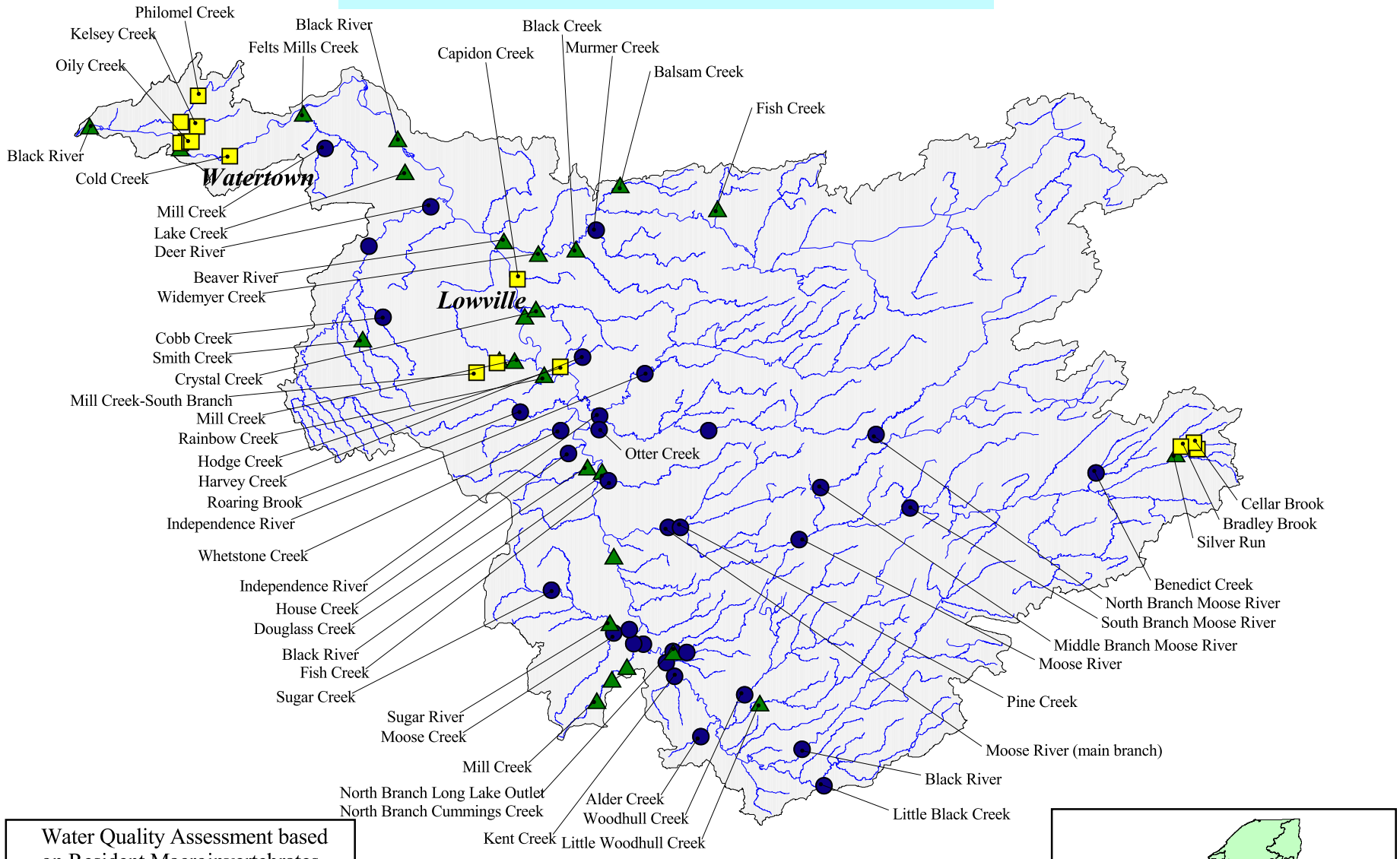
Black River Drainage Basin



BLACK RIVER DRAINAGE BASIN SAMPLING SITES, 1972-2002

STATION	LOCATION	YEAR SAMPLED								
ALDER CREEK (ALDR)										
01	Alder Creek, below Egypt Rd bridge									02
BALSAM CREEK (BALS)										
01	Near Belfort, Erie Canal Rd.							96		02
BEAVER RIVER (BLCK)										
09	Above Crogham, Indian River Rd bridge	76	82							
10	Naumburg, at Van Amber Rd bridge	76	82		91	92			97	02
BENEDICT CREEK (BENE) (Hamilton County)										
01	The Plains, Otter Brook Rd.									02
BLACK CREEK (BLAC)										
01	Croghan, below Rt. 126 bridge							96		02
BLACK RIVER (BLCK)										
A	Enos, below Enos Rd./ Bellingertown Rd.							96		
B	Hawkinsville, above Hawkinsville Rd. bridge							96	97	02
00	Boonville, Moose River Rd, Norton Rd				91					
01	Port Leyden, above Davis Rd bridge	76	82			92			97	02
04A	Lyons Falls, above lagoon discharge							96		
04B	Lyons Falls, below lagoon discharge							96		
04	Greig, Burdicks Crossing Rd bridge	76	82	86	91					02
05	Below Glenfield, above Whetstone Creek confl	76								
05A	Below Glenfield, below Roaring Brook confl		82							
06	Above Lowville, Number Four Rd bridge	76	82							
07	Below Lowville, Rte 26A bridge	76	82						97	02
08	Castorland, above Beaver River confl	76	82							
11	Above Carthage, above village line	76	82							
12	Below Carthage, above Herring dam	76	82			92			97	02
13	Below Deferiet, below dam	76	82							
14	Above Watertown, Duffey Rd	76	82							

