# DISCHARGE AND WATER-QUALITY DATA FOR SELECTED STREAMS AT LOW FLOW INCLUDING SOME BOTTOM-MATERIAL ANALYSES, AND LIMNOLOGICAL STUDY OF SIX LAKES, WESTCHESTER COUNTY, NEW YORK

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U.S. GEOLOGICAL SURVEY

Open-File Report 77-781

Prepared in cooperation with

Westchester County Water Quality Planning Task Force

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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FACTORS FOR CONVERTING ENGLISH UNITS TO

INTERNATIONAL SYSTEM (SI) UNITS

| Multiply English units | By | To obtain SI units |
|---|---|---|
| miles (mi) | 1.609 | kilometers (km) |
| feet (ft) | .3048 | meters (m) |
| square miles ($mi^2$) | 2.59 | square kilometers ($km^2$) |
| cubic feet per second ($ft^3/s$) | .028317 | cubic meters per second ($m^3/s$) |
| ounces (oz) | 29.57 | milliliters (mL) |
| pounds (lbs) | 454 | kilograms (kg) |

ABBREVIATIONS USED IN COMPUTER PRINTOUTS

| | | | |
|---|---|---|---|
| BOT. | bottom | ML | milliliters |
| CFS | cubic feet per second | MAT. | material |
| COL. | colonies | UM | micrometers |
| DEG C | degrees Celsius | UG | micrograms |
| FT | feet | G/KG | grams per kilogram |
| IN | inches | MG/L | milligrams per liter |
| KJEL. | kjeldahl | MG/KG | milligrams per kilogram |
| LAT | latitude | UG/KG | micrograms per kilogram |
| LONG | longitude | | |

# DISCHARGE AND WATER-QUALITY DATA FOR SELECTED STREAMS AT LOW FLOW INCLUDING SOME BOTTOM-MATERIAL ANALYSES, AND LIMNOLOGICAL STUDY OF SIX LAKES, WESTCHESTER COUNTY, NEW YORK

By

Roger J. Archer and John T. Turk

## ABSTRACT

Discharge and water-quality data for 33 sites on selected streams at low flow, estimated 7-day, 10-year low flows for 10 sites, and chemical content of bottom-material samples from 17 sites are presented. Time-of-travel and water-quality data for a reach of Hallocks Mill Brook-Muscoot River downstream from a sewage-treatment plant are also included. Although all stream samples met most State Department of Health standards for water-supply source waters, they exceeded the standard for coliforms, and several showed excessive concentrations of organic nitrogen. Lead and PCB's were found in bottom materials at some sites.

Lakes Trinity, Kitchawan, Katonah, Mohegan, Lincolndale, and Peach were sampled three times from June to November 1976 for major nutrient concentration, algal production, toxic materials, biologic indicators of lake quality, major dissolved ions, and thermal stratification. Although the lake basins are geologically similar, the different land-use patterns and population densities are reflected in the variation in water chemistry. All showed a lack of oxygen in near-bottom water during the summer. Algal populations were similar and consisted principally of blue-green algae. Lakes Lincolndale and Katonah had arsenic concentrations as high as 15 and 55 micrograms per liter, respectively. In Lakes Katonah, Mohegan, Lincolndale, and Peach, calculated septic loadings of nitrogen and phosphorus exceeded the calculated natural loading. Algal growth-potential measurements indicate phosphorus to be a growth-limiting nutrient in all six lakes. All six lakes are classed as eutrophic.

## INTRODUCTION

For the development of a countywide plan for the management of waste treatment under Section 208 of the Federal Water Pollution Prevention and Control Act Amendments of 1972, the Westchester County Water Quality Planning Task Force requested the cooperation of the U.S. Geological Survey in the collection of basic data on selected streams at low flow, and on eutrophication of selected lakes. Those data are compiled herein for use with information collected by others and with historical records to provide a basis for (1) evaluation of stream and lake response to the control of point, nonpoint, and(or) intermittent point sources of pollution; (2) development of plans calling for facilities or nonstructural methods to control and minimize the degradation of water quality in the county, and (3) development and application of a ranking procedure for analyzing the effectiveness and weaknesses of such plans (see item 2).

Three categories of basic data were obtained during this study:

1. Stream data. These consist of water-discharge measurements and water-quality analyses for 33 selected sites during low flow, estimates of the 7-day, 10-year low flow for 10 of the sites, and bottom-material analyses for 17 sites.

