 7
  Alternate Water Supply – 1
  Prescribed Grazing System – 2
  Milk Center Treatment System – 1
  Nutrient Management Planning – 11
  Fencing (prescribed grazing) – 1
  Manure Storage – 3
  Silage Leachate Treatment System – 2
  Access Road Improvement – 2

- *Buffalo River Ag Implementation Project Phase* III (Round VII ) - completed
  Joint project with Wyoming Co. SWCD to implement additional best management practices on 6 priority farms in Erie County and 9 priority farms in Wyoming County. The following BMPs were implemented on 4 farms in Erie County:

  Barnyard Water Management System – 1
  Prescribed Grazing System – 1
  Alternate Water Supply – 1
  Silage Leachate Treatment System – 1

- *CAFO/CNMP Project* (Round VII) – completed
  County-wide project to develop CNMPs on CAFO operations in Erie County – 7 farms completed in Upper Buffalo River Watershed.

- *Buffalo River Watershed / Lake Erie Ag Nonpoint Pollution Control Grant Program* (Round 16) – Completed
  Joint project with Wyoming Co. SWCD to implement best management practices on 12 priority farms. The following Conservation Systems were implemented on 6 farms in Erie County:

  Barnyard Water Management System – 3 Waste Storage and Transfer System – 2
  Prescribed Grazing System – 2

**Other Grants/Funding:**

- *Buffalo Creek Streambank Stabilization Partnership Program Phase I* (EPF)
- *Buffalo Creek Streambank Stabilization Partnership Program Phase II* (EPF)
- *US EPA Buffalo Creek Watershed Protection Project* (EPA via Quinn) - $475,000
- *Buffalo River Watershed Erosion and Sediment Control Project (GLRI) - $180,000*

Farm Bill Programs:

- *Environmental Quality Incentives Program (EQIP)*
  FY 2004 – 2014: 61 Contracts

- *Agricultural Management Assistance Program (AMA)*
  FY 2001 – 2014: 9 Contracts

- *Conservation Stewardship Program (CSP)*
  FY 2001 – 2014: 14 Contracts

- *Wildlife Habitat Incentives Program (WHIP)*
  FY 2006 – 2014: 1 Contracts

- *Grazing Lands Conservation Initiative (GLCI)*:
  Grazing plans completed – 5 farms
  Pasture Walks Completed - 2

**Planning Unit Strategy for**
**EIGHTEENMILE CREEK WATERSHED**

## WATER QUALITY ASSESSMENT:

### 2010 PWL

DEC determined that there are minor impacts in the lower portion of this watershed. Aquatic life support and natural resources (fishery) habitat in Eighteenmile Creek is thought to be affected by elevated stream temperature, silt/sediment and other nonpoint inputs related to streambank erosion, residential development in the surrounding suburban, urban areas and stormwater runoff. The middle and upper sections of the watershed including the South Branch of Eighteenmile Creek was listed as having "No Known Impact"; the PWL narrative for these sections commonly found that the water column chemistry, nutrient biotic index and macroinvertebrate sampling all resulted in slightly impacted conditions from nutrients and sediments resulting from non-point and agriculture sources. Hampton Brook is a major tributary to the lower section of Eighteenmile Creek and is listed separately in the PWL. Hampton Brook is identified as having minor impacts from agriculture sources and urban stormwater runoff. Aquatic life is considered stressed from nutrients (P), dissolved oxygen and pathogens.

### 2002 PWL

DEC determined that there are minor impacts in the lower portion of this watershed. Aquatic life support and natural resources (fishery) habitat in Eighteenmile Creek is thought to be affected by elevated stream temperature, silt/sediment and other nonpoint inputs related to streambank erosion, residential development in the surrounding suburban, urban areas and stormwater runoff. Assessment of the upper portion of the watershed resulted in a determination of "No Known Impact."

### 1996 PWL

The 1996 PWL identifies that fish habitat is impacted primarily by sedimentation and also by thermal warming and nutrient loadings. Frequent water turbidity throughout the entire watershed threatens the use of the creek for fish propagation and fish survival. Cold water fishery in the main branch of Eighteenmile Creek and the South Branch of Eighteenmile Creek are being stressed by warm water flows and algae and aquatic weed growth.

### 1997 Local Working Group Priority Area Assessment

The LWG Assessment identified nutrient enrichment of the streams and tributaries of the watershed by agricultural land. Lack of riparian vegetation and livestock access contribute to nutrient loading and thermal changes, and erosion and sedimentation problems. In the South Branch algae blooms and aquatic weeds in shallow portions of the streambed were documented. The seasonal withdrawal of irrigation water for vegetable crops is thought to lower stream levels and cause thermal stress for cold water fish species. Animal waste odors from manure storage and land application has been raised as a significant concern within the watershed.

### Source Water Assessment Program (SWAP)

For community and non-community source well sites pathogens from animal pasture are cited as potential contaminants.

**Agricultural Management Assistance (AEM)**
AEM has identified that priority agricultural concerns include: silage leachate; barnyard runoff; milking center waste; livestock access to streams; overgrazed pastures; nutrient management (lack of record keeping, lack of manure testing, excessive manure application and need for manure storage).

**Other Assessments**

**Analysis of the Water Quality of Eighteenmile Creek, Erie County, New York: A Comparison of Water Quality Between 1970, 1973 and 2000**
A senior project by Kristal Lynn Krasinski of the Department of Geography/Planning at the State University, College at Buffalo. Testing parameters included total coliforms, fecal coliforms, biological oxygen demand (BOD), orthophosphates, chlorides and nitrates. This study included sites that referenced selected historical sampling sites and were spaced out along the creek at points of easy access to give a generalized picture of the water quality of Eighteenmile Creek. The 2000 sampling shows that all levels of the tested parameters have generally decreased from the historical data and the 2000 study appears to show that there has been an improvement in the water quality of the creek. The author offered that since there is evidence that contamination levels are higher with higher flows, inter-event sampling, as was performed in this study, likely underestimates the severity of the water quality problems in the watershed and that general monitoring should also be considered on a long-term basis to monitor any changes in water quality in the Eighteenmile Creek area.

