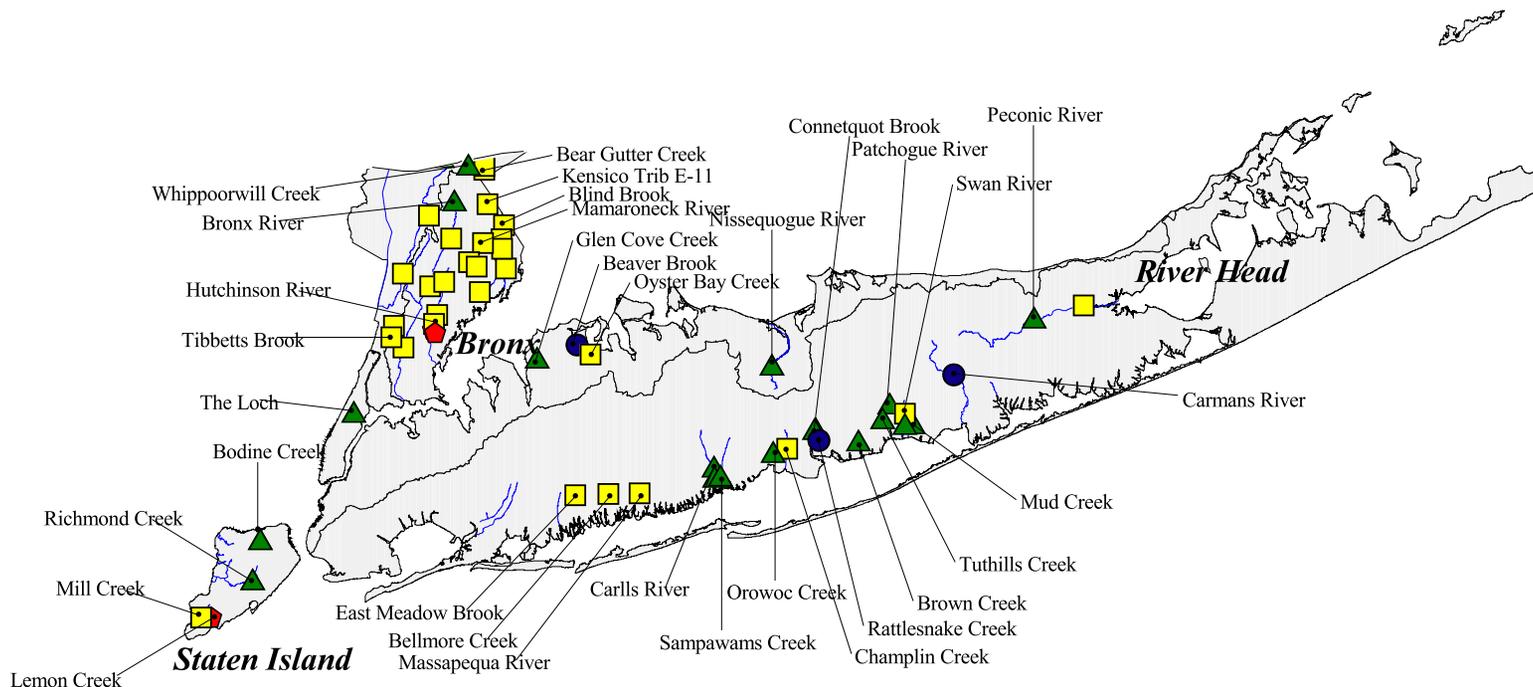
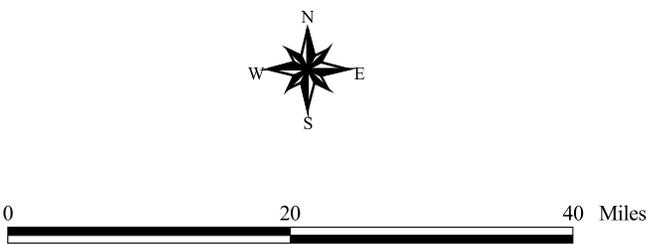
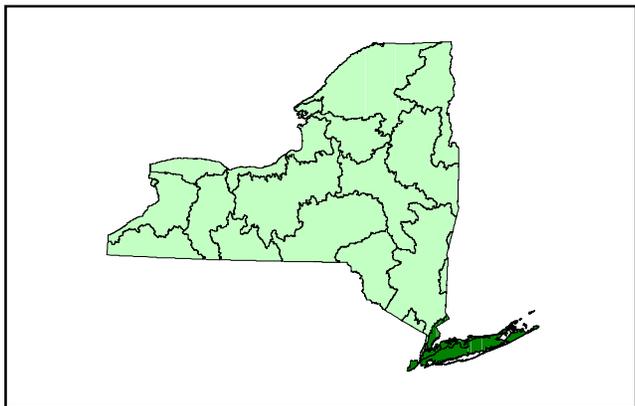