BLACK RIVER DRAINAGE BASIN SAMPLING SITES, 1972-2002

STATION	LOCATION	YEAR SAMPLED						
BLACK RIVER (BLCK) cont'd.								
15	In Watertown, Vanduzee St bridge	76	82		91			
16	Below Dexter, below Rt. 180 bridge	76	82	86	91		97	02
17	Black River Bay, from mouth	76						
BRADLEY BROOK (SLVR)								
03	Arietta, above Silver Run confluence		80					02
CAPIDON CREEK (CDON)								
01	Naumburg, Van Amber Rd							02
CELLAR BROOK (SLVR)								
02	Arietta, above Silver Run		80					02
COBB CREEK (COBB)								
01	Bellwood, below Cobb Rd							02
COLD CREEK (COLC)								
01	East Watertown, above Ridge Rd bridge							02
CRYSTAL CREEK (CRYS)								
01	below New Bremen, below VanAmber Rd. bridge					96		
CUMMINGS CREEK (CMMG)								
02	Hawkinsville, below Cummings Rd							02
CUMMINGS CREEK, NORTH BRANCH (CMMG)								
01	Hawkinsville, below Smith Rd bridge							02
DEER RIVER (DEER)								
00	Liberty Corners, above McDonald Rd bridge							02
01	Copenhagen, above Rt. 12 bridge					96		02
02	Deer River, above Rt.26 bridge					96		02
DOUGLASS CREEK (DOUG)								
01	Greig, below Rte 12 bridge							02
FELTS MILLS CREEK (FELT)								
01	Felts Mills, above Rt. 3 bridge					96		02
FISH CREEK (FSHB)								
01	near Eagle Falls, off Fish Creek Rd							02

BLACK RIVER DRAINAGE BASIN SAMPLING SITES, 1972-2002

STATION	LOCATION	YEAR SAMPLED							
FISH CREEK (FSHC)									
01	Grieg, Fish Creek Rd.,off Grieg Rd. at DEC fishing access					96			02
HARVEY CREEK (HARV)									
01	Bushes Landing, below culvert crossing #4 Rd								02
HODGE CREEK (HODG)									
01	Bushes Landing, #4 Rd								02
HOUSE CREEK (HOUS)									
01	Glenfield, above Lover's Lane bridge								02
INDEPENDENCE RIVER (INDY)									
01	Sperryville, McPhilmy Rd. bridge; dead end at river					96			
02	Pine Grove, near Otter Creek, below Pine Grove Rd. bridge					96			02
KELSEY CREEK (KLSY)									
02	Watertown, below Rte 37 bridge			91				00	02
04	Watertown, below Rte 12 bridge			91				00	02
05	Watertown, above Railroad bridge at Rte 12E			91		96		00	02
KENT CREEK (KNTC)									
01	Hawkinsville, below LaChausse/Hays Rd bridge								02
LAKE CREEK (LKCR)									
01	West Carthage, above Lumburg Forks Rd								02
LITTLE BLACK CREEK (LBLK)									
01	Bardwell Mills, Roberts Rd. bridge at DEC fishing access					96			02
LITTLE WOODHULL CREEK (LWDH)									
01	Woodhull at Anos Siding, above Kincaid Rd. bridge;below spillway					96			02
MILL CREEK (MILB)									
00	Above Boonville, below Murry Hill Rd.						97		
01	Above Boonville, Route 294		86			96	97		
02	Boonville, Sargent Rd., near Sargent Furniture		86				97		
05	Below Boonville, Devoe Road			91		96	97		02

BLACK RIVER DRAINAGE BASIN SAMPLING SITES, 1972-2002

STATION	LOCATION	YEAR SAMPLED
MILL CREEK (MLBL)		
01	Great Bend, below Austin Rd bridge	02
MILL CREEK (MLLL)		
04	Lowville, below E. State Street bridge	97 02
MILL CREEK, NORTH BRANCH (MLLL)		
02	North Branch - Lowville, below Cemetery St. bridge	97 02
MILL CREEK, SOUTH BRANCH (MLLL)		
01	South Branch -West Martinsburg, below West Rd. bridge	97
03	South Branch - Lowville, below Cemetery Rd. bridge	97
MOOSE CREEK (MOOC)		
01	Talcottville, below East Rd. bridge	96 02
MOOSE RIVER, UPPER (MOOS)		
03	Above McKeever, above Rt.28 bridge	96
04	Fowlersville, above Fowlerville Rd. bridge	96 97 02
MOOSE RIVER, LOWER (BLCK)		
03	Lyonsdale, above Lowdale Rd. bridge	76 82
04	Above Lyons Falls	76 82 91
MOOSE RIVER, MIDDLE BRANCH (MOOS)		
01	Webb, off Minnehaha Rd.; off Rt. 28	96 02
MOOSE RIVER, NORTH BRANCH (MOOS)		
00	Old Forge, Thendara Golf Course	02
MOOSE RIVER, SOUTH BRANCH (MOOS)		
02	Near Old Forge, above Bisby Rd. bridge	96 02
MURMUR CREEK (MURM)		
01	Near High Falls, under Belfort Rd. bridge	96 02
NORTH BRANCH LONG LAKE OUTLET (NBLL)		
01	Boonville, below Smith Rd. bridge (culvert)	96
OILY CREEK (KLSY)		
03	Watertown, Morrison Ave, above Kelsey Ck	00 02
03A	Watertown, LeRay Ave, access via trailer park	00 02