**Buffalo Niagara Riverkeeper's Healthy Niagara – Niagara River Watershed Management Plan (Phase 1) 2014**
A regional, community based initiative to develop a watershed plan focused on action steps to protect and restore water resources in the community and the watershed. The Healthy Niagara plan includes planning units 1 Upper Buffalo River Watershed, 2 Eighteenmile Creek Watershed and 4 Tonawanda Creek Watershed. Several of the key findings from the Healthy Niagara Plan state that a high number of the watershed's stream segments are impacted and do not have sufficient water quality to meet their best use; there is lack of a sufficient regional Living Infrastructure network that is contributing to water quality impairments and the watershed's highly agricultural sub-watersheds create sedimentation and nutrient loading impacts.

**New York State Department of State – Costal Fish & Wildlife Habitat Rating Form**
**Eighteenmile Creek – 1987**
The report outlines the important fisheries habitat that Eighteenmile Creek provides, "Eighteen Mile Creek is the second largest tributary of Lake Erie in New York State, and there are few comparable streams in the Great Lakes Plain ecological region." The report also documents that, "One of the top 4 salmonid spawning streams among Lake Erie tributaries." The report goes on to recommend that no actions be taken that would degrade water quality or habitat within the watershed.

**PRIORITY POLLUTANTS:**
*Sediment*: streambank erosion - unstable soils and lack of streambank protection
*Nutrients*: fertilizer use, animal access to streams, poor agricultural management practices
*Thermal warming:* irrigation water withdrawals
*Odor*: manure storage, land application of manure

**GOALS AND OBJECTIVES:**

See the following charts

**PRACTICES AND MANAGEMENT CHANGES TO BE PROMOTED:**

See the following charts

## Goals & Objectives

Eighteenmile Creek Watershed

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| Farmstead Pollution Sources | Abate and control agricultural pollutants on farmsteads | Sediment, nutrients | Complete AEM planning process |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| Nutrient Management | Encourage development and maintenance of Nutrient Management Plans | Nutrients | Promote nutrient management planning during AEM assessment |
| | | | Promote EQIP incentives for developing plans |
| | | | Partner with CCE to host NMP workshops |
| | | | Maintain a current list of planners for distribution |
| | | | |
| Land Application & Distribution of Livestock Waste | Promote proper storage, transfer and application of livestock waste | Sediment, nutrients, odor | Encourage development of Nutrient Management Plans |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| HSA/Riparian Area Protection | Protect and restore hydrologically sensitive and riparian areas | Sediment, nutrients, thermal changes | Provide technical assistance |
| | | | Implement filter strips and buffers |
| | | | Implement prescribed grazing systems |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Promote/deliver Conservation Reserve Enhancement Program (CREP) |
| | | | |

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| Pasture Management | Promote and establish prescribed grazing systems | Sediment, nutrients, thermal changes | Train technician to be grazing systems expert |
| | | | Provide technical assistance |
| | | | Implement grazing systems |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Utilize the NYS Grazing Lands Conservation Initiative (GLCI) to support a local program. |
| | | | Host grazing workshops |
| | | | Develop a "Master Grazer Network" |
| | | | |
| Streambank Erosion | Reduce sediment loading to streams and protect tillable land. | Sediment, thermal changes | Provide technical assistance to agricultural and non-agricultural landowners. |
| | | | Restore Riparian buffers |
| | | | Prepare grant applications for BMP Implementation |
| | | | |
| Irrigation Water Withdrawal from Streams | Reduce water withdrawals from streams | Thermal changes | Provide technical assistance |
| | | | Implement alternate water supply and delivery systems |
| | | | Promote water conservation measures |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| Potential for Agrichemical Spills And Runoff | Reduce potential for agrichemical spills and runoff | Fertilizers, pesticides | Provide technical assistance |
| | | | Implement mixing/loading facilities |
| | | | Encourage the preparation and implementation of pesticide management plans |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for planning and BMP implementation |
| | | | Partner with CCE to deliver pesticide management |

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| | | | workshop |
| Operational Costs | Help farm operations explore ways to reduce costs | N/A | Complete AEM planning process |
| | | | Encourage nutrient management planning on the farm |
| | | | Explore use of prescribed grazing systems |
| | | | Partner with CCE to deliver related workshop |
| | | | |
| Farmland Protection | Support existing farmland protection efforts | N/A | Discuss opportunities about farmland protection and provide referrals during AEM assessments |
| | | | Support Erie County Farm Bureau “Local Right to Farm Law” initiative. |
| | | | Provide information about Agricultural Districts and the Agricultural Assessment Program. |

**Practices and Management Changes to be Promoted:**

| PRIORITY AG ISSUES | PRIORITY POLLUTANTS ADDRESSED | Practices & Management Changes to be Promoted |
|---|---|---|
| Farmstead Pollution Sources | Sediment, nutrients | Waste handling and collection/treatment systems to control pollution from concentrated sources such as barnyards, manure loading areas, silage storages and milking centers. |
| | | Improve management, layout, structure and size of livestock holding and traffic areas |
| | | Improve separation of clean water from pollution sources |
| | | |
| Nutrient Management | Nutrients | Nutrient Management Planning |
| | | Waste storage/Composting |
| | | Improve efficient use of on-site nutrients/waste utilization |
| | | Improve efficient use of fertilizers |
| | | |
| Land Application & Distribution of Livestock Waste | Sediment, nutrients, odor | Nutrient Management Planning – waste utilization assessment, runoff risk assessment, soil sampling, scheduling, record keeping |
| | | Waste Storage/Composting |
| | | Improve coordination of owner/operators with municipalities and neighbors |
| | | |
| HSA/Riparian Area Protection | Sediment, nutrients, thermal changes | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | Filter Strips |
| | | Riparian Buffers |
| | | Prescribed Grazing systems |
| | | Streambank stabilization practices |
| | | |
| Pasture Management | Sediment, nutrients, thermal changes | Prescribed Grazing Systems |
| | | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | |
| Streambank Erosion | Sediment, thermal changes | Streambank erosion control system |
| | | Riparian buffer systems – restoration and maintenance |
| | | Use exclusion of livestock |
| | | |

| PRIORITY AG ISSUES | PRIORITY POLLUTANTS ADDRESSED | Practices & Management Changes to be Promoted |
|---|---|---|
| Irrigation Water Withdrawal from Streams | Thermal changes | Alternate water supply systems |
| | | Promote water conservation systems – trickle irrigation |
| | | Promote water conservation measures |
| | | |
| Potential for agrichemical spills and runoff | Fertilizers, pesticides | Agrichemical mixing/loading facilities |
| | | Promote selection of alternate low risk mixing/loading sites |
| | | Encourage development of emergency spill response plans |
| | | |
| Operational Costs | N/A | Nutrient Management Planning |
| | | Waste Utilization |
| | | Prescribed grazing |
| | | |
| Farmland Protection | N/A | N/A |