Atlantic Ocean - Long Island Drainage Basin



351



Water Quality Assessment based on Resident Macroinvertebrates

- non-impacted
- ▲ slightly impacted
- moderately impacted
- ◆ severely impacted

ATLANTIC OCEAN - LONG ISLAND SOUND DRAINAGE BASIN SAMPLING SITES, 1972-2002

<u>STATION</u>	<u>LOCATION</u>	<u>YEAR SAMPLED</u>	
BEAR GUTTER (KEND)			
00	Armonk, Kaysal Ct		01
01	Armonk, below Rte 22		00 01
BEAVER BROOK (BVBR)			
01	Mill Neck, Frost Mill Rd.	98	
BELLMORE CREEK (BMOR)			
01	Bellmore, Wantagh State Parkway	98	
BLIND BROOK (BLND)			
01	Purchase, Anderson Hill Road		99
02	Port Chester, Lincoln Rd		99
03	Port Chester, Westchester Ave		99
04	Rye, at Theodore Fremd St.	98	99
BODINE CREEK (BODN)			
01	Port Richmond, Forest Ave. bridge; Clove Lakes Park	96	98
02	Port Richmond, culvert under Richmond Terrace	96	
BRONX RIVER (BRNX)			
01	Valhalla, Legion Rd. culvert	98	02
02	White Plains, Bronx River Parkway bridge	98	02
03	Tuckahoe, bridge above Crestview Station	98	02
04	Bronx, above East Gun Hill Rd. bridge	98	02
BROWN CREEK (BRWN)			
01	Sayville, below Aldrich St. culvert	98	
BYRAM RIVER (BYRM)			
01	Pemberwick, CT, below Comly Ave. bridge	98	
CARLLS RIVER (CARL)			
01	Babylon, at Rt. 27	94	98
02	Babylon, below Park Ave. culvert	94	98
CARMANS RIVER (CARM)			
01	Above Yaphank, East Bartlett Rd		89
02	Siegfield Park, below Upper Lake		89
03	Below Yaphank, USGS Gaging Station	94	98 99
04	South Haven, DEC fishing access		89
05	Below South Haven, USFW Wertheim Ranger Station		89
06	Below South Haven, above Yaphank Ck		89
07	Below Squassux Landing marina, Buoy 3		89
08	Bellport Bay, opposite museum (Shirley)		89
09	Bellport Bay, Buoy 2, opp Beaverdam Ck		89
10	Bellport Bay, Buoy 8, opp Smith Point		89

ATLANTIC OCEAN - LONG ISLAND SOUND DRAINAGE BASIN SAMPLING SITES, 1972-2002

<u>STATION</u>	<u>LOCATION</u>	<u>YEAR SAMPLED</u>	
CHAMPLIN CREEK (CHAM)			
01	East Islip, below Moffitt Blvd. bridge	94	98
CONNETQUOT BROOK (CONQ)			
01	Oakdale, above hatchery at foot bridge in park		98
02	Oakdale, below hatchery in Connetquot State Park		98
EAST MEADOW BROOK, (EMED)			
01	Roosevelt, below Washington Ave. bridge		98
GLEN COVE CREEK (GLEN)			
01	Glen Cove, below USGS gage in Pratt Park		98 99
HUTCHINSON RIVER (HUCH)			
01	Maplewood, 100yds past inters of Wilmot & Old Wilmot		99
02	Vernon, Hutchinson Blvd-west of Pkwy		99
03	Vernon Park, Cnr Farell & Beechwood, under pedestrian bridge		99
04	Mount Vernon, above East Sandford Ave. bridge		98 99
LEMON CREEK (LEMN)			
01	Pleasant Plains - Staten Island above Amboy Rd. & Maguire Ave. bridge	96	98
THE LOCH (LOCH)			
01	Manhattan, Central Park, between Harlem Meer and The Pool		98
MAMARONECK RIVER (MAMR)			
01	White Plains, below Corporate Park Dr. bridge		99
02	White Plains, off Hutchinson River Pky @ exit 23		99
02A	White Plains, off Saxon Woods Rd.		99
04	Mamaroneck, above Ward Ave. bridge	94	98 99
MASSAPEQUA (MASS)			
01	Massapequa, above Clark Ave.	94	98 99
MIANUS RIVER (MIAN)			
03	North Castle, Greenwich Banksville Road	91	
04	Bedford, Middle Patent Road bridge	91	
05	Bedford, Miller's Mill Road bridge	91	
08	Riverbank (Conn.), June Road bridge	91	
MILL CREEK (MILS)			
01	Richmond, end of service road parallel to & south of Rt. 440	96	98
MUD CREEK (MUDL)			
01	East Patchogue, below RR off Montauk Highway		98
NISSEQUOGUE RIVER (NISS)			
01	Smithtown, Rt. 25, Caleb State Park	94	98 99