2. Data for a reach of Hallocks Mill Brook - Muscoot River downstream from a sewage-treatment plant. These include time-of-travel measurements and water-quality analyses for use in a waste-assimilation study.

3. Limnological data obtained from six selected lakes. These describe nutrient loading, algal production, toxic substances, biologic indicators of water quality, major dissolved ions, and thermal stratification.

The study was made from June through November 1976 to encompass the period of minimum streamflow, maximum air and water temperature, and the overturn of lake water during the fall. All three categories of basic data in this report are directed at the question of water-management planning in Westchester County. The data categories have no direct relationship to one another and are presented as independent sections.

## STREAM DATA

To obtain a general knowledge of the quality of streams in the northern, less densely populated part of Westchester County during low flow (when streamflow consists mostly of ground-water contributions rather than runoff from precipitation), 33 sites that were judged likely to have a 7-day, 10-year low flow greater than 1 $ft^3/s$ were selected for sampling and water-discharge measurements. Streams known or reported to have pollution problems or to be subject to development pressures and possible water-quality degradation, as well as a few streams believed by local officials to be relatively pollution free, were represented in the sampling. Samples were collected from August 4-6, 1976, when the streams were at approximately 80-percent flow duration (a flow that is exceeded 80 percent of the time). Field measurements of specific conductance, temperature, pH, and dissolved oxygen were made, and samples were collected and later analyzed to determine the concentrations of major chemical constituents and nutrients and bacterial counts. Locations of the 33 data-collection sites are shown in figure 1 and described in table 1.

## Water-quality analyses

Results of the analyses indicate that the water in streams studied met most New York State standards for source waters for water supplies (New York State Department of Health, 1971) and that most characteristics studied were within recommended limits. Note that some streams sampled are not used as water-supply sources and that the source water standard is used only to provide a single standard to evaluate all streams. However, the coliform organism standard of 50 colonies per 100 mL was exceeded at all 33 sampling sites, and the standard of 0.5 mg/L organic nitrogen was exceeded in seven streams--Shrub Oak Brook, Furnace Brook, Croton River tributary, Waccabuc River, Muscoot River, Lake Shenorock outlet, and Hunter Brook. Croton River tributary, with a pH of 9.6, exceeded the standard of 8.5; and the dissolved-oxygen concentration of 1.6 mg/L in Crom Pond outlet was far below the lower limit of 4.0 mg/L for nontrout streams. Results of the water-quality analyses for the 33 sites are given in computer printout 1.

## Discharge measurements

Results of the discharge (volume of water that passes a given point within a given period of time) measurements made at the 33 sampling sites are given in table 2. To provide data for estimation of the flow duration at the sampling sites, table 2 also includes the flow duration (percentage of time that a flow is equaled or exceeded) for the time represented by the discharge measurements at long-term gaging stations Blind Brook at Rye and Fishkill Creek at Hopewell Junction.

## Estimated 7-day, 10-year low flows

At 10 of the 33 sites, three base-flow discharges (flows consisting mostly of ground-water contributions) were measured to derive estimates of the 7-day, 10-year low flow, or the mean daily flow during the 7 consecutive days of lowest flow that occurs on an average of once in 10 years. The measurement sites were selected from streams judged on the basis of drainage area to be most likely to have a 7-day, 10-year low flow in excess of 1 $ft^3/s$. On Kisco River and Stone Hill River, measurements were taken at two different sites to evaluate the difference in 7-day, 10-year low flow from site to site. Estimates of the 7-day, 10-year low flow were made by correlating streamflow measurements from