BLACK RIVER DRAINAGE BASIN SAMPLING SITES, 1972-2002

STATION	LOCATION		YEAR SAMPLED	
OTTER CREEK (OTTR)				
00	Brantingham, off Partridgeville Rd			02
01	Otter Creek, above the Pine Grove Rd. bridge		96	02
PHILOMEL CREEK (PHIL)				
02	Pamelia Center, below Rte 37 bridge			02
03	Pamelia Center, below Rte 12 bridge			02
PINE CREEK (PINC)				
01	Fowlersville, above Youngs Rd bridge			02
RAINBOW CREEK (RBOW)				
01	Lowville, above E. Martinsburg Rd			02
ROARING BROOK (ROAR)				
01	Martinsburg, above Rt. 26 bridge		96	02
SILVER RUN (SLVR)				
01	Arietta, above Cellar Brook confluence	80		02
04	Arietta, entrance to Moose River rec.area	80	96	02
SMITH CREEK (SMTH)				
01	Bellwood, below Rte 177			02
SUGAR RIVER (SUGR)				
00	Constableville, above Highmarket St bridge			02
01	Talcottville, above Denly Rd. bridge		96	02
02	near Port Leyden, above Rt. 12 bridge		96	
WHETSTONE CREEK (WHET)				
01	Glendale, above Glendale Rd. bridge		96	02
WIDMYER CREEK (WDMR)				
01	Beaver Falls, above Rte 126			02
WOODHULL CREEK (WDHL)				
01	above Woodhull, below Horton Rd.bridge		96	02

ASSESSMENTS OF WATER QUALITY OF STREAMS IN THE BLACK RIVER DRAINAGE BASIN, BASED ON MACROINVERTEBRATE COMMUNITIES

Site/Reach	Water Quality Assessment	Change from 1992
Alder Creek, Alder Creek	non-impacted	no prior data
Balsam Creek, near Belfort	slightly impacted	no prior data
Beaver River, Naumburg	slightly impacted	no change
Benedict Creek, The Plains	non-impacted	no prior data
Black Creek, Croghan	slightly impacted	no prior data
Black River, Enos	non-impacted	no prior data
Black River, Hawkinsville	non-impacted	no prior data
Black River, Port Leyden	slightly impacted	no change
Black River, Greig	slightly impacted	no change
Black River, Lowville	slightly impacted	no change
Black River, Carthage	slightly impacted	no change
Black River, Dexter	slightly impacted	**IMPROVED**
Bradley Brook, Arietta	moderately impacted	no change
Capidon Creek, Naumburg	moderately impacted	no prior data
Cellar Brook, Arietta	moderately impacted	no change
Cobb Creek, Bellwood	non-impacted	no prior data
Cold Creek, East Watertown	moderately impacted	no prior data
Crystal Creek, below New Bremen	slightly impacted	no prior data
Cummings Creek, Hawkinsville	non-impacted	no prior data
Cummings Creek, North Branch, Hawkinsville	slightly impacted	no prior data
Deer River, Liberty Corners	non-impacted	no prior data
Deer River, Copenhagen	non-impacted	no prior data
Deer River, Deer River	non-impacted	no prior data
Douglass Creek, Greig	slightly impacted	no prior data
Felts Mills Creek, Felts Mills	slightly impacted	no prior data
Fish Creek, near Eagle Falls	slightly impacted	no prior data
Fish Creek, Greig	non-impacted	no prior data
Harvey Creek, Bushes Landing	non-impacted	no prior data
Hodge Creek, Bushes Landing	moderately impacted	no prior data
House Creek, Glenfield	non-impacted	no prior data
Independence River, Sperryville	non-impacted	no prior data
Independence River, Pine Grove	non-impacted	no prior data
Kelsey Creek, Watertown, below Rt. 37	moderately impacted	no change

ASSESSMENTS OF WATER QUALITY OF STREAMS IN THE BLACK RIVER DRAINAGE BASIN, BASED ON MACROINVERTEBRATE COMMUNITIES

Site/Reach	Water Quality Assessment	Change from 1992
Kelsey Creek, Watertown, below Rt. 12	moderately impacted	**IMPROVED**
Kelsey Creek, Watertown, above RR bridge at Rt. 12E	moderately impacted	**IMPROVED**
Kent Creek, Hawkinsville	non-impacted	no prior data
Lake Creek, West Carthage	slightly impacted	no prior data
Little Black Creek, Bardwell Mills	non-impacted	no prior data
Little Woodhull Creek, Woodhull	slightly impacted	no prior data
Mill Creek, above Boonville, Murry Hill Rd	slightly impacted	no prior data
Mill Creek, above Boonville, Rt. 294	slightly impacted	**DECLINED**
Mill Creek, Boonville, Sargent Rd.	slightly impacted	no change
Mill Creek, Boonville, DeVoe Rd.	non-impacted	**IMPROVED**
Mill Creek, Great Bend	non-impacted	no prior data
Mill Creek, Lowville	slightly impacted	no prior data
Mill Creek, North Branch, Lowville	slightly impacted	no prior data
Mill Creek, South Branch, West Martinsburg	moderately impacted	no prior data
Mill Creek, South Branch, Lowville	moderately impacted	no prior data
Moose Creek, Talcottville	non-impacted	no prior data
Moose River, near McKeever	non-impacted	no prior data
Moose River, Fowlersville	non-impacted	no prior data
Moose River, Middle Branch, Webb	non-impacted	no prior data
Moose River, North Branch, Old Forge	non-impacted	no prior data
Moose River, S. Branch, near Old Forge	non-impacted	no prior data
Murmur Creek, near High Falls	non-impacted	no prior data
North Branch Long L. Outlet, Boonville	non-impacted	no prior data
Oily Creek, Watertown, Morrison Ave	moderately impacted	no prior data
Oily Creek, Watertown, LeRay Ave	moderately impacted	no prior data
Otter Creek, Brantingham	non-impacted	no prior data
Otter Creek, Otter Creek	non-impacted	no prior data
Philomel Creek, Pamelia Center, below (first) Rt 37 bridge	moderately impacted	no prior data
Philomel Creek, Pamelia Center, below Rt 12 bridge	moderately impacted	no prior data