ATLANTIC OCEAN - LONG ISLAND SOUND DRAINAGE BASIN SAMPLING SITES, 1972-2002

<u>STATION</u>	<u>LOCATION</u>	<u>YEAR SAMPLED</u>	
OROWOC CREEK (OROW)			
01	Bayshore, below Moffitt Blvd. culvert	94	98 99
OYSTER BAY CREEK (OYST)			
01	Oyster Bay, below culvert at Glen Cove Rd.		98
PATCHOGUE RIVER (PACH)			
A	North Patchogue, opposite Linden St.		98
01	Patchogue, below Montauk Highway, above STP	94	98
PECONIC RIVER (PECN)			
01	Calverton, below culvert in Otis Pike Preserve		98 99
02	above Riverhead, opposite Mapletree Deli		98
RATTLESNAKE CREEK (RATT)			
01	Oakdale, between Rt. 27A and L.I. RR tracks	94	
RICHMOND CREEK (RMON)			
01	Richmond, below Aultman Ave bridge		96 98
SAMPAWAMS CREEK (SAMP)			
01	West Islip, above Union Blvd. bridge	94	98 99
SWAN RIVER (SWAN)			
01	East Patchogue, below culvert under Rt.27	94	98
02	Patchogue, below culvert under Rt. 80	94	
TIBBETTS BROOK (TIBB)			
01	Yonkers, off Damon St.		98
02	Bronx, above swamp & lake on Van Cortlandt Park golf course		98
TUTHILLS CREEK (TUTL)			
01	Patchogue, off Mowbray		98
WHIPPOORWILL CREEK, TRIB N12 (KENC)			
01	Mt. Pleasant, above Nannyhagen Road		00
UNNAMED KENSICO TRIB E-11(KENF)			
01	Purchase, Rte 684 by Rye Lake and airport		00

ASSESSMENTS OF WATER QUALITY OF STREAMS IN THE ATLANTIC OCEAN - LONG ISLAND DRAINAGE BASIN, BASED ON MACROINVERTEBRATE COMMUNITIES

<u>Site/Reach</u>	<u>Water Quality Assessment</u>	<u>Change from 1992</u>
Bear Gutter Creek, Armonk, Kaysal Ct	moderately impacted	no prior data
Bear Gutter Creek, Armonk, below Rte 22	moderately impacted	no prior data
Beaver Brook, Mill Neck	non-impacted	no prior data
Bellmore Creek, Bellmore	moderately impacted	no prior data
Blind Brook, Purchase	moderately impacted	no prior data
Blind Brook, Port Chester, Lincoln Rd	moderately impacted	no prior data
Blind Brook, Port Chester, Westchester Ave	moderately impacted	no prior data
Blind Brook, Rye	moderately impacted	no prior data
Bodine Creek, Port Richmond, above Forest Ave.	slightly impacted	no prior data
Bronx River, Valhalla	moderately impacted	no prior data
Bronx River, White Plains	moderately impacted	no prior data
Bronx River, Tuckahoe	moderately impacted	no prior data
Bronx River, Bronx	moderately impacted	no prior data
Brown Creek, Sayville	slightly impacted	no prior data
Byram River, Pemberwick, Conn.	slightly impacted	no prior data
Carlls River, Babylon, at Rt. 27	slightly impacted	no prior data
Carlls River, Babylon, below Park Ave.	slightly impacted	no prior data
Carmans River, below Yaphank	non-impacted	IMPROVED
Champlin Creek, East Islip	moderately impacted	no prior data
Connetquot Brook, Oakdale, above hatchery	slightly impacted	no prior data
Connetquot Brook, Oakdale, below hatchery	slightly impacted	no prior data
East Meadow Brook, Roosevelt	moderately impacted	no prior data
Glen Cove Creek, Glen Cove	slightly impacted	no prior data
Hutchinson River, Maplewood	moderately impacted	no prior data
Hutchinson River, Vernon	moderately impacted	no prior data
Hutchinson River, Vernon Park	moderately impacted	no prior data
Hutchinson River, Mount Vernon	severely impacted	no prior data
Lemon Creek, Pleasant Plains	severely impacted	no prior data
The Loch, Manhattan	slightly impacted	no prior data

ASSESSMENTS OF WATER QUALITY OF STREAMS IN THE ATLANTIC OCEAN - LONG ISLAND DRAINAGE BASIN, BASED ON MACROINVERTEBRATE COMMUNITIES