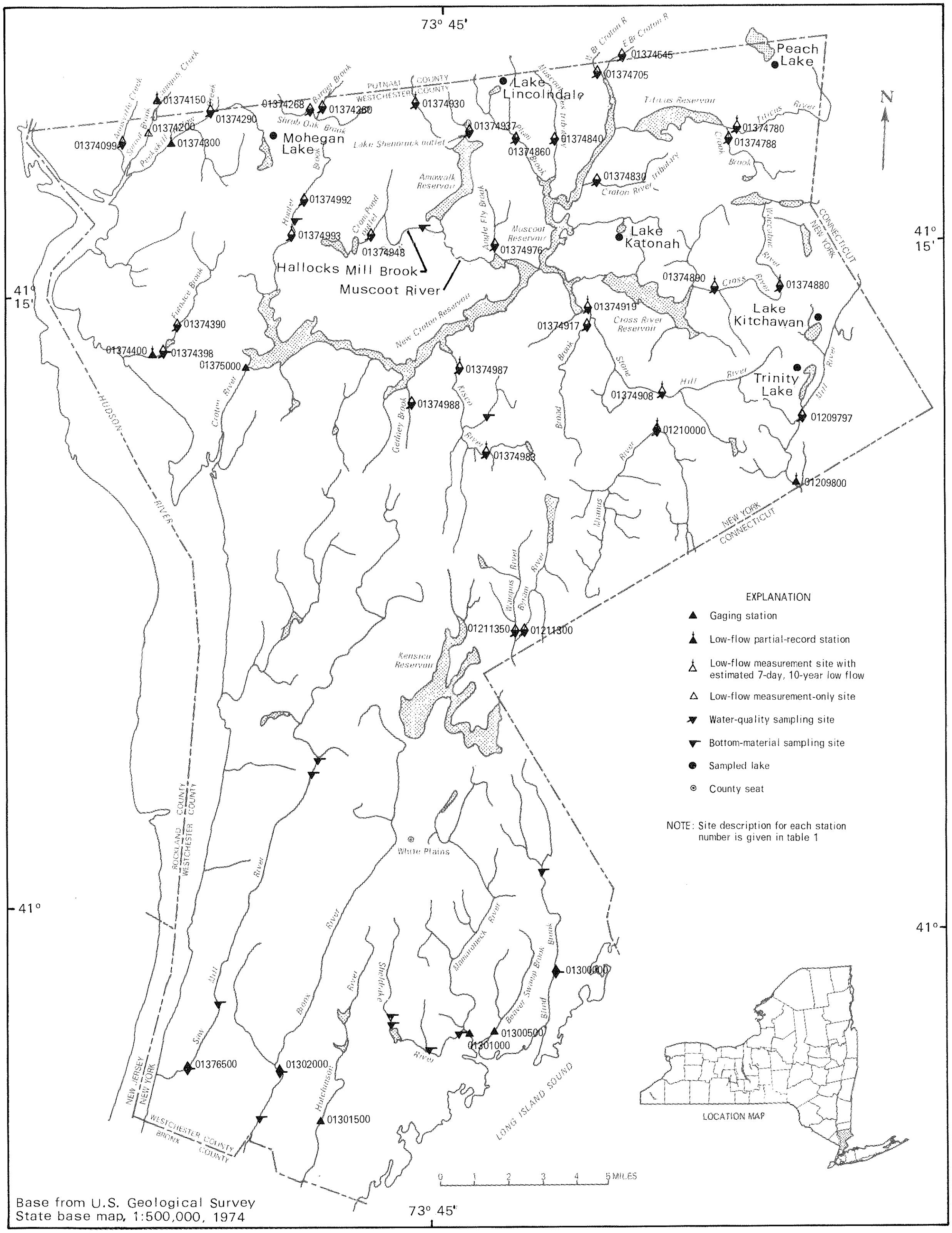


Figure 1. Location of study area and data-collection sites.

