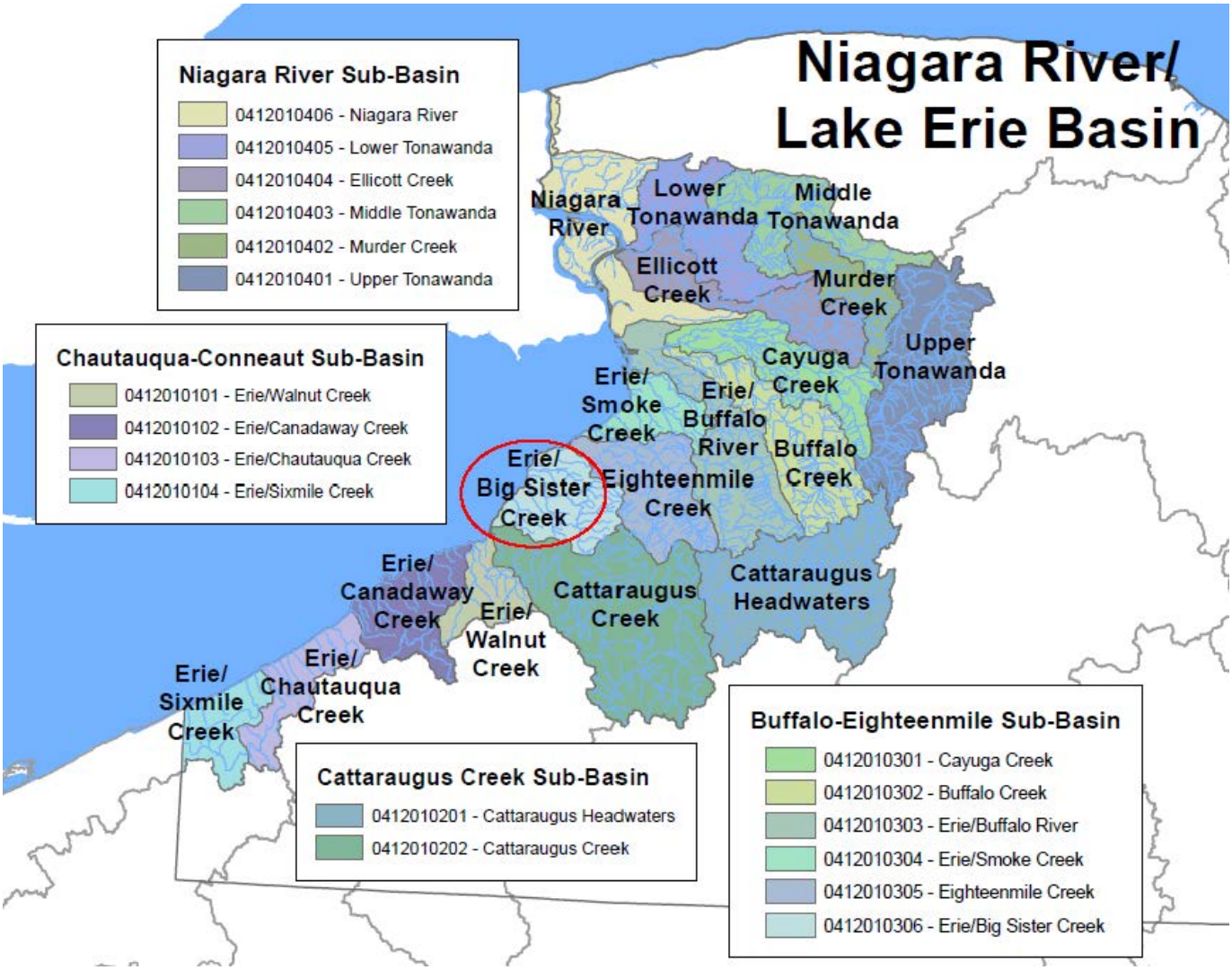

Big Sister Creek-Frontal Lake Erie
(0412010306)