<u>Site/Reach</u>	<u>Water Quality Assessment</u>	<u>Change from 1992</u>
Mamaroneck River, White Plains, Corporate Park Dr.	moderately impacted	no prior data
Mamaroneck River, White Plains, Hutchinson R. Pkwy	moderately impacted	no prior data
Mamaroneck River, White Plains, Saxon Woods Rd.	moderately impacted	no prior data
Mamaroneck River, Mamaroneck	moderately impacted	no prior data
Massapequa River, Massapequa	moderately impacted	no prior data
Mill Creek, Richmond Valley	moderately impacted	no prior data
Mud Creek, East Patchogue	slightly impacted	no prior data
Nissequogue River, Smithtown	slightly impacted	no prior data
Orowoc Creek, Bayshore	slightly impacted	no prior data
Oyster Bay Creek, Oyster Bay	moderately impacted	no prior data
Patchogue River, North Patchogue	slightly impacted	no prior data
Peconic River, Calverton	slightly impacted	no prior data
Peconic River, above Riverhead	moderately impacted	no prior data
Rattlesnake Creek, Oakdale	non-impacted	no prior data
Richmond Creek, Richmond	slightly impacted	no prior data
Sampawams Creek, West Islip	slightly impacted	no prior data
Swan River, East Patchogue	moderately impacted	no prior data
Swan River, Patchogue	slightly impacted	no prior data
Tibbetts Brook, Yonkers	moderately impacted	no prior data
Tibbetts Brook, Bronx	moderately impacted	no prior data
Tuthills Creek, Patchogue	slightly impacted	no prior data
Whippoorwill Creek, Mt. Pleasant	slightly impacted	no prior data
Unnamed Kensico Trib E-11, Harrison	moderately impacted	no prior data

REPORTS OF MACROINVERTEBRATE SURVEYS WITHIN THE ATLANTIC OCEAN-LONG ISLAND SOUND WATERSHED

STREAM	YEAR OF SURVEY	REPORT
Blind Brook	1999	SBU,2000
Bronx River	1997	OLSON, 1998
Bronx River	1998	SBU,1999
Carmans River	1989	SBU,1990
Hutchinson River	1999	SBU,2000
Long Island Streams	1994	SBU, 1995
Mamaroneck River	1999	SBU,2000
Mianus River	1991	SBU,1991
Mianus River Watershed	1991-1992	WLT,1992
Staten Island Streams	1996	SBU, 1997
Watershed Streams	1989-1990	RIBS,1990

AVON	Avon Pollution Investigations Unit, Div. of Fish & Wildlife, NYS DEC
DOH	New York State Department of Health
OLSON	Olson, C., NYC DEP
RIBS	Rotating Intensive Basin System, Statewide Waters Assessment Section, NYS DEC
SBU	Stream Biomonitoring Unit, Division of Water, NYS DEC
WLT	Westchester Land Trust

Bear Gutter Creek

Moderately impacted water quality is assessed for Bear Gutter Creek. Two sites were sampled in Armonk in 2001, and exhibited macroinvertebrate faunas composed primarily of tolerant midges, worms, and crustaceans, although mayflies were also present. Poor habitat was a factor at both sites, and sandy stream criteria were used to evaluate the data. Municipal/industrial inputs and urban runoff are the likely stressors. Elevated levels of 3 PAHs were found in tissues of crayfish collected at the downstream site in 2000.

Beaver Brook

Water quality in Beaver Brook is assessed as non-impacted, based on invertebrate sampling at Mill Neck in 1998. The stream bottom was composed entirely of sand and silt, with tree roots and macrophytes providing habitat for invertebrates. Sandy stream criteria were used to evaluate the data. Several brown trout were seen at this site.

Bellmore Creek

Water quality at Bellmore in 1998 showed moderate impact, mostly by municipal/industrial sources. The dominance of worms and sowbugs pointed to organic inputs. Filamentous algae was also heavy at this site. Sandy stream criteria were used to evaluate the data.

Blind Brook

Based on macroinvertebrate kick sampling from Purchase to Rye in 1999, water quality was assessed as moderately impacted for this entire reach. Nonpoint runoff is the probable cause of impact; airport and golf course runoff may be major contributors. The entire length of Blind Brook should be listed as a priority waterbody. Habitat in this stream is mostly favorable, but water quality is poor. Crayfish collected from the site in Port Chester exhibited very high levels of PAHs, and this is likely a major factor limiting water quality. A follow-up collection of crayfish at the upstream site at Purchase by Holly Bukofser in 2001 did not show any PAHs exceeding levels of concern. This indicates that PAHs likely enter the stream between Purchase and Port Chester.

Bodine Creek

Water quality is assessed as slightly impacted in Bodine Creek, based on kick sampling at Port Richmond, Staten Island, in 1998. This site was previously sampled in 1996, and was assessed as moderately impacted. Further sampling is needed to determine if this is an improvement trend. Dissolved oxygen measured in the 1998 sampling was 4.8 (62% saturation). Habitat at this site was very good, and capable of supporting a more diverse fauna. A sample taken at Richmond Terrace in Port Richmond in 1996 was considered invalid since high conductivity indicated tidal conditions. This location is dropped as a sampling site.