ASSESSMENTS OF WATER QUALITY OF STREAMS IN THE BLACK RIVER DRAINAGE BASIN, BASED ON MACROINVERTEBRATE COMMUNITIES

Site/Reach	Water Quality Assessment	Change from 1992
Pine Creek, Fowlersville	non-impacted	no prior data
Rainbow Creek, Lowville	slightly impacted	no prior data
Roaring Brook, Martinsburg	non-impacted	no prior data
Silver Run, Arietta, Rt 12, Campsite 2, area 4	slightly impacted	**DECLINED**
Silver Run, Arietta, opposite wetland	moderately impacted	no change
Smith Creek, Bellwood	slightly impacted	no prior data
Sugar River, Constableville	non-impacted	no prior data
Sugar River, Talcottville	slightly impacted	no prior data
Sugar River, near Port Leyden	non-impacted	no prior data
Whetstone Creek, Glendale	non-impacted	no prior data
Widmyer Creek, Beaver Falls	slightly impacted	no prior data
Woodhull Creek, above Woodhull	non-impacted	no prior data

REPORTS OF MACROINVERTEBRATE SURVEYS WITHIN THE BLACK RIVER WATERSHED

STREAM	YEAR OF SURVEY	REPORT
Black River	1973	EPA,1974
Kelsey Creek	1991	SBU,1991
Kelsey Creek	2000	SBU,2001
Mill Creek	1975	AVON
Mill Creek	1997	SBU,1997
Watershed Streams	1991-1992	RIBS,1994

AVON	Avon Pollution Investigations Unit, Div. of Fish & Wildlife, NYS DEC
DOH	New York State Department of Health
EPA	United States Environmental Protection Agency
RIBS	Rotating Intensive Basin System, Statewide Waters Assessment Section, NYS DEC
SBU	Stream Biomonitoring Unit, Division of Water, NYS DEC

Alder Creek

This stream was sampled for macroinvertebrates in 2002. A diversity of clean-water macroinvertebrates were found, and water quality was field-assessed as non-impacted. No prior data were available for the stream.

Balsam Creek

Water quality is currently assessed as slightly impacted for this stream. The 1996 sample was taken at Erie Canal Road near Belfort. The stream was mostly sandy, except for a "swimmer's dam" of rubble, where the kick sample was taken. Filamentous algae and moss were covering many rocks. The invertebrate fauna consisted mostly of clean-water organisms, dominated by caddisflies and midges. Water quality indices placed the assessment as slightly impacted, but habitat is a partial factor in this assessment.

Beaver River

Assessments at the site near Naumburg have consistently remained at slightly impacted since 1976. Multiplate samples are dominated by filter-feeding black fly larvae, midges, and caddisflies, indicating effects of nutrient enrichment. Upstream discharges include septic discharges from Beaver Falls and discharges from two paper mills at Beaver Falls.

Benedict Creek

This remote stream was sampled for macroinvertebrates in 2002. A diverse macroinvertebrate fauna was found, and water quality was field-assessed as non-impacted. No prior data were available for the stream.

Black Creek

The 1996 kick sample was taken below the Route 126 bridge near Croghan. The invertebrate fauna was dominated by filter-feeding caddisflies. Most indices were within the range of slightly impacted water quality. Agricultural enrichment and siltation are considered to be the major factors affecting the fauna. Analysis of crayfish from this site for the presence of PAHs found two exceeding levels of concern: chrysene and benzo(a) anthracene.

Black River

Water quality in the Black River is currently assessed as non-impacted from Enos to Hawkinsville, and slightly impacted from Port Leyden to the mouth at Dexter. Macroinvertebrate sampling in the upper river from 1996-2002 included sites at Enos and Hawkinsville. All assessments showed excellent water quality. Analysis of hellgrammites from Hawkinsville in 1996 for metals found two PAHs - chrysene and benzo(a) anthracene - exceeding levels of concern.

Water quality at Port Leyden remains slightly impacted. This site was assessed as non-impacted in 1976 and slightly impacted in all following years. Samples from this site have been strongly dominated by filter-feeding midges, indicating nutrient enrichment.

The river bottom at Lyons Falls was sampled with a Ponar sampler upstream and downstream of the discharge of the Lyons Falls Paper Company lagoons in 1996, to determine if any impacts were attributable to the discharge. The fauna at both sites was initially assessed as slightly impacted. When an adjustment was made for the sandy substrate, the assessment was upgraded to non-impacted. No significant impairments were assignable to the discharge.

Water quality at Greig continues to be slightly impacted, but macroinvertebrate community composition improved substantially from 1991 to 2002 (Figure 8-1). Aquatic worms, indicators of organic wastes, dominated the fauna at this site from 1976 to 1991, contributing 42 to 54% of the macroinvertebrate community. In 2002 sampling, aquatic worms were greatly reduced, contributing less than 1% of the fauna; caddisflies, midges, and mayflies dominated the sample. This faunal change is likely related to the upstream reduction of pulp and paper mill wastes in Lyons Falls, and the installation of a sewage treatment plant in Lyons Falls.

Multiplate samples retrieved from the site below Lowville in July, August, and September, 1997, indicated slightly impacted water quality. Samples were dominated by high numbers of worms, likely indicating organic inputs. Analysis of crayfish from this site for metals found nickel