Water Index Number	Waterbody Segment	Category
Ont 158-E (portion 6)	Lake Erie (Main Lake, North) (0104-0037)	**Impaired Seg**
Ont 158..E-14 thru 22 (selected)	Minor Tribs to Lake Erie (0104-0042)	UnAssessed
Ont 158..E-15	Pike Creek, Lower, and tribs (0104-0043)	UnAssessed
Ont 158..E-15	Pike Creek, Upper, and tribs (0104-0044)	UnAssessed
Ont 158..E-19	Little Sister Creek, Lower, and tribs (0104-0045)	**Impaired Seg**
Ont 158..E-19	Little Sister Creek, Upper, and tribs (0104-0046)	UnAssessed
Ont 158..E-20	Big Sister Creek, Lower, and tribs (0104-0013)	**MinorImpacts**
Ont 158..E-20	Big Sister Creek, Upper, and tribs (0104-0047)	UnAssessed
Ont 158..E-20-13	Rythus Creek and tribs (0104-0048)	**NoKnownImpct**
Ont 158..E-21	Delaware Creek, Lower, and tribs (0104-0049)	**MinorImpacts**
Ont 158..E-21	Delaware Creek, Upper, and tribs (0104-0050)	**MinorImpacts**
Ont 158..E-22	Muddy Creek, Lower, and tribs (0104-0051)	**Impaired Seg**
Ont 158..E-22	Muddy Creek, Upper, and tribs (0104-0052)	**MinorImpacts**

Lake Erie (Main Lake, North) (0104-0037) Impaired Seg

Waterbody Location Information

Revised: 05/07/2010

Water Index No: Ont 158-E (portion 6)
Hydro Unit Code: 04120103/010 **Str Class:** A-Spcl
Waterbody Type: G.Lakes
Waterbody Size: 15.7 ShrMi
Seg Description: portion as described below

Drain Basin: Lake Erie-Niagara River
Buffalo/Eighteenmile
Reg/County: 9/Erie Co. (15)
Quad Map: ANGOLA (K-04-2)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Known
FISH CONSUMPTION	Impaired	Known
RECREATION	Impaired	Known

Type of Pollutant(s)

Known: PRIORITY ORGANICS (PCBs), PATHOGENS
Suspected: - - -
Possible: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: TOX/CONTAM. SEDIMENT, URBAN/STORM RUNOFF,
Possible: On-Site/Septic Syst

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: DEC/Reg9 **Resolution Potential:** Medium
TMDL/303d Status: 1,2b (Individual Waterbody Impairment Requiring a TMDL, more)

Further Details

Overview

Public bathing, recreational uses and fish consumption in this reach of the Lake Erie shoreline are impaired due to pathogen contamination from various sources that result in periodic bathing beach closures, and from PCBs and other contaminants from lake sediments. Water supply use of Lake Erie is considered to be threatened by contaminants from various sources. The designation of this waterbody as a threatened water is reflective of a need to protect its particular resource value, rather than specifically identified threats.

Public Bathing Use

Public bathing and other recreational uses of this portion of the Lake Erie shoreline are also impaired due to pathogen contamination from various sources that result in periodic bathing beach closures. Monitoring of beaches along this reach have found levels of bacteriological contamination that exceed water quality standards for public bathing uses and result in periodic beach closures. Within this reach sampling at Evan Town Park Beach found 29% of all samples collected in 2008 exceeded bacterial standards resulting in 19 beach action days, Lake Erie Beach samples exceeded standards 26% of the time resulting in 17 beach action days, and Wendt Beach samples exceeded standards 19% of the time with 16 beach action days. Other beaches in this reach with significant exceedences of standards include Point Breeze Camp and Bennett

Beach. (Alliance for the Great Lakes, February 2010 and Testing the Waters, Natural Resources Defense Council, 2009)

Fish Consumption Advisories

Fish consumption in Lake Erie is impaired by a NYS DOH health advisory that recommends that women of childbearing age and children under the age of 15 eat no more than one meal per month of certain species due to PCB contamination. Advisories for this population regarding some species (smaller chinook salmon, burbot, freshwater drum, lake whitefish, rock bass and yellow perch) recommend a less restrictive limit of no more than one meal per week - the same as the general (statewide) advisory for fish consumption for all people. However, because the more stringent restrictions apply to a significantly large population, fish consumption in the Lake Erie is considered to be impaired. (2002-03 NYS DOH Health Advisories, October 2002).