Bronx River

Water quality in the Bronx River is currently assessed as moderately impacted at all sites. Macroinvertebrate sampling from Valhalla to Bronx was conducted by Charles Olson (NYC DEP) in 2002, and the samples were processed by the Stream Biomonitoring Unit. Water quality declined linearly from upstream to downstream (Figure 17-1). Compared to a 1998 study at the same sites, slight improvement is seen at White Plains (Station 2), where a large sewage input was present in 1998. Fecal coliform sampling conducted by Joseph Marcogliese (NYS DEC) in 1999 found very

high levels in White Plains that pointed to a sewage discharge into the city storm drain system. The input is now reported to be remediated, and mayflies were found at this site in 2002. Another input of raw sewage between Stations 3 and 4 was corrected in 1999. Impacts in the river are currently caused by remaining municipal and industrial discharges and runoff, including many illegal sanitary connections to storm sewers in the city of Yonkers. Fish

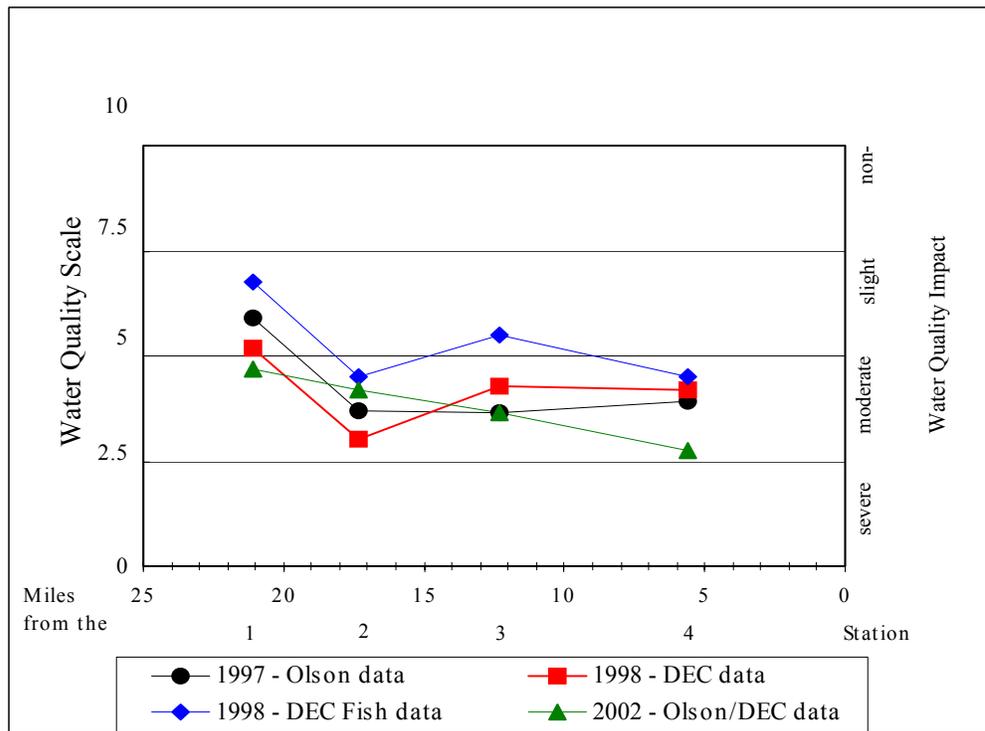


Figure 17-1. Water quality in the Bronx River, Valhalla to Bronx, as assessed by different studies.

sampling by Doug Carlson (NYS DEC Fish & Wildlife) in 1998 showed trends similar to invertebrate data, with assessments ranging from slightly impacted to moderately impacted. For many years the stream was stocked annually with brown trout, but this was recently discontinued. A contaminant trackdown study by Joseph Spodaryk (NYS DEC Fish & Wildlife) projected that many fish in the Bronx River would have total chlordane levels exceeding the FDA limit.

Brown Creek

Based on 1998 sampling at Sayville, water quality is assessed as slightly impacted. The sand and gravel stream bottom likely contributed to the limited invertebrate fauna, as well as nonpoint source nutrient enrichment. No major water quality problems appear to be indicated. Sandy stream criteria were used to evaluate the data from this site.

Byram River

Water quality is assessed as slightly impacted, based on 1998 sampling at Pemberwick, Connecticut. The fauna was dominated by snails and caddisflies, and filamentous algae was very abundant on the stream bottom. ISD denoted nonpoint source nutrient enrichment and possible toxic stressors.

Carlls River

This stream was sampled in Babylon at Route 27 and at Park Avenue in 1998. Both sites were assessed as slightly impacted, but near the range of non-impacted. Mayflies and caddisflies were numerous at both sites. Similar conditions were documented in 1994 sampling. Nonpoint source nutrient enrichment is the likely stressor. Sandy stream criteria were used to evaluate the data. Large rainbow trout were present at the Park Avenue site.