**Attachment No. 1**

**AEM ACCOMPLISHMENTS TO DATE**

- AEM Base (2005 – 2014)

  Tier 1 – 16
  Tier 2 – 8
  Tier 3A – 6
  Tier 3B – 1
  Tier 4 – 14
  Tier 5A – 2
  Tier 5B - 12

- *Eighteenmile Creek Watershed Planning Project* (Round V) - completed

  Tier 1 - 298
  Tier 2 – 52
  Tier 3A – 30

- *CAFO/CNMP Project* (Round VII) – completed
  County-wide project to develop CNMPs on CAFO operations in Erie County – 5 farms completed in Eighteenmile Creek Watershed.

- *Eighteenmile Ag Planning Project* (Round IX) – completed
  CNMPS (Tier 3B) developed for 12 priority farms.

- *Eighteenmile Creek Watershed Ag Implementation Project* (Round XI) - Completed
  Implement best management practices on 5 priority farms in the Upper Buffalo River Watershed. The following Conservation Systems were implemented on 5 farms in Erie County:

  Barnyard Water Management System – 1
  Processed Wastewater Management System – 3
  Access Control System - 1
  Waste Storage and Transfer System – 2
  Silage Leachate Control and Treatment System – 1

- *Eighteenmile Creek Watershed / Lake Erie Direct Protection Project* (Round 19) – In Progress
  Implement best management practices on 7 priority farms in the Upper Buffalo River Watershed.

**Other Grants/Funding:**

- *Eighteenmile Creek Streambank Stabilization Partnership Phase I* (EPF) - $362,706
- *Eighteenmile Creek Streambank Stabilization Partnership Phase II* (EPF) - $292,342
- *Eighteenmile Creek Streambank Restoration and Erosion Control Project* (GLB) - $30,000
- *Eighteenmile Creek Streambank Stabilization Partnership Phase 3 (GLB) - $198,904*

Farm Bill Programs:

- *Environmental Quality Incentives Program (EQIP):*
  FY 2000 – 2014: 49 Contracts

- *Agricultural Management Assistance Program (AMA*):
  FY 2001 – 2011: 19 contracts

- *Conservation Stewardship Program (CSP)*
  FY 2001 – 2014: 14 Contracts

- *Wildlife Habitat Incentives Program (WHIP)*
  FY 2006 – 2014: 1 Contracts

- *Grazing Land Conservation Initiative*:
  Grazing plans completed – 1 farm

**Planning Unit Strategy for**
**CATTARAUGUS CREEK WATERSHED**

## WATER QUALITY ASSESSMENT:

### 2012 PWL

The lower and upper middle portions of the watershed are identified as having minor impacts from silt/sediment, nutrients and thermal changes. Agricultural activity is considered a possible source in both reaches, and streambank erosion is identified as the primary sources. The remaining reaches of the main segments of Cattaraugus Creek are listed as having no known impacts but the narratives for the reaches detail that all reaches were found to have slightly impacted conditions from nutrients and sediments and there is evidence of siltation. The natural resources (fishery) habitat is thought to be affected by silt/sediment loadings and other nonpoint inputs. Clear Lake, a drinking water supply, is impacted by dissolved oxygen demand, nutrients and silt/sediment from agricultural sources. Spring Brook and its tributaries continue to be impacted by silt/sediment, nutrients and thermal changes from areas intensively used by livestock (as cited by the Erie County Water Quality Committee and SWCD, 1996).

### 2002 PWL

In the lower and upper middle portions of the watershed minor impacts from silt/sediment, nutrients and thermal changes are identified. Agricultural activity is considered a possible source in the lower portions, and streambank erosion and agricultural activities are identified as the primary sources in the upper portions of the watershed. The natural resources (fishery) habitat is thought to be affected by silt/sediment loadings and other nonpoint inputs. Clear Lake, a drinking water supply, is impacted by dissolved oxygen demand, nutrients and silt/sediment from agricultural sources. Spring Brook and its tributaries continue to be impacted by silt/sediment, nutrients and thermal changes from areas intensively used by livestock (as cited by the Erie County Water Quality Committee and SWCD, 1996).

### 1996 PWL

The 1996 PWL identifies Cattaraugus Creek as an important fishery resource and that fish habitat is stressed; some portions of Cattaraugus Creek and its tributaries support cold water fishery. Fish propagation is impaired primarily by sediment and thermal warming. Agricultural runoff and nonpoint sources of pollution including enhanced nutrient loadings are considered as problems threatening fish habitat in Cattaraugus Creek and its tributaries.

### 1997 Local Working Group Assessment

The 1997 LWG Priority Area Assessment cites that according to USGS and Erie County Department of Environment and Planning that nearly half of the watershed is underlain by an unconsolidated aquifer vulnerable to pollution by agricultural practices. Sedimentation possibly resulting from overgrazing of pastures is an identified concern.

* The Local Working Group includes Seven Creeks Watershed in the Cattaraugus Creek Watershed Planning Unit because the Priority Area Assessment surveys suggested many similarities between Lower Cattaraugus Creek and Seven Creeks with respect to resource concerns and the distribution of farms identifying a need for technical and financial assistance.

**Source Water Assessment Program (SWAP)**

Pathogens from pasture areas are considered a potential contaminant for community and non-community wells. Herbicides, pesticides and nitrates from row crop land use are also considered potential contaminants for non-community wells in the municipality of Sardinia.