Source (Drinking) Water Assessment

A source water assessment of Lake Erie found a moderate susceptibility to contamination for this source of drinking water. This level of susceptibility is typical of many water supplies that experience no impacts to water supply use and reflects the need to protect the resource. The amount of agricultural lands in the assessment area results in elevated potential for protozoa and DBP precursor contamination. There is also a high density of sanitary wastewater discharges which results in elevated susceptibility for nearly all contaminant categories. There is also noteworthy contamination susceptibility associated with other discrete contaminant sources, such as inactive hazardous waste sites and landfills. This assessment was conducted through the NYSDOH Source Waters Assessment Program (SWAP) which compiles, organizes, and evaluates information regarding possible and actual threats to the quality of public water supply (PWS) sources. The information contained in SWAP assessment reports assists in the oversight and protection of public water systems. It is important to note that SWAP reports estimate the potential for untreated drinking water sources to be impacted by contamination and do not address the quality of treated finished potable tap water. This water supply source provides water to the City of Buffalo and Erie County Water Authority. (NYSDOH, Source Water Assessment Program, 2005)

Although there are no specific water quality impacts, the segment is considered a highly valued water resource due to its drinking water supply classification and the need to provide additional protection, which may result in an assessment of threatened (possible) for drinking water use. But in spite of this possible threat, it is appropriate to consider the waterbody to have No Known Impacts. The class A-Special designation reflects that the river is an international boundary water. (DEC/DOW, BWAM/WQAS, May 2010)

Section 303(d) Listing

This segment of the Lake Erie Shoreline was included on the 2010 Section 303(d) List of Impaired Waters. The segment has long been listed on Part 2b of the List due to fish consumption advisories related to PCB levels. A listing for this segment due to pathogen contamination was added in 2010; this listing is included in Part 1 as an impaired waterbody requiring development of a TMDL to attain water quality standards. (DEC/DOW, BWAM/WQAS, May 2010)

Segment Description

This segment includes the lake shoreline southwest of the mouth of Eighteenmile Creek, and northeast of the mouth of Cattaraugus Creek. The waters of this segment are an international boundary water and are designated Class A-Spcl.

Little Sister Creek, Lower, and tribs (0104-0045) Impaired Seg

Waterbody Location Information

Revised: 06/01/2010

Water Index No:	Ont 158..E-19			**Drain Basin:**	Lake Erie-Niagara River
Hydro Unit Code:	04120103/010	**Str Class:**	B		Buffalo/Eighteenmile
Waterbody Type:	River			**Reg/County:**	9/Erie Co. (15)
Waterbody Size:	4.0 Miles			**Quad Map:**	ANGOLA (K-04-2)
Seg Description:	stream and tribs, from mouth to Route 5				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Public Bathing	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known

Type of Pollutant(s)

Known: - - -
Suspected: NUTRIENTS (phosphorus), PATHOGENS, D.O./Oxygen Demand
Possible: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: - - -
Possible: ON-SITE/SEPTIC SYST

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: DOW/Reg9 **Resolution Potential:** Medium
TMDL/303d Status: 3b (Waterbody Requiring Verification of Cause/Pollutant)

Further Details

Overview
Aquatic life support and recreational uses in this portion of Little Sister Creek are known to be impaired. Additional sampling is necessary to determine the specific pollutants and sources of the problems. Based on surrounding land use, failing and/or inadequate on-site septic systems are a possible cause.

Water Quality Sampling
A biological (macroinvertebrate) assessment of Little Sister Creek in Evans Center (at Route 5) was conducted as part of the RIBS biological screening effort in 2005. Sampling results indicated moderately impacted conditions. In such samples sensitive species are markedly reduced or missing and the distribution of major groups is significantly unbalanced relative to what would be expected. Samples are dominated by more tolerant species. The nutrient biotic index indicates highly elevated enrichment. Water quality is considered to be poor and aquatic life is not fully supported in the stream. This segment is considered to be impaired. (DEC/DOW, BWAM/SBU, January 2009)

These results are consistent with results from sampling conducted at the site in 2000. Sampling results at that time also indicated moderately impacted water quality conditions. The fauna was dominated by midges and scuds, and Impact

Source Determination indicated that municipal/industrial inputs were the primary cause of impact. (DEC/DOW, BWAR/SBU, April 2003)

Section 303d Listing

Little Sister Creek is included on the NYS 2010 Section 303(d) List of Impaired Waters. The lake is included on Part 3 of the List as an impaired for which TMDL development may be deferred due to a need to verify the pollutant. This waterbody was first listed on the 2004 Section 303(d) List. (DEC/DOW, BWAM/WQAS, January 2010)

Segment Description

This segment includes the portion of the stream from the mouth to Route 5, including lower portion of trib -1. The waters of this reach/segment are Class B.