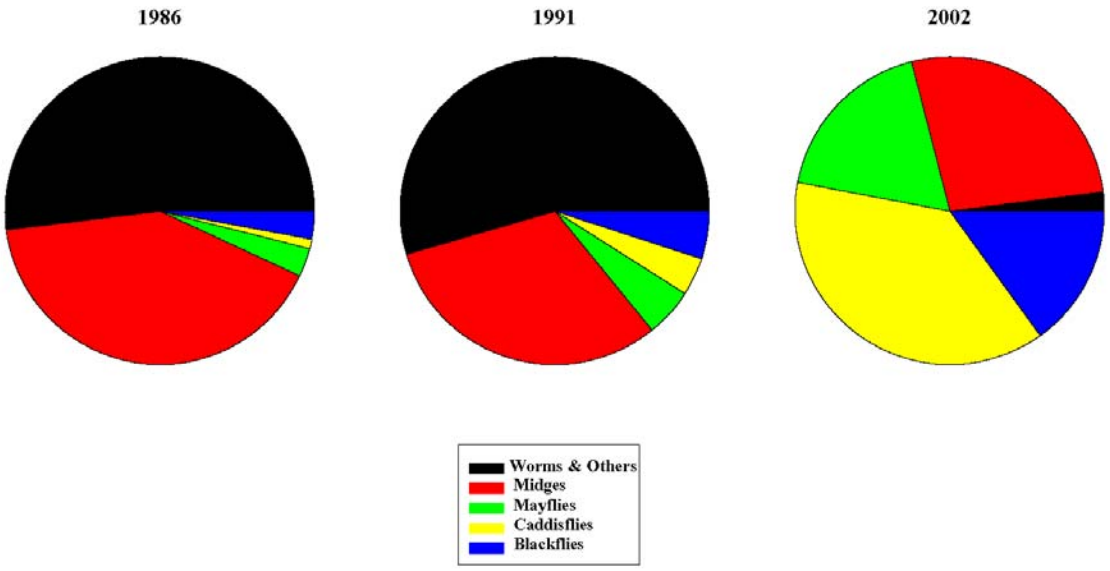


Figure 8-1. Changes in macroinvertebrate community composition, Black River at Greig, 1986-2002.

at the level of concern, and titanium exceeding the level of concern. Two PAHs - chrysene and benzo(a) anthracene - exceeded levels of concern.

Multiplate samples retrieved from the site below Carthage in July, August, and September, 1997, indicated slightly impacted water quality. Water quality was non-impacted at this site in 1982, but since 1992 has remained at slightly impacted. Samples were dominated by midges and worms, indicating organic inputs. This likely reflects discharges of the Carthage/West Carthage (V)

Wastewater Treatment Facility.

Water quality in the Black River at Dexter has shown substantial improvement in recent years (Figure 8-2). This site exhibited moderately impacted water quality in 1986 and 1991 multiplate sampling. High numbers of tolerant midges and worms clearly reflected organic inputs. In 1992, the Dexter (V) Sewage Treatment Plant completed a substantial upgrade, resulting in a much cleaner effluent. Multiplate sampling in 1997 and 2002 showed the improvement resulting from the upgrade. Samples from this site in 2002 included greatly reduced numbers of tolerant worms, and diverse populations of clean-water mayflies.

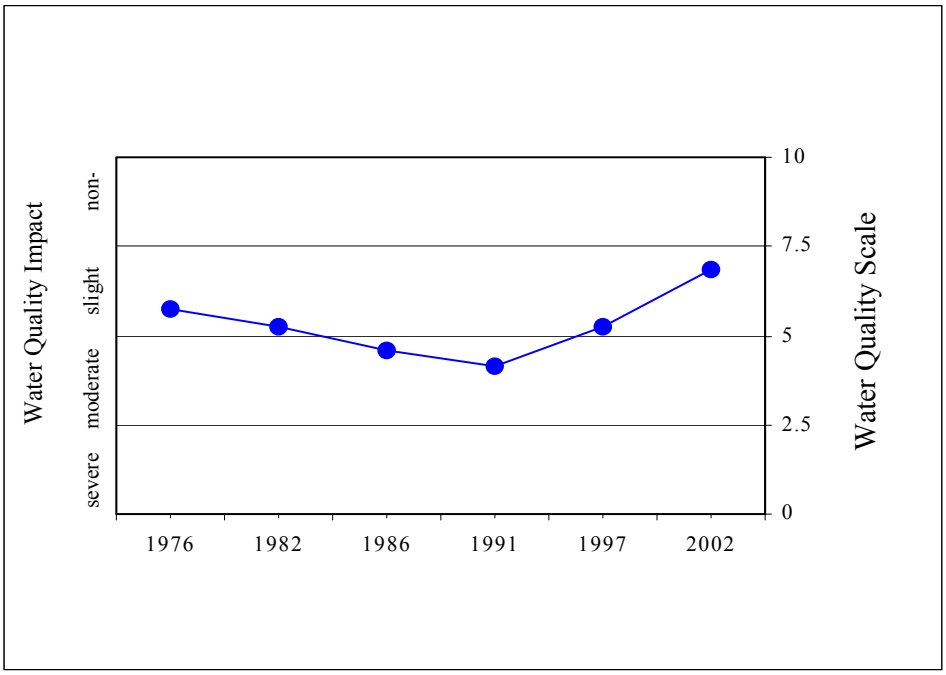


Figure 8-2. Water quality trends in the Black River below Dexter, 1975-2002.

Bradley Brook

Moderate impact from acid precipitation was documented for this remote Adirondack stream in 1980. It was sampled again in 2002, and showed little change from 1980 conditions. The macroinvertebrate fauna is dominated by acid-tolerant midges and stoneflies.

Capidon Creek

Capidon Creek was sampled near Naumburg in 2002. The habitat of a gravel substrate downstream of a ponded area produced a sample dominated by an impoundment fauna consisting of caddisflies and midges. Water quality was placed as moderately impacted, but mostly reflects habitat rather than water quality. No prior data were available for the stream.

Cellar Brook

This remote stream was assessed as moderately impacted by acidity in 1980. It was sampled again in 2002, and showed little change from 1980 conditions. The macroinvertebrate fauna is dominated by acid-tolerant midges and stoneflies.

Cobb Creek

This small sluggish tributary of the Deer River was sampled at Bellwood in 2002. At the time of sampling, the stream had very little flow, due to prevailing drought conditions. Nevertheless, the macroinvertebrate fauna contained many clean-water mayflies, stoneflies,

caddisflies, and hellgrammites, and water quality was assessed as non-impacted.

Cold Creek

Cold Creek is a small, slow-moving tributary of the Black River in East Watertown. It was sampled for macroinvertebrates in 2002. The habitat was poor, consisting of gravel, sand, and silt, and sandy stream criteria were used to evaluate the data. Moderate impact was assessed, with the primary stressor being organic wastes. The daytime dissolved oxygen level at the site was only 3.0 mg/l, and gray water was present. The fauna was dominated by sewage-tolerant sowbugs. No prior data were available for the stream.