Carmans River

Water quality at Yaphank was assessed as non-impacted, based on 1998 and 1999 macroinvertebrate sampling. This site was assessed as slightly impacted in 1989 and non-impacted in 1994. The difference in these assessments represents a change in criteria rather than a change in water quality. Sandy stream criteria were instituted in 1994, representing more realistic expectations for stream bottoms dominated by sand and gravel rather than rubble. When the data from these years is compared on a common scale, water quality appears stable from 1989-1999 (Figure 17-2).

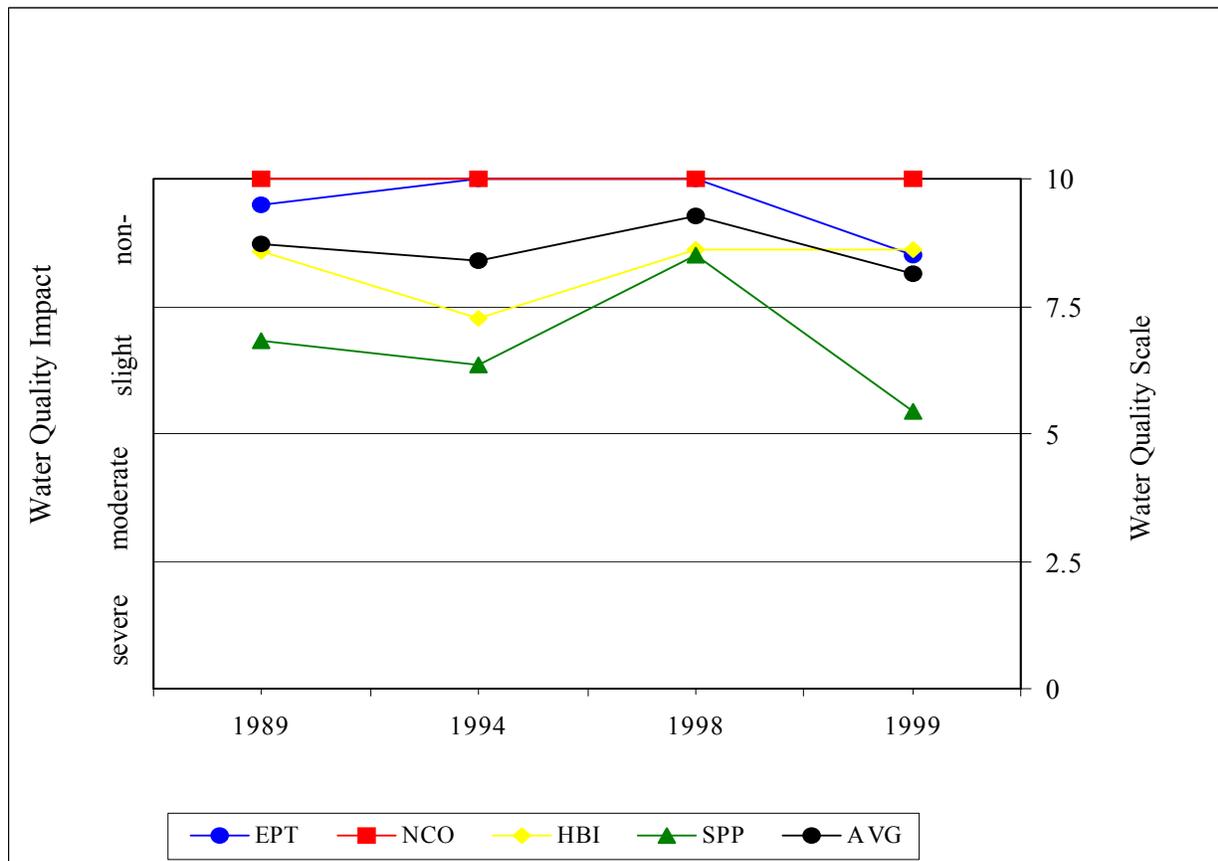


Figure 17-2. Water quality in the Carmans River at Yaphank, 1989-1999. EPT= species of mayflies, stoneflies, and caddisflies, NCO= species in groups other than Chironomidae and Oligochaeta, HBI= Hilsenhoff Biotic Index, SPP= species richness, AVG= average.

Champlin Creek

Based on 1998 invertebrate sampling at Islip Terrace, water quality was assessed as moderately impacted. The stream bottom was mostly sand and gravel, and the fauna was dominated by midges and scuds. Similar conditions were found in 1994 at an East Islip site on Champlin Creek. It is likely that poor habitat and poor water quality both contribute to the limited fauna. ISD denoted organic wastes as the primary stressor. Sandy stream criteria were used to evaluate the data from this site.