Big Sister Creek, Lower, and tribs (0104-0013) MinorImpacts

Waterbody Location Information

Revised: 06/01/2010

Water Index No: Ont 158..E-20
Hydro Unit Code: 04120103/010 **Str Class:** C*
Waterbody Type: River
Waterbody Size: 19.5 Miles
Seg Description: stream and tribs, from mouth to Pontiac

Drain Basin: Lake Erie-Niagara River
Buffalo/Eighteenmile
Reg/County: 9/Erie Co. (15)
Quad Map: ANGOLA (K-04-2)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Public Bathing	Stressed	Possible
Aquatic Life	Stressed	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: - - -
Suspected: AESTHETICS (floatables), NUTRIENTS
Possible: D.O./Oxygen Demand, Pathogens, Silt/Sediment

Source(s) of Pollutant(s)

Known: - - -
Suspected: MUNICIPAL (unknown), Urban/Storm Runoff
Possible: On-Site/Septic Syst

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 3 (Cause Identified, Source Unknown)
Lead Agency/Office: DEC/Reg9 **Resolution Potential:** Medium
TMDL/303d Status: n/a

Further Details

Overview

Aquatic life support and recreational uses (swimming, fishing) in this portion of Big Sister Creek are impacted by nutrient and possible sewage inputs. Some of the previously cited problems at the Angola WWTP have been addressed with plant upgrades and expansions in the mid 1990s. The wastewater treatment plant is in compliance with its SPDES permit. Based on surrounding land use, failing and/or inadequate on-site septic systems are a possible cause.

Water Quality Sampling

A biological (macroinvertebrate) assessment of Big Sister Creek in Evans, Erie County, (at Route 5) was conducted as part of the RIBS biological screening effort in 2005. A sample was also collected in Angola (at Cain Road). Sampling results at both sites indicated the lower range of slightly impacted conditions. In such samples some replacement of sensitive ubiquitous species by more tolerant species occurs, although the sample also includes a balanced distribution of all expected species. Aquatic life is considered to be fully supported in the stream, however the community composition and nutrient biotic evaluation suggest conditions and levels of enrichment are sufficient to cause some stress to aquatic life. Impact source determination found the fauna to be most similar to communities influenced by impoundment effects municipal point and nonpoint sources. (DEC/DOW, BWAM/SBU, June 2010)

NYSDEC Rotating Intensive Basin Studies (RIBS) Intensive Network monitoring of Big Sister Creek at this site was conducted in 2001. Sampling of the water column, sediments, and invertebrate tissues was conducted, as well as macroinvertebrate community analysis. Biological sampling results indicated slightly impacted water quality. Nutrient enrichment and municipal/industrial inputs were the likely source of impacts. The fauna was dominated by facultative and tolerant midges. The site was previously assessed as moderately impacted in 1993 and 2000, and non-impacted in 1994. Water column sampling revealed iron to be the only parameter of concern. Toxicity testing of the water column showed no significant mortality or reproductive impacts. Bottom sediment sampling results revealed arsenic, copper, nickle and zinc to be exceeding the Threshold Effects level - levels at which adverse impacts occasionally occur. Due to the fluctuating water quality assessments, continued monitoring is recommended for this site. (DEC/DOW, BWAR/RIBS, January 2005)

Segment Description

This segment includes the portion of the stream and all tribs from the mouth to Rythus Creek (-2) in Pontiac. The waters of this portion of the stream are Class B from the mouth to Old Lake Shore Road (0.6 mi) and Class C,C(T) for the remainder of the reach. Tribs to this reach/segment are also Class C. Rythus Creek (-2) is listed separately.