**Other Assessments**

**Cattaraugus Creek Watershed Resource Guide and Proposed Watershed Planning Strategy - 2007**

This resource guide identifies existing resource data and the strategy for completing a watershed plan for Cattaraugus Creek. The overall purpose of the guide was to identify impairments and threats to Cattaraugus Creek and its tributaries and to provide a management strategy to prevent further degradation of the Creek and its tributaries in order to maintain beneficial uses valued by the community. The Resource Guide describes groundwater resources for this watershed as presented in an Environmental Protection Agency (EPA) Aquifer Report from 1987. This report documented that in the Springville area, the unconfined sand and gravel aquifer is exposed and directly recharged at the land surface. This makes the aquifer very susceptible to surface contamination. Results of the water quality analysis indicate that soluble material is entering the aquifer from surface sources. The analysis found that there were elevated nitrogen concentration levels in springs and shallow wells and considered that the likely source of nitrogen is agricultural fertilizers. In the same year, the EPA designated the Cattaraugus Creek Basin Aquifer as a sole source aquifer pursuant to the Safe Drinking Water Act. Due to funding constraints the Resource Guide was never finalized and a watershed plan was never developed.

**Section 729 Watershed Study – Cattaraugus Creek Watershed, NY**
**Initial Watershed Assessment P2#129342**

September 2011

The Cattaraugus Creek IWA is a reconnaissance level report that identifies current existing conditions within the Cattaraugus watershed, details the major problems that threaten the aquatic health of the Cattaraugus watershed and discusses the potential scope and objective of a future Final Watershed Assessment/Watershed Plan.

The Study summarizes surface water quality problems in Section 5.3.3. It highlights that the two main causes of water quality problems as identified from the Waterbody Inventory for the Niagara River/Lake Erie Basin are agricultural activities and streambank erosion which are leading to elevated levels of nutrients and silt/sediment loads. It goes on to state that the New York Heritage Program has also identified that Cattaraugus Creek suffers from high turbidity especially after flash floods. And, although some amount of the suspended sediment is suspected from natural erosion of the clay banks, most of the turbidity can be attributed to agricultural runoff.

**New York State Department of State – Costal Fish & Wildlife Habitat Rating Form**

**Cattaraugus Creek – 1987**
The report outlines the important fisheries habitat that Cattaraugus Creek provides, "Cattaraugus Creek is the largest tributary of Lake Erie in New York State, and there are very few comparable streams in the Great Lakes Plain ecological region. Relatively undisturbed tributary streams that provide habitat for major spawning runs by salmonids and other lake-based fish populations are especially important in this region." The report goes on to recommend that no actions be taken that would degrade water quality or habitat within the watershed.

**Agricultural Environmental Management (AEM)**
AEM has identified that priority agricultural concerns include: silage leachate, barnyard runoff; milking center waste; livestock access to streams; overgrazed pastures; and nutrient management (lack of record keeping, lack of manure testing, excessive manure application and need for manure storage).

**PRIORITY POLLUTANTS:**
*Sediment*: streambank erosion
*Thermal changes:* lack/removal of riparian vegetation; overgrazing of pastures, streambanks and riparian areas.
*Nutrients:* livestock access to streams, fertilizers, barnyards, silage leachate, and manure storage.

**GOALS AND OBJECTIVES:**

See the following charts

**PRACTICES AND MANAGEMENT CHANGES TO BE PROMOTED:**

See the following charts

## Goals & Objectives

Cattaraugus Creek Watershed

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| Farmstead Pollution Sources | Abate and control agricultural pollutants on farmsteads | Sediment, nutrients | Complete AEM planning process |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| Nutrient Management | Encourage development and maintenance of Nutrient Management Plans | Nutrients | Promote nutrient management planning during AEM assessment |
| | | | Promote EQIP incentives for developing plans |
| | | | Partner with CCE to host NMP workshops |
| | | | Maintain a current list of planners for distribution |
| | | | |
| Land Application & Distribution of Livestock Waste | Promote proper storage, transfer and application of livestock waste | Sediment, nutrients, odor | Encourage development of Nutrient Management Plans |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| HSA/Riparian Area Protection | Protect and restore hydrologically sensitive and riparian areas | Sediment, nutrients, thermal changes | Provide technical assistance |
| | | | Develop GIS analysis of agricultural activity adjacent to streams in Clear Lake and Spring Brook Watersheds |
| | | | Conduct AEM assessments and planning on agricultural operations identified by GIS analysis in Clear Lake and Spring Brook Watersheds |
| | | | Implement filter strips and buffers |
| | | | Implement prescribed grazing systems |
| HSA/Riparian Area | | | Prepare grant applications for BMP implementation |

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| Protection, cont. | | | |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Promote/deliver Conservation Reserve Enhancement Program (CREP) |
| | | | |
| Pasture Management | Promote and establish prescribed grazing systems | Sediment, nutrients, thermal changes | Train technician to be grazing systems expert |
| | | | Provide technical assistance |
| | | | Implement grazing systems |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Utilize the NYS Grazing Lands Conservation Initiative (GLCI) to support a local program. |
| | | | Host grazing workshops |
| | | | Develop a “Master Grazer Network” |
| | | | |
| Ag Woodland Management | Support efforts to sustain agricultural forestry | Sediment, thermal changes | Complete AEM Planning Process. |
| | | | Promote Farm Bill Funding Opportunities. |
| | | | Disseminate information regarding woodland management assistance. |
| | | | Promote annual WNY Rural Landowners Workshop |
| | | | |
| Operational Costs | Help farm operations explore ways to reduce costs | N/A | Complete AEM planning process |
| | | | Encourage nutrient management planning on the farm |
| | | | Explore use of prescribed grazing systems |
| | | | Partner with CCE to deliver related workshop |
| | | | |
| Farmland Protection | Support existing farmland protection efforts | N/A | Discuss opportunities about farmland protection and provide referrals during AEM assessments |
| | | | Support Erie County Farm Bureau “Local Right to Farm Law” initiative. |
| | | | Provide info. about Ag. Districts & Agricultural Assessment Program. |