Table 1.--Location of measuring and sampling sites and gaging stations

| Station number and name | Location |
|---|---|
| 01209792 Mill River at Pound Ridge | Lat 41°12'32", long 73°33'21", Westchester County, at bridge on town highway (Winterbottom Road), 0.2 mi downstream from Trinity Lake outlet, 0.5 mi downstream from dam on Mill River reservoir, and 1.0 mi east of Pound Ridge. |
| 01209800 Mill River at Scott Corners | Lat 41°10'42", long 73°33'14", Fairfield County, Connecticut, at bridge on Trinity Pass Road and 1.0 mi south of Scott Corners. |
| 01210000 Mianus River at Bedford | Lat 41°12'06", long 73°37'59", Westchester County, at bridge on Middle Patent Road, 0.6 mi east of Bedford. |
| 01211300 Byram River at Armonk | Lat 47°07'27", long 73°42'19", Westchester County, at bridge on State Highway 22 and 128, in Armonk, and inside interchange for Interstate Highway 684. |
| 01211350 Wampus River at Armonk | Lat 41°07'18", long 73°42'38", Westchester County, 100 ft downstream from tributaries entering from both sides, 0.1 mi downstream from State Highway 22 and 128, 0.1 mi south of Armonk, and 0.5 mi upstream from mouth. |
| 01300000 Blind Brook at Rye | Lat 40°59'00", long 73°41'14", Westchester County, on left bank at Rye, just upstream from bridge on Theodore Fremd Avenue, 0.25 mi southwest of Penn Central Transportation Company railroad station, and 0.85 mi upstream from mean high tide in Milton Harbor. |
| 01300500 Beaver Swamp Brook at Mamaroneck | Lat 40°57'21", long 73°43'07", Westchester County, on right bank just downstream from bridge on Short Street, in Mamaroneck, and 0.2 mi downstream from Brentwood Brook, and 0.2 mi upstream from tidal barrier in Guion Creek, Mamaroneck Harbor. |
| 01301000 Mamaroneck River at Mamaroneck | Lat 40°57'14", long 73°44'06", Westchester County, on left bank in Mamaroneck, 113 ft downstream from bridge on Halstead Avenue, 700 ft downstream from Sheldrake River, and 0.3 mi upstream from mean high tide in Mamaroneck Harbor. |
| 01301500 Hutchinson River at Pelham | Lat 40°54'41", long 73°48'55", Westchester County, on right bank in Pelham, just upstream from Penn Central Transportation Company bridge, 100 ft downstream from Pelham Lake, and 1.5 mi west of New Rochelle. |

Table 1.--Location of measuring and sampling sites and gaging stations (Continued)

| Station number and name | Location |
|---|---|
| 01302000 Bronx River at Bronxville | Lat 40°56'09", long 73°50'10", Westchester County, on right bank in Bronxville, just upstream from Penn Central Transportation Company bridge, 800 ft downstream from Grassy Sprain Brook. |
| 01372800 Fishkill Creek at Hopewell Junction | Lat 41°34'22", long 73°48'25", Dutchess County, on right bank 400 ft upstream from bridge on State Highway 376, 500 ft upstream from small tributary, 0.6 mi south of State Highway 82, at Hopewell Junction. |
| 01374099 Annsville Creek above Wallace Pond at Peekskill | Lat 41°19'05", long 73°55'50", Westchester County, culvert on U.S. Highway 9, 400 ft upstream from Wallace Pond, and 0.9 mi north of Peekskill. |
| 01374150 Canopus Creek at Continental Village | Lat 41°20'15", long 73°54'17", Putnam County, at bridge on Gallows Hill Road, 0.7 mi upstream from Cortlandt Lake, at Continental Village. |
| 01374200 Sprout Brook near Annsville | Lat 41°19'11", long 73°54'57", Westchester County, at bridge on Sprout Brook Road and 1.2 mi northeast of Annsville. |
| 01374260 Barger Brook at Shrub Oak | Lat 41°19'53", long 73°49'15", Westchester County, at culvert on U.S. Highway 6 (GAR Highway) in Shrub Oak, 0.1 mi upstream from mouth. |
| 01374268 Shrub Oak Brook at Shrub Oak | Lat 41°20'03", long 73°49'34", Westchester County, at end of town road (Sunnyside Street) in Shrub Oak, 0.5 mi downstream from Barger Brook. |
| 01374290 Peekskill Hollow Creek near Peekskill | Lat 41°19'45", long 73°53'02", Westchester County, 300 ft downstream from end of town highway (Sherwood Avenue), 0.3 mi downstream from Putnam-Westchester county line, and 1.9 mi northeast of Peekskill. |
| 01374300 Peekskill Hollow Creek at Van Cortlandtville | Lat 41°19'04", long 73°54'19", Westchester County, at bridge on Gallows Hill Road, and 0.4 mi northeast of Van Cortlandtville. |
| 01374390 Furnace Brook near Peekskill | Lat 41°14'22", long 73°53'55", Westchester County, 100 ft downstream from bridge on Washington Street, 0.2 mi upstream from Furnace Brook Lake, and 2.4 mi southeast of Peekskill. |
| 01374398 Furnace Brook near Croton-on-Hudson | Lat 41°13'51", long 73°54'24", Westchester County, at bridge on Furnace Dock Road, 0.1 mi northeast of North Riverside Avenue, 0.3 mi downstream from Furnace Brook Lake, and 1.6 mi northwest of Croton-on-Hudson. |