Rythus Creek and tribs (0104-0048) NoKnownImpct

Waterbody Location Information

Revised: 05/09/2003

Water Index No: Ont 158..E-20-13
Hydro Unit Code: 04120103/010 **Str Class:** C
Waterbody Type: River
Waterbody Size: 19.4 Miles
Seg Description: entire stream and tribs

Drain Basin: Lake Erie-Niagara River
Buffalo/Eighteenmile
Reg/County: 9/Erie Co. (15)
Quad Map: EDEN (K-05-1)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
NO USE IMPAIRMNT		

Type of Pollutant(s)

Known: - - -
Suspected: - - -
Possible: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: - - -
Possible: - - -

Resolution/Management Information

Issue Resolvability: 8 (No Known Use Impairment)
Verification Status: (Not Applicable for Selected RESOLVABILITY)
Lead Agency/Office: n/a **Resolution Potential:** n/a
TMDL/303d Status: n/a

Further Details

Water Quality Sampling
A biological (macroinvertebrate) assessment of Rythus Creek in Pontiac (at New Jerusalem Road) was conducted in 2000. Sampling results indicated slightly impacted water quality conditions. The fauna was diverse, and only siltation was indicated as a source of impact. Despite these conditions, aquatic life is considered to be fully supported in the stream, and there are no other apparent water quality impacts to designated uses. (DEC/DOW, BWAR/SBU, April 2003)

Segment Description
This segment includes the entire stream and all tribs. The waters of the stream are Class C. Tribs to this reach/segment are also Class C.

Delaware Creek, Lower, and tribs (0104-0049) MinorImpacts

Waterbody Location Information

Revised: 06/01/2010

Water Index No: Ont 158..E-21
Hydro Unit Code: 04120103/010 **Str Class:** B(TS)
Waterbody Type: River
Waterbody Size: 2.5 Miles
Seg Description: stream and tribs, from mouth to Route 5

Drain Basin: Lake Erie-Niagara River
Buffalo/Eighteenmile
Reg/County: 9/Erie Co. (15)
Quad Map: ANGOLA (K-04-2)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Suspected
Recreation	Stressed	Suspected

Type of Pollutant(s)

Known: - - -
Suspected: NUTRIENTS, D.O./Oxygen Demand
Possible: Pathogens

Source(s) of Pollutant(s)

Known: - - -
Suspected: AGRICULTURE, On-Site/Septic Syst
Possible: - - -

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 3 (Cause Identified, Source Unknown)
Lead Agency/Office: DOW/Reg9 **Resolution Potential:** Medium
TMDL/303d Status: n/a

Further Details

Overview

Aquatic life support and recreational uses in this portion of Delaware Creek are thought to experience minor impacts due to in this portion of Delaware Creek. Additional sampling is necessary to determine the specific source of the problems. Based on surrounding land use, agricultural nonpoint source runoff and failing and/or inadequate on-site septic systems are a possible cause.

Water Quality Sampling

A biological (macroinvertebrate) assessment of Delaware Creek in Angola (at Route 5) was conducted as part of the RIBS biological screening effort in 2005. Sampling results indicated the lower range of slightly impacted conditions. In such samples some replacement of sensitive ubiquitous species by more tolerant species occurs, although the sample also includes a balanced distribution of all expected species. Aquatic life is considered to be fully supported in the stream, however the community composition suggests conditions are sufficient to cause some stress to aquatic life. Impact source determination found the fauna to be most similar to communities influenced by impoundment effects, which may overstate the suggested biological impacts. (DEC/DOW, BWAM/SBU, June 2010)

These results are consistent with results from sampling conducted at this site in 2000. Sampling results at that time

indicated slightly impacted water quality conditions. The fauna was dominated by facultative midges and black fly larvae, and municipal/industrial inputs was the likely cause of impact. (DEC/DOW, BWAR/SBU, April 2003)

Segment Description
This segment includes the portion of the stream and all tribs from the mouth to Route 5. The waters of this reach/segment are Class B(TS). Tribs to this reach/segment are Class B.