## Practices and Management Changes to be Promoted:

| PRIORITY AG ISSUES | PRIORITY POLLUTANTS ADDRESSED | Practices & Management Changes to be Promoted |
|---|---|---|
| Farmstead Pollution Sources | Sediment, nutrients | Waste handling and collection/treatment systems to control pollution from concentrated sources such as barnyards, manure loading areas, silage storages and milking centers. |
| | | Improve management, layout, structure and size of livestock holding and traffic areas |
| | | Improve separation of clean water from pollution sources |
| | | |
| Nutrient Management | Nutrients | Nutrient Management Planning |
| | | Waste storage/Composting |
| | | Improve efficient use of on-site nutrients/waste utilization |
| | | Improve efficient use of fertilizers |
| | | |
| Land Application & Distribution of Livestock Waste | Sediment, nutrients, odor | Nutrient Management Planning – waste utilization assessment, runoff risk assessment, soil sampling, scheduling, record keeping |
| | | Waste Storage/Composting |
| | | Improve coordination of owner/operators with municipalities and neighbors |
| | | |
| HSA/Riparian Area Protection | Sediment, nutrients, thermal changes | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | Filter Strips |
| | | Riparian Buffers |
| | | Prescribed Grazing systems |
| | | Streambank stabilization practices |
| | | |
| Pasture Management | Sediment, nutrients, thermal changes | Prescribed Grazing Systems |
| | | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | |
| Ag Woodland Management | Sediment, nutrients, thermal changes | Forest Steward Plan development and implementation |
| | | |
| Operational Costs | N/A | Nutrient Management Planning |
| | | Waste Utilization |
| Operational Costs cont. | | Prescribed grazing |
| | | |
| Farmland Protection | N/A | N/A |

**Attachment No. 1**

**AEM ACCOMPLISHMENTS TO DATE**

- Aem Base (2005 – April 2014)
  Tier 1 – 31
  Tier 2 – 10
  Tier 3 – 7
  Tier 4 – 30
  Tier 5A - 2
  Tier 5B - 24

- *Cattaraugus Creek AEM Planning Project* (Round VI) – completed
  Tier 1 – 183
  Tier 2 – 25
  Tier 3A – 18

- *CAFO/CNMP Project* (Round VII) – completed
  County-wide project to develop CNMPs on CAFO operations in Erie County – 2 farms completed in the Cattaraugus Creek/Seven Creek Watershed.

- *Cattaraugus Creek Watershed Ag Implementation Project* (Round XII) - Completed
  Implement best management practices on 5 priority farms in the Cattaraugus Creek Watershed. The following Conservation Systems were implemented on 5 farms in Erie County:

  Barnyard Water Management System – 2
  Processed Wastewater Management System – 1
  Access Control System - 2
  Alternative Watering System – 1
  Silage Leachate Control and Treatment System – 1

- *Cattaraugus Creek Watershed/ Clear Lake Ag Non-point Source Pollution Control Grant Project* (Round 17 ) – In progress
  Joint project with Cattaraugus Co. SWCD to implement additional best management practices on 7 priority farms in Erie County and 3 priority farms in Wyoming County.

**Other Grants/Funding:**

- *Cattaraugus Creek Streambank Restoration Project (NYS Department of State) - $20,025*

- *Spring Brook Stream Restoration and Habitat Improvement (GLB) - $59,000*

Farm Bill Programs:

- *Environmental Quality Incentives Program (EQIP)*
  FY 2004 – 2014: 54 Contracts

- *Agricultural Management Assistance Program (AMA)*
  FY 2001 – 2014: 17 Contracts

- *Conservation Stewardship Program (CSP)*
  FY 2001 – 2014: 5 Contracts

- *Grazing Lands Conservation Initiative (GLCI):*
  Grazing plans completed - 5 farms

**Planning Unit Strategy for**

**TONAWANDA CREEK WATERSHED**

**WATER QUALITY ASSESSMENT:**

**2012 PWL**

The Lower reach of Tonawanda Creek is listed as impaired; fish consumption, aquatic life and recreation are listed as stressed or impaired by PCBs, nutrients and sediments from toxic/ contaminated sediment, urban stormwater runoff, sanitary discharge, streambank erosion and various non-point sources. In the middle and upper segments of the main stem of Tonawanda Creek, agriculture is a known or suspected source of silt/sediment, nutrients, pathogens and thermal changes. The PWL cites that aquatic life support and recreational uses in this portion of the creek are affected by silt/sediment load, nutrients and other nonpoint inputs from streambank erosion and agricultural activities.

In Ellicott Creek, a subwatershed, agriculture is a suspected source of nutrients, silt/sediment, pesticides, thermal changes and dissolved oxygen/oxygen demand and pathogens. The PWL cites that aquatic life support and corresponding recreational uses (fishing) in Ellicott Creek are affected by nutrient and other urban/suburban nonpoint source inputs. Upper reaches of the watershed are more affected by agricultural sources and cattle access to streams that contribute silt/sediment loads and expose the stream to thermal warming.

In Ledge Creek, a subwatershed, agriculture is identified as a primary possible source of nutrients, silt/sediment and pathogens. The PWL cites that aquatic life may be affected by various nonpoint sources.

In the lower and upper portions of Murder Creek, a subwatershed, agriculture is identified as a known or suspected source of dissolved oxygen/oxygen demand, nutrients (phosphorus) and pathogens. The PWL cites that aquatic life and recreational uses are impaired in this portion of Murder Creek.

**2002 PWL**

In the middle portions of the main stem of Tonawanda Creek agriculture is a suspected source of silt/sediment, nutrients, pathogens and thermal changes. The PWL cites that aquatic life support and recreational uses in this portion of the creek are affected by silt/sediment load, nutrients and other nonpoint inputs from streambank erosion and agricultural activities.

In Ellicott Creek, a subwatershed, agriculture is a suspected source of nutrients, silt/sediment, pesticides, thermal changes and dissolved oxygen/oxygen demand and pathogens. The PWL cites that aquatic life support and corresponding recreational uses (fishing) in Ellicott Creek are affected.by nutrient and other urban/suburban nonpoint source inputs. Upper reaches of the watershed are more affected by agricultural sources and cattle access to streams that contribute silt/sediment loads and expose the stream to thermal warming.

In Ledge Creek, a subwatershed, agriculture is identified as a primary possible source of nutrients, silt/sediment and pathogens. The PWL cites that aquatic life may be affected by various nonpoint sources.