Table 1.--Location of measuring and sampling sites and gaging stations (Continued)

| Station number and name | Location |
| --- | --- |
| 01374400 Furnace Brook at Oscawana | Lat 41°13'47", long 73°54'33", Westchester County, at bridge on North Riverside Avenue, 0.7 mi northeast of Oscawana. |
| 01374545 East Branch Croton River at Croton Falls | Lat 41°21'25", long 73°39'22", Putnam County, 300 ft upstream from private bridge, 0.6 mi northeast of Croton Falls, and 1.0 mi upstream from confluence with West Branch Croton River. |
| 01374705 West Branch Croton River at Croton Falls | Lat 41°20'55", long 73°40'03", Westchester County, at bridge on U.S. Highway 200 and State Highway 100, 0.2 mi upstream from confluence with East Branch Croton River, 0.3 mi east of Croton Falls, and 0.9 mi downstream from Croton Falls Reservoir. |
| 01374780 Titicus River at Salem Center | Lat 41°19'32", long 73°35'27", Westchester County, at bridge on State Highway 124, 0.4 mi southeast of Salem Center. |
| 01374788 Crook Brook at Salem Center | Lat 41°19'24", long 73°35'51", Westchester County, at bridge on road (Quaker Hill Road) between Turkey Hill Road and State Highway 124, 0.2 mi upstream from Titicus River, and 0.4 mi south of Salem Center. |
| 01374830 Croton River tributary at Goldens Bridge | Lat 41°18'16", long 73°40'16", Westchester County, at bridge on State Highway 22, 100 ft downstream from small pond, 0.3 mi upstream from mouth, and 0.8 mi northeast of Goldens Bridge. |
| 01374840 Muscoot Reservoir tributary at Somers | Lat 41°19'37", long 73°41'36", Westchester County, at culvert on U.S. Highway 202, 100 ft west of Warren Street, and 0.4 mi west of Somers. |
| 01374860 Plum Brook at Lincolndale | Lat 41°19'20", long 73°42'42", Westchester County, at bridge on Brick Hill Road in Lincolndale, and 1.4 mi upstream from Muscoot Reservoir. |
| 01374880 Waccabuc River at Boutonville | Lat 41°15'29", long 73°33'59", Westchester County, on Ward Pound Ridge Reservation, at mouth, 100 ft downstream from highway bridge on Boutonville Road, 300 ft west of State Highway 124, and 0.1 mi north of Boutonville. |
| 01374890 Cross River near Cross River | Lat 41°15'37", long 73°36'09", Westchester County, at bridge in Ward Pound Ridge Reservation, 0.7 mi upstream from Cross River Reservoir, and 0.7 mi east of Cross River. |

Table 1.--Location of measuring and sampling sites and gaging stations (Continued)

| Station number and name | Location |
|---|---|
| 01374908 Stone Hill River at Bedford | Lat 41°12'57", long 73°37'57", Westchester County, at bridge on State Highway 121 (Old Post Road), 1.0 mi northeast of State Highway 22 (Cantitoe Street), and 1.0 mi northeast of Bedford. |
| 01374917 Broad Brook at Katonah | Lat 41°15'54", long 73°40'14", Westchester County, 150 ft upstream from mouth, 0.2 mi north of Beaver Dam Road, and 1.1 mi southeast of Katonah. |
| 01374919 Stone Hill River at Katonah | Lat 41°15'06", long 73°40'35", Westchester County, at bridge on Saw Mill River Parkway, 500 ft downstream from bridge on Interstate 684, 0.3 mi upstream from Muscoot Reservoir, and 0.7 mi southeast of Katonah. |
| 01374930 Muscoot River at Baldwin Place | Lat 41°20'17", long 73°46'09", Westchester County, at bridge on U.S. Highway 6 (GAR Highway) 0.4 mi downstream from Putnam-Westchester county line, and 0.7 mi southwest of Baldwin Place. |
| 01374937 Lake Shenorock outlet at Shenorock | Lat 41°19'37", long 73°44'22", Westchester County, at outlet of Lake Shenorock, in Shenorock. |
| 01374948 Crom Pond outlet at Yorktown Heights | Lat 41°16'52", long 73°47'35", Westchester County, 25 ft downstream from culvert on U.S. Highway 202 - State Highway 35 (Crompond Road), and 0.8 mi northwest of Yorktown Heights. |
| 01374976 Angle Fly Brook at Whitehall Corners | Lat 41°16'57", long 73°43'33", Westchester County, at bridge on State Highway 35, 0.6 mi upstream from Muscoot Reservoir, and 1.0 mi northeast of Whitehall Corners. |
| 01374983 Kisco River at Lexington Ave. Mount Kisco | Lat 41°11'40", long 73°44'00", Westchester County, at bridge on Lexington Avenue 0.2 mi upstream from sewage treatment plant in Mount Kisco. |
| 01374987 Kisco River below Mount Kisco | Lat 41°13'43", long 73°44'39", Westchester County, at bridge on private road off Pines Branch Road, 0.3 mi from mouth on New Croton Reservoir, and 0.8 mi northwest of Mount Kisco. |
| 01374988 Gedney Brook near Mount Kisco | Lat 41°12'52", long 73°46'16", Westchester County, at bridge on Seven Bridges Road, 0.1 mi upstream from New Croton Reservoir, and 1.6 mi west of Mount Kisco. |