Delaware Creek, Upper, and tribs (0104-0050) MinorImpacts

Waterbody Location Information

Revised: 06/01/2010

Water Index No: Ont 158..E-21
Hydro Unit Code: 04120103/010 **Str Class:** C
Waterbody Type: River
Waterbody Size: 20.5 Miles
Seg Description: stream and tribs, above Route 5

Drain Basin: Lake Erie-Niagara River
Buffalo/Eighteenmile
Reg/County: 9/Erie Co. (15)
Quad Map: FARNHAM (K-04-3)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Suspected
Recreation	Stressed	Suspected

Type of Pollutant(s)

Known: - - -
Suspected: NUTRIENTS, D.O./Oxygen Demand
Possible: Pathogens

Source(s) of Pollutant(s)

Known: - - -
Suspected: AGRICULTURE
Possible: On-Site/Septic Syst

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 3 (Cause Identified, Source Unknown)
Lead Agency/Office: DOW/Reg9 **Resolution Potential:** Medium
TMDL/303d Status: n/a

Further Details

Overview

Aquatic life support and recreational uses in this portion of Delaware Creek are thought to experience minor impacts due to in this portion of Delaware Creek. Additional sampling is necessary to determine the specific source of the problems. Based on surrounding land use, agricultural nonpoint source runoff and failing and/or inadequate on-site septic systems are a possible cause.

Water Quality Sampling

A biological (macroinvertebrate) assessment of Delaware Creek in Angola (at Route 5) was conducted as part of the RIBS biological screening effort in 2005. Sampling results indicated the lower range of slightly impacted conditions. In such samples some replacement of sensitive ubiquitous species by more tolerant species occurs, although the sample also includes a balanced distribution of all expected species. Aquatic life is considered to be fully supported in the stream, however the community composition suggests conditions are sufficient to cause some stress to aquatic life. Impact source determination found the fauna to be most similar to communities influenced by impoundment effects, which may overstate the suggested biological impacts. (DEC/DOW, BWAM/SBU, June 2010)

These results are consistent with results from sampling conducted at this site in 2000. Sampling results at that time

indicated slightly impacted water quality conditions. The fauna was dominated by facultative midges and black fly larvae, and municipal/industrial inputs was the likely cause of impact. (DEC/DOW, BWAR/SBU, April 2003)

Segment Description

This segment includes the portion of the stream and all tribs above Route 5. The waters of this portion of the stream are Class C,C(TS). Tribs to this reach/segment are also Class C.

Muddy Creek, Lower, and tribs (0104-0051) Impaired Seg

Waterbody Location Information

Revised: 05/07/2010

Water Index No:	Ont 158..E-22			**Drain Basin:**	Lake Erie-Niagara River
Hydro Unit Code:	04120103/010	**Str Class:**	B		Buffalo/Eighteenmile
Waterbody Type:	River			**Reg/County:**	9/Erie Co. (15)
Waterbody Size:	2.4 Miles			**Quad Map:**	FARNHAM (K-04-3)
Seg Description:	stream and tribs, from mouth to tribs -a				

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Known
RECREATION	Impaired	Known

Type of Pollutant(s)

Known: PATHOGENS
Suspected: - - -
Possible: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: UNKNOWN SOURCE, URBAN/STORM RUNOFF, On-Site/Septic Syst
Possible: Agriculture,

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 3 (Cause Identified, Source Unknown)
Lead Agency/Office: DOW/Reg9 **Resolution Potential:** Medium
TMDL/303d Status: 3a (Waterbody Requiring Verification of Impairment)

Further Details

Overview
Public bathing and recreational uses in this portion of Muddy Creek is known to be impaired due to pathogens from unidentified sources. Urban/storm runoff and other nonpoint sources farther up in the watershed are possible sources.

Water Quality Sampling
Monitoring by the Erie County Department of Health was conducted to evaluate pathogen contributions from the creek to beach closings at the Lake Erie Beach near the mouth of the stream. This sampling found wet-weather levels of pathogens to be high. Specific sources were not identified, but urban runoff and other sanitary sources are the suspected source. (Erie County Health, December 2009)