In the lower portions of Murder Creek, a subwatershed, agriculture is identified as a possible source of dissolved oxygen/oxygen demand, nutrients (phosphorus) and pathogens. The PWL cites that aquatic life and recreational uses are impaired in this portion of Murder Creek.

**1996 PWL**
The 1996 PWL indicates that primarily fish habitat and opportunities for recreational fishing are impaired in Tonawanda Creek and its tributaries. Agriculture is cited as a pollutant source that is contributing nutrient loadings, thermal changes and sediment which are respectively resulting in algae and aquatic weed growth, warm water flows which degrade the potential for cold water fishery and siltation.

**1997 Local Working Group Priority Assessment**
The 1997 LWG Priority Area Assessment identified Ellicott Creek and Murder Creek as priority watersheds in the Tonawanda Creek Watershed. This assessment cited that erosion vulnerability and nutrient-rich runoff affect aquatic life; many pastures do not adequately exclude livestock from streams and drainageways; barnyard runoff and grazed streambanks may contribute excessive siltation during runoff events; and groundwater contamination has also been attributed to agricultural resources.

**Source Water Assessment Program (SWAP)**
Pathogens from pasture areas are considered a potential contaminant for community and non-community wells. Herbicides, pesticides and nitrates from row crop land use are also considered potential contaminants for non-community wells in the municipality of Newstead.

**Agricultural Environmental Management (AEM)**
AEM has identified that priority agricultural concerns include: silage leachate; barnyard runoff; milking center waste; livestock access to streams; overgrazed pastures; and nutrient management (lack of record keeping, lack of manure testing, excessive manure application and some need for manure storage). Also for consideration in this watershed is the presence of karst topography and the need for more attention to field practices in these areas.

**PRIORITY POLLUTANTS:**
*Sediment and thermal changes*: cropland erosion, streambank erosion, lack of woody riparian vegetation, animal access to stream corridors, and barnyards.
*Nutrients*: improperly managed barnyards – barnyard runoff, animal access to streams and fertilizers
*Pathogens*: barnyard runoff, animal access to streams

**GOALS AND OBJECTIVES:**
See the following charts

**PRACTICES AND MANAGEMENT CHANGES TO BE PROMOTED:**
See the following charts

## Goals & Objectives

Tonawanda Creek Watershed

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| Farmstead Pollution Sources | Abate and control agricultural pollutants on farmsteads | Sediment, nutrients | Complete AEM planning process |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| Nutrient Management | Encourage development and maintenance of Nutrient Management Plans | Nutrients | Promote nutrient management planning during AEM assessment |
| | | | Promote EQIP incentives for developing plans |
| | | | Partner with CCE to host NMP workshops |
| | | | Maintain a current list of planners for distribution |
| | | | |
| Land Application & Distribution of Livestock Waste | Promote proper storage, transfer and application of livestock waste | Sediment, nutrients, odor | Encourage development of Nutrient Management Plans |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| HSA/Riparian Area Protection | Protect and restore hydrologically sensitive and riparian areas | Sediment, nutrients, thermal changes | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Promote/deliver Conservation Reserve Enhancement |
| | | | Program (CREP) |
| Pasture Management | Promote and establish prescribed grazing | Sediment, nutrients, | Train technician to be grazing systems expert |

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| | systems | thermal changes | |
| | | | Provide technical assistance |
| | | | Implement grazing systems |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Utilize the NYS Grazing Lands Conservation Initiative (GLCI) to support a local program. |
| | | | Host grazing workshops |
| | | | Develop a "Master Grazer Network" |
| | | | |
| Equine Operations | Help equine operations to function as environmentally sound agricultural operations | Sediment, nutrients, thermal changes | Complete AEM planning process |
| | | | Provide technical assistance |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Partner with Western Chapter of the New York Horse Council to deliver assistance. |
| | | | |
| Operational Costs | Help farm operations explore ways to reduce costs | N/A | Complete AEM planning process |
| | | | Encourage nutrient management planning on the farm |
| | | | Explore use of prescribed grazing systems |
| | | | Partner with CCE to deliver related workshop |
| | | | |
| Farmland Protection | Support existing farmland protection efforts | N/A | Discuss opportunities about farmland protection and provide referrals during AEM assessments |
| | | | Support Erie County Farm Bureau "Local Right to Farm Law" initiative. |
| | | | Provide information about Agricultural Districts and the Agricultural Assessment Program. |

**Practices and Management Changes to be Promoted:**

| PRIORITY AG ISSUES | PRIORITY POLLUTANTS ADDRESSED | Practices & Management Changes to be Promoted |
|---|---|---|
| Farmstead Pollution Sources | Sediment, nutrients | Waste handling and collection/treatment systems to control pollution from concentrated sources such as barnyards, manure loading areas, silage storages and milking centers. |
| | | Improve management, layout, structure and size of livestock holding and traffic areas |
| | | Improve separation of clean water from pollution sources |
| | | |
| Nutrient Management | Nutrients | Nutrient Management Planning |
| | | Waste storage/Composting |
| | | Improve efficient use of on-site nutrients/waste utilization |
| | | Improve efficient use of fertilizers |
| | | |
| Land Application & Distribution of Livestock Waste | Sediment, nutrients, odor | Nutrient Management Planning – waste utilization assessment, runoff risk assessment, soil sampling, scheduling, record keeping |
| | | Waste Storage/Composting |
| | | Improve coordination of owner/operators with municipalities and neighbors |
| | | |
| HSA/Riparian Area Protection | Sediment, nutrients, thermal changes | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | Filter Strips |
| | | Riparian Buffers |
| | | Prescribed Grazing systems |
| | | Streambank stabilization practices |
| | | |
| Pasture Management | Sediment, nutrients, thermal changes | Prescribed Grazing Systems |
| | | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | |
| Equine Operations | Sediment, nutrients, thermal changes | Waste handling and collection/treatment systems |
| | | Nutrient Management |
| | | Improve land application & distribution of livestock waste |
| | | Improve HSA/riparian area protection |
| Equine Operations, cont. | | Improve pasture and paddock management |

| PRIORITY AG ISSUES | PRIORITY POLLUTANTS ADDRESSED | Practices & Management Changes to be Promoted |
|---|---|---|
| | | |
| Operational Costs | N/A | Nutrient Management Planning |
| | | Waste Utilization |
| | | Prescribed grazing |
| | | |
| Farmland Protection | N/A | N/A |