Crystal Creek

This stream was sampled for macroinvertebrates in 1996 at Van Amber Road near New Bremen. The habitat was less than ideal, consisting of gravel, sand, and rubble, downstream of an impoundment. The invertebrate fauna was quite diverse, but indices were just within the range of slight impact. This is considered to be due to the habitat and impoundment, and likely does not reflect real impact.

Cummings Creek

Cummings Creek was sampled at Hawkinsville in 2002. A diverse macroinvertebrate fauna was found, and water quality was assessed as non-impacted. The fauna included many clean-water mayflies, stoneflies, and caddisflies. No prior data were available for the stream. The North Branch of Cummings Creek at Hawkinsville was also sampled in 2002. Water quality was assessed as slightly impacted by nonpoint source nutrient enrichment. The macroinvertebrate fauna was dominated by filter-feeding caddisflies and algal-feeding riffle beetles.

Deer River

Non-impacted water quality is assessed for the Deer River. An upstream site at Liberty Corners was sampled in 2002, and was field-assessed as non-impacted. A site at Copenhagen was sampled in 1996 and 2002. The river bottom was mostly bedrock, but an area of rubble near the shore was located and sampled. The fauna contained many mayflies, stoneflies, and caddisflies. The water quality indices for the 1996 sample were just within the range of slight impact, but this was upgraded to non-impacted, and water quality is considered excellent. Macroinvertebrate samples were taken above the Route 26 bridge in Deer River in 1996 and 2002. The invertebrate fauna was diverse, and the screening criteria were met. Water quality was field-assessed as non-impacted, and the samples were not retained.

Douglass Creek

This creek was sampled at Greig in 2002. Water quality was assessed as slightly impacted by nonpoint source nutrient enrichment. The macroinvertebrate fauna was dominated by filter-feeding midges and caddisflies. No prior data were available for the stream.

Felts Mills Creek

The creek was sampled above the Route 3 bridge at Felts Mills in 1996 and 2002. This stream was in an area of limestone rock, and upstream of the sampling location, the stream traveled underground. Many rocks at this site were covered with moss and filamentous algae. The

invertebrate fauna contained some mayflies, stoneflies, and caddisflies, but scuds were the dominant organism. Water quality indices denoted slight impact, but this was likely due to the unique spring-like nature of the stream.

Fish Creek (Lewis County, near Eagle Falls)

This small stream was sampled near Eagle Falls in 2002. Water quality was assessed as slightly impacted, but this may be partly caused by the slow current speed and sandy substrate. The fauna was dominated by filter-feeding caddisflies, and ISD denoted nonpoint source nutrient enrichment as a primary stressor.

Fish Creek (Lewis County, near Greig)

Sampling was conducted in 1996 at the DEC Fishing Access site on Fish Creek Road, Greig. The habitat and fauna were excellent, with the community dominated by mayflies, stoneflies, and caddisflies. Non-impacted water quality was clearly indicated.

Harvey Creek

This small creek was sampled at Bushes Landing in 2002. Non-impacted water quality was denoted by the metrics. The macroinvertebrate fauna was diverse and well-balanced, with many species of clean-water mayflies, stoneflies, and caddisflies. No prior data were available for the stream.

Hodge Creek

Hodge Creek was sampled at Lowville in 2002. The stream was only one meter wide, and the substrate was mostly gravel, sand, and silt, with many leaves and organic detritus. The macroinvertebrate fauna was dominated by facultative scuds and midges, mostly reflecting the habitat conditions. Using sandy stream criteria, water quality was assessed as moderately impacted, but the stream is considered a poor candidate for biomonitoring. No prior data were available for the stream.

House Creek

This creek was sampled at Glenfield in 2002. Although the stream had a mostly bedrock substrate, a diverse fauna was present, and water quality was field-assessed as non-impacted. No prior data were available for the stream.

Independence River

The Independence River is currently assessed as non-impacted. The habitat at the Sperryville site in 1996 consisted of interlocking boulders and cobble, with some sand and gravel. Obtaining an adequate kick sample was difficult, but the screening criteria were met, and non-impacted water quality was assessed. A sample was taken in 1996 at Pine Grove Road near Otter Creek. The habitat was favorable, and a diverse invertebrate community was present, with many mayflies, stoneflies, and caddisflies. Indices placed water quality just within the range of slight impact, but this was not considered representative of the fauna, and the assessment was upgraded to non-impacted.

Kelsey Creek

All Kelsey Creek sites are currently assessed as moderately impacted, mostly due to toxic stressors, based on macroinvertebrate sampling in 2000 and 2002. Slight improvements in water quality are documented compared to 1991, when the lower two sites were assessed as severely impacted (Figure 8-3). Extensive remediation efforts, including excavation of the creek bed and stormwater treatment, were completed in 1998. Sampling in 2000 showed reductions in crayfish body burdens for metals, but elevated PCB levels persisted in crayfish tissues. Comparisons of