Table 1.--Location of measuring and sampling sites and gaging stations (Continued)

| Station number and name | Location |
| --- | --- |
| 01374992<br>Hunter Brook near Yorktown | Lat 41°17'29", long 73°49'59", Westchester County, at culverts on Stoney Street, 200 ft north of U.S. Highway 202 - State Highway 35 (Crompton Road), 0.5 mi upstream from Mill Pond, and 1.3 mi southwest of Yorktown. |
| 01374993<br>Hunter Brook below Mill Pond near Yorktown | Lat 41°16'49", long 73°50'03", Westchester County, at bridge on White Hill Road, 0.1 mi downstream from Mill Pond, and 1.7 mi southwest of Yorktown. |
| 01375000<br>Croton River at New Croton Dam, near Croton-on-Hudson | Lat 41°13'32", long 73°51'32", Westchester County, on left bank 1,000 ft downstream from New Croton Dam, and 1.8 mi northeast of Croton-on-Hudson. |
| 01376500<br>Saw Mill River at Yonkers | Lat 40°56'11", long 73°53'12", Westchester County, on left bank in Yonkers, just upstream from Old Croton aqueduct, near intersection of Nepperhan Avenue and Center Street, and 1.2 mi upstream from mouth. |

Table 2.--Drainage area and discharge measured at miscellaneous sites, and corresponding flow duration of Blind Brook at Rye and Fishkill Creek at Hopewell Junction

[Durations are percentage of time that flow was equaled or exceeded]

| Site number | Site name | Drainage area ($mi^2$) | Date | Time of measurement | Discharge ($ft^3/s$) | Flow duration: Blind Brook at Rye[2] | Flow duration: Fishkill Creek at Hopewell Junction[3] |
|---|---|---|---|---|---|---|---|
| *01209797 | Mill River at Pound Ridge | 5.13 | 8-04-76 | 1600 | 4.0 | 76 | 79 |
| 01210000 | Mianus River at Bedford | 10.4 | 8-03-76<br>8-04-76 | 0800<br>1300 | 4.1<br>4.2 | 72<br>74 | 78<br>79 |
| 01211300 | Byram River at Armonk | [1]4.19 | 8-04-76 | 0800 | .99 | 74 | 78 |
| 01211350 | Wampus River at Armonk | 3.34 | 8-04-76 | 1000 | .97 | 74 | 78 |
| 01374099 | Annsville Creek above Wallace Pond at Peekskill | 3.59 | 8-05-76 | 0900 | .59 | 80 | 81 |
| *01374200 | Sprout Brook near Annsville | 15.2 | 8-05-76 | 1200 | 3.4 | 79 | 81 |
| 01374260 | Barger Brook at Shrub Oak | 2.39 | 8-06-76 | 0900 | 2.4 | 83 | 81 |
| 01374268 | Shrub Oak Brook at Shrub Oak | 7.85 | 8-06-76 | 1000 | 2.1 | 83 | 81 |
| 01374290 | Peekskill Hollow Creek near Peekskill | 42.0 | 6-28-76<br>8-05-76<br>11-16-76 | 1540<br>1700<br>0930 | 17<br>14<br>45 | 84<br>79<br>53 | 74<br>81<br>43 |
| 01374300 | Peekskill Hollow Creek at Van Cortlandtville | 46.6 | 8-05-76 | 1500 | 16 | 79 | 81 |
| 01374390 | Furnace Brook near Peekskill | 5.45 | 8-04-76 | 0800 | .77 | 74 | 78 |
| 01374398 | Furnace Brook near Croton-on-Hudson | 7.21 | 8-04-76 | 1100 | .94 | 74 | 78 |
| *01374545 | East Branch Croton River at Croton Falls | 119 | 8-05-76 | 0830 | 56 | 80 | 81 |
| *01374705 | West Branch Croton River at Croton Falls | 54.3 | 8-05-76 | 0945 | 66 | 80 | 81 |
| 01374780 | Titicus River at Salem Center | 12.4 | 6-28-76<br>8-05-76<br>11-16-76 | 1200<br>1700<br>1455 | 4.2<br>3.9<br>11 | 83<br>79<br>50 | 74<br>81<br>43 |
| 01374788 | Crook Brook at Salem Center | 3.88 | 8-05-76 | 1500 | .66 | 79 | 81 |
| 01374830 | Croton River tributary at Goldens Bridge | 3.62 | 8-04-76 | 1345 | .85 | 76 | 79 |
| 01374840 | Muscoot Reservoir tributary at Somers | 2.14 | 8-05-76 | 1545 | .39 | 79 | 81 |
| 01374860 | Plum Brook at Lincolndale | 5.81 | 8-05-76 | 1630 | 1.2 | 79 | 81 |