**Attachment No. 1**

**AEM ACCOMPLISHMENTS TO DATE**

- *AEM Base* (2005 – April 2008)

  Tier 1 – 27
  Tier 2 – 14
  Tier 3A – 11
  Tier 4 – 11
  Tier 5A - 3
  Tier 5B - 23

- *Tonawanda Creek AEM Planning Project* (Round IX) – completed

  Tier 1 – 110
  Tier 2 – 13
  Tier 3A – 5

- *CAFO/CNMP Project* (Round VII) – completed
  County-wide project to develop CNMPs on CAFO operations in Erie County – 2 farms completed in the Tonawanda Creek Watershed.

- *Tonawanda Creek Watershed Ag Implementation Project* (Round XIII) - Completed
  Implement best management practices on 4 priority farms in the Cattaraugus Creek Watershed. The following Conservation Systems were implemented on 4 farms in Erie County:

  Barnyard Water Management System – 3
  Processed Wastewater Management System – 2
  Alternative Watering System – 1
  Access Control System - 3

**Other Grants/Funding:**

- *Murder Creek Streambank Stabilization Project Phase 1 (FEMA Pre Disaster Mitigation) - $800,000*
- *Murder Creek Streambank Stabilization Project Phase 2 (EPF) - $212,000*

Farm Bill Programs:

- *Environmental Quality Incentives Program (EQIP):*
  FY 2004 – 2014: 30 contracts

- *Agricultural Management Assistance Program (AMA):*
  FY 2001 – 2011: 4 contracts

- *Conservation Stewardship Program (CSP)*
  FY 2001 – 2014: 3 Contracts

- *Grazing Lands Conservation Initiative (GLCI):*
  Grazing plans completed – 1 farm

**Planning Unit Strategy for**
**Seven Creeks Watershed**

## WATER QUALITY ASSESSMENT:

### 2010 PWL

Big Sister Creek and Little Sister Creek lower sections are both identified in the PWL as impaired for public bathing, aquatic life and recreation from nutrients, pathogens, silt/sediments and dissolved oxygen. The pollution sources are not know but suspected sources are listed as municipal, urban stormwater runoff, and onsite septic failures. The upper watershed of both big and little sister along with Pike Creek has not been assessed for impacts.

The lower segment of Muddy Creek is listed as impaired for public bathing and recreation from pathogen pollution, which is suspected to be from onsite septic, urban stormwater runoff and possible agriculture. The upper segment of the watershed is listed as having minor impacts. It is suspected that agriculture is contributing high levels of nutrients and is impacting aquatic life.

Delaware Creek in both the upper and lower segments is identified as suffering minor impacts to aquatic life and recreation from nutrients, dissolved oxygen and pathogens. The suspected source of the impacts is listed as agriculture in both segments.

### 1996 PWL

The 1996 PWL identifies Big Sister Creek as being impaired for public bathing, fishing and fish propagation based on pollutants of aesthetics, salts, nutrients and oxygen demand. Sources listed in 96 were municipal WWTP and urban runoff. It was documented that the waste water treatment plant was being upgraded due to several discharges.

### 1997 Local Working Group Assessment

* The Local Working Group includes Seven Creeks Watershed in the Cattaraugus Creek Watershed Planning Unit because the Priority Area Assessment surveys suggested many similarities between Lower Cattaraugus Creek and Seven Creeks with respect to resource concerns and the distribution of farms identifying a need for technical and financial assistance.

### Source Water Assessment Program (SWAP)

Collins Village Wells – There are 2 wells in close proximity to an agriculture facility. The wells are ~35 feet deep with an average water table depth of 4 feet. The wells have a production value of 300 – 400 gallons per minute. Nitrate and protozoa and bacteria were the major threats assessed for the well head area. The reports denotes that there is a CAFO facility within the outer zone for the well and a farm within the inner zone.

Erie County Water Authority Intake & Angola Village - The assessment found a moderate susceptibility to contamination for the Lake Erie source. The amount of agricultural land in the assessment area results in elevated potential of disinfection byproduct precursors and pesticides contamination. While there are some facilities present, permitted discharges do not likely represent an important threat to source water quality based on their density in the assessment area. There is also noteworthy contamination susceptibility associated with other discrete contaminant sources, and these facility types include: landfills.

**Other Assessments**

**New York State Department of State,** *COASTAL FISH & WILDLIFE HABITAT RATING FORM for Big Sister Creek*
The report identifies Big Sister Creek as a major tributary to Lake Erie. It describes the watershed as highly valuable habitat that is unusual in the County. The report goes on to detail the fact that the watershed serves as a spawning stream for 4 different salmonids (Brown Trout, Steelhead, Coho & Chinook Salmon) and for warm water species such as Smallmouth Bass, channel catfish, rock bass, white bass, carp, and possibly freshwater drum and northern pike. It is also noted in the report that there is sand dune habitat at the outlet of Big Sister Creek, and this is the only area in NYS along Lake Erie where this habitat is present. At the time of the report the area was being evaluated by the National Park Service for possible inclusion in the national Coastal Barrier Resources System. The report recommends that no actions be taken in the watershed that would have an adverse impact on water quality or the habitat.

**Agricultural Environmental Management (AEM)**
AEM has identified that priority agricultural concerns include: silage leachate, barnyard runoff; milking center waste; livestock access to streams; overgrazed pastures, integrated crop management; and nutrient management (lack of record keeping, lack of manure testing, excessive manure application and need for manure storage).