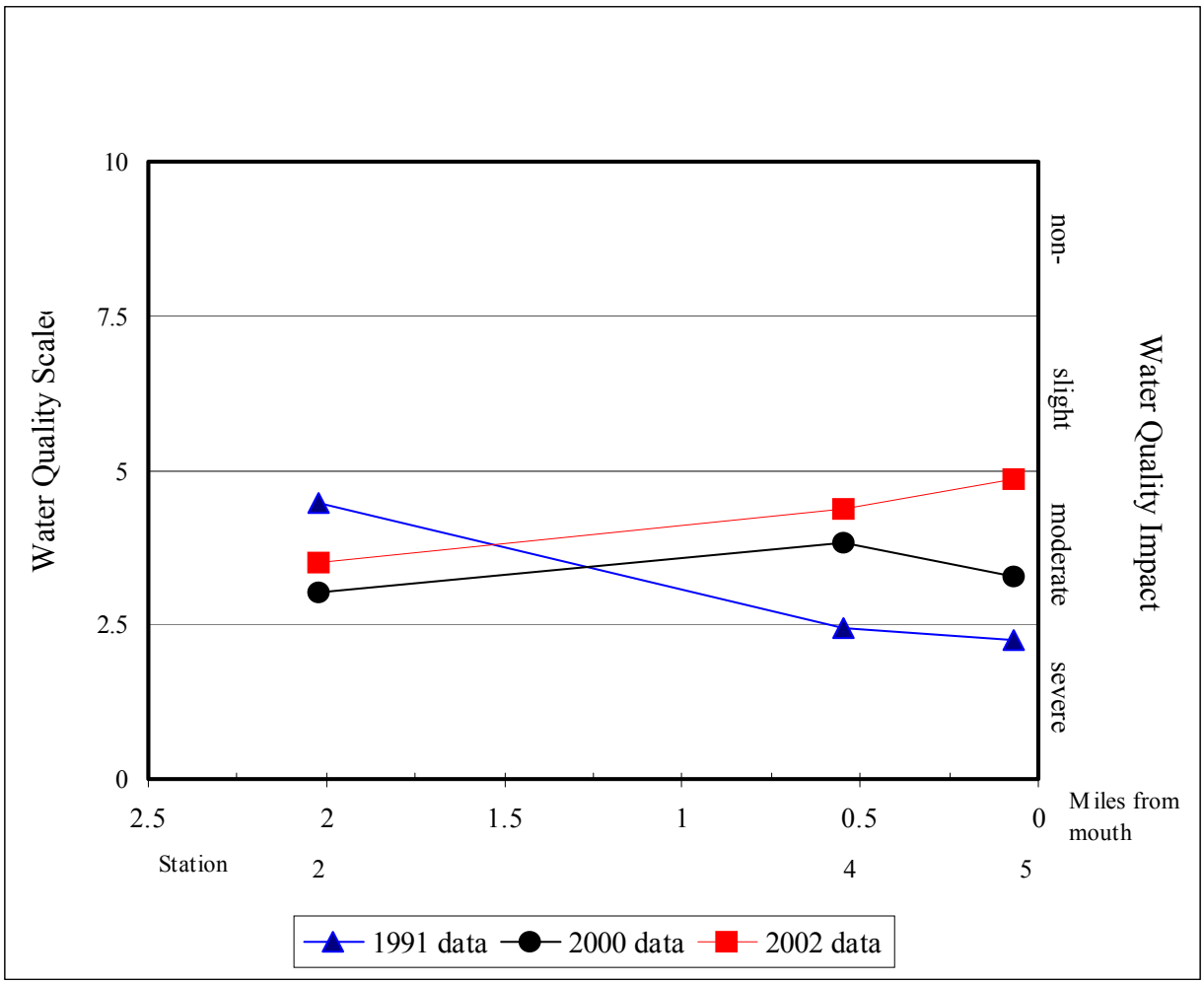


Figure 8-3. Water quality trends in Kelsey Creek, 1991-2002.

water quality assessments from 1991, 2000, and 2002 show a gradual improvement in water quality. Mayflies were documented at two of the three sites in 2000, a noteworthy sign of recovery in Kelsey Creek.

Kent Creek

This creek was sampled at Hawkinsville in 2002. The macroinvertebrate fauna was dominated by clean-water organisms, and water quality was field-assessed as non-impacted. No prior data were available for the stream.

Lake Creek

This small creek was sampled for macroinvertebrates at West Carthage in 2002. The sample metrics indicated slightly impacted water quality. The cause of impact was undetermined. The fauna was dominated by midge species that sometimes indicate intermittent flow. No prior data were available for the stream.

Little Black Creek

Overall water quality in this creek is assessed as non-impacted. The substrate at Bardwell Mill consisted of rock and rubble embedded in sand. Three of the four indices in 1996 were clearly in the range of non-impacted water quality. Species richness was not considered representative of the sample, and was not used in the water quality assessment procedure.

Little Woodhull Creek

The indices from a 1996 sample at Anos Siding were within the range of slight impact, but this is considered mostly impoundment effect, as the site was downstream of an impoundment. Impact Source Determination showed that nonpoint sources of nutrients and/or pesticides were likely responsible for the impact.

Mill Creek (Oneida County)

Water quality currently ranges from non-impacted to slightly impacted in Mill Creek. Four sites were sampled in 1997: two above Boonville, one in Boonville, and one downstream of Boonville. Water quality was assessed as slightly impacted at the three upstream sites and non-impacted at the downstream site. Impacts above Boonville were agricultural and in Boonville were related to the discharge of the Boonville (V) Wastewater Treatment Facility. The site above Boonville represents an apparent decline in water quality compared to the 1986 assessment, and the site below Boonville represents an apparent improvement compared to 1986 and 1991 conditions. Further monitoring of these sites is recommended to verify these trends.

Mill Creek (Jefferson County)

This slow-moving tributary of the Black River was sampled in 2002. The habitat was silt over bedrock, but the fauna appeared diverse, including mayflies, caddisflies, hellgrammites, and dragonflies. Using sandy stream criteria to evaluate the sample, water quality was assessed as non-impacted. No prior data were available for the stream.

Mill Creek (Lewis County)

Four sites were sampled on Mill Creek near Lowville in 1997. Water quality ranged from slightly to moderately impacted. The two sites on the South Branch were moderately impacted by livestock wastes. The North Branch site and the downstream site were assessed as slightly impacted. Fish communities in Mill Creek were dominated by creek chubs, dace, and white suckers, and were considered indicative of stress (Pers. comm., Doug Carlson, DEC). Analysis of crayfish from the most downstream site found two PAHs - chrysene and benzo(a) anthracene - exceeding levels of concern.

Moose Creek

The 1996 sampling site was below East Road near Talcottville. An excellent riffle was

sampled, and the resident invertebrate fauna was diverse and well-balanced. Non-impacted water quality was clearly indicated.