A biological (macroinvertebrate) assessment of Muddy Creek in Lake Erie Beach (at Lake Shore Road) was conducted as part of the RIBS biological screening effort in 2005. Sampling results indicated slightly impacted conditions. In such samples the community is slightly altered from natural conditions. Some sensitive species are not present and a the overall abundance of macroinvertebrates is lower. However, the effects on the fauna appear to be relatively insignificant and water quality is considered to be good. The nutrient biotic index and impact source determination indicate low enrichment in the stream and a fauna that is most similar to communities influenced by siltation from nonpoint sources. Aquatic life support

is considered to be fully supported in the stream. These results represent an improvement over previous sampling of Muddy Creek at this site in 2000. Sampling results at that time indicated moderately impacted water quality conditions. Impact Source Determinate indicated that municipal/industrial inputs of a toxic nature were the likely cause of the impact. The biological data show a dramatic improvement in the mayfly community with more and new species present. The greatest change reflected in the community assessment is a result of the decrease in pollution-tolerant sow bugs from 22 in 2000 to just 1 in 2005. A reduction in other tolerant midge taxa was also noted. Some of the chemical parameters such as dissolved oxygen and specific conductance also improved. It was also noted that the sampling was conducted in a low flow year and absent that, conditions might have been further improved. (DEC/DOW, BWAM/SBU, November 2009)

Water Quality Management

The improvement in water quality is thought to be due, in part, to a reduction in sanitary sewer overflows (during wet weather) in the Erie County SD#2 collection system. The district has implemented infiltration and inflow reduction efforts over the last few years as required in a SPDES permit compliance schedule. (DEC/DOW, Region 9, December 2009)

Section 303d Listing

Lower Muddy Creek is currently included on the NYS 2010 Section 303(d) List of Impaired Waters. In the 2008 List the stream was included on Part 3b as a Cause/Pollutant, however this updated assessment suggests that the suspected aquatic toxicity reflected in previous biological sampling have been significantly reduced and are no longer sufficient to warrant continued listing for unknown toxicity. More recent findings regarding pathogen levels raise some concern and suggest listing of this segment for that pollutant. As a result the listing was changed to a listing for pathogen and included in Part 3a of the List a Water Requiring Verification of Impairment. (DEC/DOW, BWAM/WQAS, May 2010)

Segment Description

This segment includes the portion of the stream and all tribs from the mouth to unnamed trib (-a), which enters just below Reeves Road in Lake Erie Beach. The waters of this reach/segment are Class B. Tribs to the reach/segment are also Class B.

Muddy Creek, Upper, and tribs (0104-0052) MinorImpacts

Waterbody Location Information

Revised: 11/13/2009

Water Index No: Ont 158..E-22
Hydro Unit Code: 04120103/010 **Str Class:** C
Waterbody Type: River
Waterbody Size: 22.3 Miles
Seg Description: stream and tribs, above trib -a

Drain Basin: Lake Erie-Niagara River
Buffalo/Eighteenmile
Reg/County: 9/Erie Co. (15)
Quad Map: FARNHAM (K-04-3)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known

Type of Pollutant(s)

Known: - - -
Suspected: NUTRIENTS
Possible: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: AGRICULTURE
Possible: - - -

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/WQCC **Resolution Potential:** Medium
TMDL/303d Status: n/a

Further Details

Overview
Aquatic life in this portion of Muddy Creek is known to experience minor impacts due to nutrient enrichment from agricultural and other nonpoint sources.

Water Quality Sampling
A biological (macroinvertebrate) survey/assessment of Muddy Creek in Irving (at Route 249) was conducted as part of the RIBS biological screening effort in 2005. Sampling results indicated slightly impacted conditions. In such samples some replacement of sensitive ubiquitous species by more tolerant species occurs, although the sample also includes a balanced distribution of all expected species. Aquatic life is considered to be fully supported in the stream, however the community composition and nutrient biotic evaluation suggest conditions and levels of enrichment are sufficient to cause some stress to aquatic life. Due to low flows and less than suitable sampling habitat, the sample was evaluated using "sandy stream" criteria to provide a better representation of the actual conditions. the stream watershed drains significant cropland areas beyond the I-90 crossing, which is thought to be the source of the nutrient load. (DEC/DOW, BWAM/SBU, November 2009)

Segment Description

This segment includes the portion of the stream and all tribs above unnamed trib (-a), which enters just below Reeves Road in Lake Erie Beach. The waters of this portion of the stream are Class C. Tribs to this reach/segment are also Class C.