**PRIORITY POLLUTANTS:**
*Sediment*: streambank erosion
*Nutrients:* livestock access to streams, fertilizers, barnyards, silage leachate

**GOALS AND OBJECTIVES:**

See the following charts

**PRACTICES AND MANAGEMENT CHANGES TO BE PROMOTED:**

See the following charts

## Goals & Objectives

Seven Creeks Watershed

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| Farmstead Pollution Sources | Abate and control agricultural pollutants on farmsteads | Sediment, nutrients | Complete AEM planning process |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| Nutrient Management | Encourage development and maintenance of Nutrient Management Plans | Nutrients | Promote nutrient management planning during AEM assessment |
| | | | Promote EQIP incentives for developing plans |
| | | | Partner with CCE to host NMP workshops |
| | | | Maintain a current list of planners for distribution |
| | | | |
| Land Application & Distribution of Livestock Waste | Promote proper storage, transfer and application of livestock waste | Sediment, nutrients, odor | Encourage development of Nutrient Management Plans |
| | | | Provide technical assistance |
| | | | Implement agricultural best management practices |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | |
| HSA/Riparian Area Protection | Protect and restore hydrologically sensitive and riparian areas | Sediment, nutrients, thermal changes | Provide technical assistance |
| | | | Develop GIS analysis of agricultural activity adjacent to streams in Clear Lake and Spring Brook Watersheds |
| | | | Conduct AEM assessments and planning on agricultural operations identified by GIS analysis in Clear Lake and Spring Brook Watersheds |
| | | | Implement filter strips and buffers |
| | | | Implement prescribed grazing systems |
| HSA/Riparian Area | | | Prepare grant applications for BMP implementation |

| PRIORITY AG ISSUES | GOALS | PRIORITY POLLUTANTS ADDRESSED | OBJECTIVES |
|---|---|---|---|
| Protection, cont. | | | |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Promote/deliver Conservation Reserve Enhancement Program (CREP) |
| | | | |
| Pasture Management | Promote and establish prescribed grazing systems | Sediment, nutrients, thermal changes | Train technician to be grazing systems expert |
| | | | Provide technical assistance |
| | | | Implement grazing systems |
| | | | Prepare grant applications for BMP implementation |
| | | | Promote Farm Bill funding opportunities for BMP implementation |
| | | | Utilize the NYS Grazing Lands Conservation Initiative (GLCI) to support a local program. |
| | | | Host grazing workshops |
| | | | Develop a “Master Grazer Network” |
| | | | |
| Ag Woodland Management | Support efforts to sustain agricultural forestry | Sediment, thermal changes | Complete AEM Planning Process. |
| | | | Promote Farm Bill Funding Opportunities. |
| | | | Disseminate information regarding woodland management assistance. |
| | | | Promote annual WNY Rural Landowners Workshop |
| | | | |
| Operational Costs | Help farm operations explore ways to reduce costs | N/A | Complete AEM planning process |
| | | | Encourage nutrient management planning on the farm |
| | | | Explore use of prescribed grazing systems |
| | | | Partner with CCE to deliver related workshop |
| | | | |
| Farmland Protection | Support existing farmland protection efforts | N/A | Discuss opportunities about farmland protection and provide referrals during AEM assessments |
| | | | Support Erie County Farm Bureau “Local Right to Farm Law” initiative. |
| | | | Provide information about Agricultural Districts and |
| Farmland Protection, cont. | | | the Agricultural Assessment Program. |

## Practices and Management Changes to be Promoted:

| PRIORITY AG ISSUES | PRIORITY POLLUTANTS ADDRESSED | Practices & Management Changes to be Promoted |
|---|---|---|
| Farmstead Pollution Sources | Sediment, nutrients | Waste handling and collection/treatment systems to control pollution from concentrated sources such as barnyards, manure loading areas, silage storages and milking centers. |
| | | Improve management, layout, structure and size of livestock holding and traffic areas |
| | | Improve separation of clean water from pollution sources |
| | | |
| Nutrient Management | Nutrients | Nutrient Management Planning |
| | | Waste storage/Composting |
| | | Improve efficient use of on-site nutrients/waste utilization |
| | | Improve efficient use of fertilizers |
| | | |
| Land Application & Distribution of Livestock Waste | Sediment, nutrients, odor | Nutrient Management Planning – waste utilization assessment, runoff risk assessment, soil sampling, scheduling, record keeping |
| | | Waste Storage/Composting |
| | | Improve coordination of owner/operators with municipalities and neighbors |
| | | |
| HSA/Riparian Area Protection | Sediment, nutrients, thermal changes | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | Filter Strips |
| | | Riparian Buffers |
| | | Prescribed Grazing systems |
| | | Streambank stabilization practices |
| | | |
| Pasture Management | Sediment, nutrients, thermal changes | Prescribed Grazing Systems |
| | | Promote use exclusion to permanently remove livestock from streams and HSA's; use practices such as fencing, stabilized laneways, stream crossings and alternate water supplies to help landowner transition to new livestock management system. |
| | | |
| Ag Woodland Management | Sediment, nutrients, thermal changes | Forest Steward Plan development and implementation |
| | | |
| Operational Costs | N/A | Nutrient Management Planning |
| | | Waste Utilization |
| Operational Costs cont. | | Prescribed grazing |
| | | |
| Farmland Protection | N/A | N/A |

**Attachment No. 1**

**AEM ACCOMPLISHMENTS TO DATE**

- Aem Base (2005 – April 2008)
  Tier 1 – 9
  Tier 2 – 7
  Tier 3 – 6
  Tier 4 – 5
  Tier 5B - 1

- *Cattaraugus Creek AEM Planning Project* (Round VI) – completed
  * At the time of the application Seven Creeks Watershed was included as part of Cattaraugus Creek Watershed
  Tier 1 – 183
  Tier 2 – 25
  Tier 3A – 18

- *Seven Creeks Watershed Ag Implementation Project* (Round 15) – completed
  Implement best management practices on 1 priority farm in the Seven Creeks Watershed. The following Conservation System was implemented on 1 farm in Erie County:

  Waste Storage and Transfer System - 1

**Other Grants/Funding:**

- *Bennett Beach Habitat Restoration Project (Scott's Naturals) - $5,000*

Farm Bill Programs:

- *Environmental Quality Incentives Program (EQIP):*
  FY 2004 – 2014: 11 contracts

- *Agricultural Management Assistance Program (AMA):*
  FY 2001 – 2011: 4 contracts

- *Conservation Stewardship Program (CSP)*

FY 2001 – 2014: 3 Contracts