Moose River

All currently monitored Moose River sites are assessed as non-impacted: the reach below Lyonsdale has not been sampled in recent years. The 1996 sample was taken above the Fowlersville Road bridge, Fowlersville. The invertebrate fauna was diverse, and all screening criteria were met. Water quality was assessed as non-impacted. A site at the Route 28 bridge near McKeever was sampled in 1996. The habitat was good, and the resident invertebrate fauna was diverse. Indices placed water quality as non-impacted. A Middle Branch site in the town of Webb was sampled in 1996. Many rocks were covered with short-stranded green algae. The invertebrate fauna was diverse, and all indices were within the range of non-impacted water quality. An excellent invertebrate fauna was found at a South Branch site near Old Forge in 1996, with all community indices within the non-impacted range. Excellent water quality was indicated. The North Branch of the Moose River at Old Forge was field-assessed as non-impacted in 2002.

Murmur Creek

This stream was sampled at the Belfort Road bridge near High Falls in 1996 and 2002. The stream was slow-moving, and the bottom consisted mostly of gravel, sand, and rubble. A diverse fauna was found, including mayflies, stoneflies, caddisflies, beetles, and hellgrammites. The screening criteria were met, and a non-impacted assessment was assigned.

North Branch, Long Lake Outlet

The 1996 site was located at Smith Road near Boonville. The substrate was largely gravel and sand with some rubble. The invertebrate fauna was diverse, and the screening criteria were met. Non-impacted water quality was clearly indicated.

Oily Creek

This small stream is a tributary of Kelsey Creek. Sites sampled at Morrison Avenue and LeRay Avenue in Watertown were both assessed as moderately impacted in 2000 and 2002. The macroinvertebrate fauna was dominated by tolerant scuds and sowbugs, and ISD denoted municipal/industrial inputs as the primary stressors. No prior data were available for the stream.

Otter Creek

Non-impacted water quality is assessed for Otter Creek. Macroinvertebrate samples were taken at Pine Grove Road at Otter Creek in 1996 and 2002. The invertebrate fauna was diverse, and all screening criteria were met. Water quality was assessed as non-impacted. An upstream site at Brantingham was also field-assessed as non-impacted in 2002 sampling.

Philomel Creek

Two sites were sampled at Pamelia Center in 2002, upstream at the Route 37 bridge and downstream at the Route 12 bridge. Both sites were assessed as moderately impacted, based on macroinvertebrate metrics. Both sites were challenged by poor habitat, the upstream site having a silt substrate and the downstream site having a bedrock substrate. Although the faunal composition differed between the two, both appeared to be influenced by organic wastes. No prior data were

available for the stream.

Pine Creek

This Moose River tributary was sampled at Fowlersville in 2002. The macroinvertebrate fauna clearly indicated non-impacted water quality. No prior data were available for the stream

Rainbow Creek

This small stream in Lowville, sampled in 2002, featured a dead cow in the stream downstream of the sampling site. The stream habitat was poor, with a slow current speed and a substrate of gravel and silt. Using sandy stream criteria to evaluate the data, water quality was assessed as slightly impacted. The fauna was dominated by facultative scuds, with many worms present. The cause of impact was not determined, and the stream was considered a poor candidate for biomonitoring No prior data were available for the stream.

Roaring Brook

Macroinvertebrate sampling was conducted in 1996 and 2002 upstream of Route 26 at Martinsburg. The habitat was considered good, although silt deposits were noticeable. The invertebrate fauna was very diverse, and the indices placed water quality clearly in the range of non-impact, reflecting excellent conditions.

Silver Run

The most upstream site sampled on this remote stream in the vicinity of Limekiln exhibited an apparent decline in water quality compared to 1980. The 2002 sampling documented slightly impacted water quality, likely from acid precipitation effects. In 1980 this site was found to have an excellent invertebrate fauna, and was assessed as non-impacted.

Downstream of the Cellar Brook confluence, water quality in Silver Run was assessed as moderately impacted by acidity in both 1980 and 2002. In 1996 sampling at a downstream Silver Run location, two PAHs, chrysene and benzo(a) anthracene, exceeded levels of concern in crayfish tissues.

Smith Creek

This small stream was sampled for macroinvertebrates at Bellwood in 2002. Slightly impacted water quality was indicated, with a fauna of facultative midges and riffle beetles. ISD denoted nonpoint source nutrient enrichment as the primary stressor. No prior data were available for the stream.

Sugar River

Current water quality in the Sugar River ranges from non-impacted to slightly impacted. Non-impacted water is assessed for the upper river at Constable, based on a 2002 macroinvertebrate field-assessment. Clean-water mayflies, stoneflies, and caddisflies dominated the fauna. A site at Denley Road near Talcottville sampled in 2002 was assessed as slightly impacted by nonpoint sources. The fauna was heavily dominated by filter-feeding caddisflies and algal-feeding riffle beetles. Livestock wastes were noticed at the site. The PMA metric for this sample was set aside as being non-representative. A site was also sampled at Route 12 near Port Leyden in 1996. The invertebrate fauna was diverse, and included mayflies, stoneflies, caddisflies, riffle beetles, and

hellgrammites. Indices clearly denoted non-impacted water quality.

Whetstone Gulf

The stream was sampled in 1996 above Glendale Road in Glendale, approximately 50 meters downstream of a waterfall. The invertebrate fauna sampled was diverse and well-balanced, and the indices clearly indicated non-impacted water quality.

Widmyer Creek

This small stream in Beaver Falls was sampled in 2002 was assessed as slightly impacted. Facultative midges, mayflies, and caddisflies dominated the sample, and ISD denoted siltation as the primary stressor. No prior data were available for the stream.

Woodhull Creek

The sampling site was at the DEC Fishing Access off Horton Road near Woodhull. The invertebrate fauna sampled in 1996 was diverse, and included mayflies, stoneflies, caddisflies, and hellgrammites. Screening criteria were met, and non-impacted water quality was assessed for this site.