Connetquot Brook

This stream was sampled at two sites in Connetquot State Park, Oakdale in 1998. Both sites were assessed as slightly impacted. Both sites contained mayflies and caddisflies, and the upstream site also contained stoneflies. Sowbugs were numerous at both sites, and impoundment effects are likely influencing the fauna. No major water quality problems are indicated.

East Meadow Brook

Water quality was assessed as moderately impacted, based on 1998 invertebrate sampling at Roosevelt. Poor substrate that consisted of concrete pieces over gravel likely contributed to the limited fauna. This situation made it difficult to determine the extent of any water quality problems.

Glen Cove Creek

Based on invertebrate sampling in 1998 and 1999 at Glen Cove, water quality was assessed as slightly impacted. The fauna was mostly dominated by worms. Caddisflies were present, but mayflies were not found. The source of impact is likely from nonpoint sources; many golf courses in the watershed may contribute nutrient and pesticide loadings.

Hutchinson River

Based on sampling at one site in 1998 and four sites in 1999, water quality was assessed as moderately impacted to severely impacted. Most of the impact appears assignable to sewage inputs. The invertebrate fauna at the East Sanford Boulevard site in Mount Vernon indicates extreme sewage pollution. There is likely a major sewage input in the half-mile reach above East Sanford Boulevard. The three stations upstream of Mount Vernon showed moderate impact, from unknown sources. Impact Source Determination showed that macroinvertebrate communities in the river are mostly affected by sewage and municipal/industrial inputs.

Lemon Creek

Water quality at Pleasant Plains was assessed as severely impacted, based on 1998 invertebrate sampling. The fauna consisted entirely of tolerant midges, worms, and snails. This was similar to a 1996 sampling of this site, and was attributable to discharges of failing septic systems, a long-standing problem. Daytime dissolved oxygen at this site was only 3.7 ppm (42% saturation). Programs are underway installing sanitary sewers and handling storm flows, and should improve the quality of this waterbody in the future.

The Loch

This stream, connecting Harlem Meer and “The Pool” in Central Park, Manhattan, was

sampled for macroinvertebrates in 1998. Based on the indices, water quality was assessed as slightly impacted. The fauna, dominated by midges and caddisflies, was likely controlled primarily by impoundment effects from the upstream pond. Although the sampling produced little water quality information, it was collected to establish baseline data for the waterbody.

Mamaroneck River

Based on sampling at one site in 1998 and four sites from White Plains to Mamaroneck in 1999, water quality was assessed as moderately impacted for the entire reach. Runoff from areas of high population density and high percentage of impervious surfaces are likely causes of impact in the river. Based on results of the present survey, the entire length of the Mamaroneck River should be listed as a priority waterbody. Since the invertebrate fauna appears moderately impacted by poor water quality, fish propagation may be affected for some species.

Massapequa Creek

Water quality at Massapequa is currently assessed as moderately impacted, based on macroinvertebrate sampling in 1999. Caddisflies were abundant at this site, and mayflies were present but limited; tolerant sowbugs were numerous. This site was assessed as slightly impacted in 1994 and 1998. Impacts at this site may be caused in large part by flow-dependent urban runoff.

Mill Creek

Based on 1998 sampling at Richmond Valley, water quality was assessed as moderately impacted. The fauna was dominated by scuds, midges, and worms, and municipal/industrial inputs are indicated. This site was assessed as slightly impacted in 1996. It is not known if a change in water quality has occurred, since poor habitat exerts a strong influence on the limited fauna. Programs are underway installing sanitary sewers and handling storm flows, and should improve the quality of this waterbody in the future.

Mud Creek

This stream was sampled near the Montauk Highway at East Patchogue in 1998, and was assessed as slightly impacted. Sowbugs and scuds dominated the sample, but clean-water stoneflies were also found. Young brook trout were previously collected here (Bruce Cronemeyer, DEC. pers. comm.). No major water quality problems are indicated.

Nissequogue River

Current water quality of the Nissequogue River is considered to be slightly impacted, but close to the range of non-impacted. The fauna in all samplings has included many clean-water species, but species richness is low. Nonpoint sources are indicated. Water quality at Smithtown was assessed as slightly impacted in 1994 and 1999, and non-impacted in 1998. The species richness metric excluded from the 1999 data as being a non-representative outlier; sandy stream criteria were used to evaluate the data. The freshwater Asian clam *Corbicula fluminea* is found at this site.

Orowoc Creek

Water quality is currently assessed as slightly impacted, based on 1999 sampling at Brook Street in Bayshore. Sampling at this site in 1998 denoted moderate impact. The fauna in 1999 was

dominated by filter-feeding caddisflies, while the 1998 fauna was dominated by sewage-tolerant sowbugs. Organic wastes are indicated to be the primary stressor. The stream was sampled in 1994 at Moffitt Boulevard, and was determined to be moderately impacted.

Oyster Bay Creek

Moderately impacted water quality was assessed for a site at Oyster Bay, based on invertebrate sampling in 1998. The fauna was heavily dominated by worms. The stream bottom was composed primarily of sand and gravel, and this likely contributed to the limited fauna. Sandy stream criteria were used to evaluate the data. ISD denoted municipal/industrial inputs were the primary stressors. Trout were present at this site, and may be a better indicator of water quality.

Patchogue Creek

Based on 1998 sampling at North Patchogue, water quality was assessed as slightly impacted. Scuds and black flies dominated the sample, but some mayflies and stoneflies were also present. Municipal/industrial inputs are the likely stressors. The Patchogue Creek site sampled in 1994 in Patchogue below the Montauk Highway was likely tidal. Those results do not accurately represent water quality, and the site is dropped.

Peconic River

Water quality is currently assessed as slightly impacted for the Peconic River, based on macroinvertebrate sampling in 1998 and 1999. The Calverton site was assessed as only slightly impacted in 1999, a low-flow year, and the fauna was dominated by clean-water mayflies. Sampling at Calverton and Riverhead in 1998 denoted moderately impacted water quality. Dissolved oxygen was very low (2.8 ppm) at the Calverton site in 1998, and the invertebrate fauna was dominated by midges and scuds. Dissolved oxygen was higher (6.0 ppm) at the Riverhead site, but the fauna was still dominated by tolerant organisms, mostly scuds, worms, and midges. The cause of impact was not determined. Sandy stream criteria were used to evaluate the data from this site.

Rattlesnake Creek

Water quality is assessed as non-impacted for Rattlesnake Creek. A site at Oakdale was sampled in 1994, and the fauna was dominated by clean-water mayflies, stoneflies, and caddisflies. Standing crop was low, likely reflecting the headwater nature of the stream.

Richmond Creek

Slightly impacted water quality was assessed for this Staten Island stream at Richmond, based on 1998 sampling. The fauna included viable populations of mayflies and caddisflies. ISD denoted municipal/industrial stressors. This site was assessed as moderately impacted in 1996. Further sampling is recommended at the site. Programs are underway installing sanitary sewers and handling storm flows, and should improve the quality of this waterbody in the future.

Sampawams Creek

Based on 1998 and 1999 sampling at West Islip, water quality was assessed as slightly impacted. Municipal/industrial inputs are indicated to be the primary stressors. This site was

previously assessed as moderately impacted in 1994. Caddisflies were more numerous in 1998 and 1999, and may indicate improved conditions, although tolerant worms, scuds, and sowbugs continue to be abundant. Additional sampling at this site would be helpful in better defining water quality conditions.

Swan River

Water quality was assessed as moderately impacted, based on 1998 invertebrate sampling downstream of Route 27, East Patchogue. Mayflies, stoneflies, and caddisflies were absent, and the fauna was dominated by scuds and worms. Municipal/industrial inputs are indicated to be the primary stressors. This appears to represent a decline from 1994, when four species of mayflies were found, and water quality was assessed as only slightly impacted. A site in Patchogue sampled in 1994 was also assessed as slightly impacted.

Tibbetts Brook

Based on 1998 sampling at Yonkers and Bronx, overall water quality is assessed as moderately impacted. The Yonkers site had adequate current speed, but the stream bottom was predominately sand and gravel. The water had a slight grey tint, possibly reflecting sewage inputs. The benthic invertebrate fauna consisted mostly of tolerant midges and worms, and had greatest similarity to streams affected by sewage or animal wastes. The current speed at the Bronx site was very slow, and the habitat was more that of a wetland than a stream. Sampling consisted of using the net to skim through the top layer of sediment. The benthic invertebrate fauna consisted mostly of midges, worms, fingernail clams, and sow bugs. Overall water quality was assessed as moderately impacted, although this assessment is considered provisional because stream criteria are applied to a wetland situation.

Tuthills Creek

The 1998 sampling of Tuthills Creek yielded an assessment of slight impact. The site was downstream of Route 27, Patchogue, accessed off the end of Mowbray Street. Midges and black flies dominated the sample, but a few mayflies and stoneflies were also found. A fingerling brook trout was also collected at this site. The limited fauna was likely related to nonpoint sources and the less-than-optimal stream bottom habitat of gravel and sand. Sandy stream criteria were used to evaluate the data.

Whippoorwill Creek

Water quality is assessed as slightly impacted for this tributary of the Kensico Reservoir. A site near the mouth was sampled in 2000. Although clean-water stoneflies were found, midges and worms dominated the sample, and mayflies were poorly represented. Nonpoint source nutrient enrichment was indicated to be the primary stressor.

Unnamed Kensico tributary "E-11"

Moderate impact from complex stressors is indicated for this site, adjacent to the Westchester County Airport. The habitat is more of a wetland than a stream. The invertebrate fauna sampled in 2000 was dominated by scuds and midges. Due to the nature of the site, criteria for slow sandy streams were used.