Table 2.--Drainage area and discharge measured at miscellaneous sites, and corresponding flow duration of Blind Brook at Rye and Fishkill Creek at Hopewell Junction (Continued)

[Durations are percentage of time that flow was equaled or exceeded]

| Site number | Site name | Drainage area ($mi^2$) | Date | Time of measurement | Discharge ($ft^3/s$) | Flow duration: Blind Brook at Rye[2] | Flow duration: Fishkill Creek at Hopewell Junction[3] |
|---|---|---|---|---|---|---|---|
| 01374880 | Waccabuc River at Boutonville | 10.6 | 7-07-76 | 1200 | 4.3 | 76 | 75 |
| | | | 8-04-76 | 1800 | 7.0 | 76 | 79 |
| | | | 11-16-76 | 1315 | 14 | 50 | 43 |
| 01374890 | Cross River near Cross River | 17.1 | 6-28-76 | 1500 | 5.4 | 83 | 74 |
| | | | 8-05-76 | 1245 | 8.8 | 79 | 81 |
| | | | 11-16-76 | 1015 | 21 | 52 | 43 |
| 01374908 | Stone Hill River at Bedford | 7.55 | 7-07-76 | 1500 | 2.7 | 77 | 75 |
| | | | 8-04-76 | 1415 | 2.8 | 76 | 81 |
| | | | 11-16-76 | 0855 | 7.6 | 54 | 43 |
| 01374917 | Broad Brook at Katonah | 5.30 | 8-05-76 | 0915 | 2.5 | 80 | 81 |
| 01374919 | Stone Hill River at Katonah | 19.6 | 7-06-76 | 0800 | 9.5 | 72 | 72 |
| | | | 8-05-76 | 0800 | 8.5 | 80 | 81 |
| | | | 11-16-76 | 0745 | 18 | 57 | 43 |
| 01374930 | Muscoot River at Baldwin Place | 13.5 | 6-28-76 | 1735 | 2.5 | 84 | 74 |
| | | | 8-06-76 | 0815 | 1.8 | 83 | 82 |
| | | | 11-16-76 | 1050 | 22 | 52 | 43 |
| *01374937 | Lake Shenorock outlet at Shenorock | 1.08 | 8-04-76 | 1745 | .13 | 76 | 79 |
| 01374948 | Crom Pond outlet at Yorktown | 3.88 | 8-04-76 | 1800 | 1.8 | 76 | 79 |
| 01374976 | Angle Fly Brook at Whitehall | 3.01 | 8-04-76 | 1330 | .40 | 76 | 79 |
| 01374983 | Kisco River at Lexington Ave. at Mount Kisco | 6.06 | 7-07-76 | 0900 | 5.1 | 77 | 75 |
| | | | 8-04-76 | 0800 | 2.3 | 74 | 78 |
| | | | 11-16-76 | 1350 | 7.2 | 50 | 43 |
| 01374987 | Kisco River below Mount Kisco | 17.6 | 7-07-76 | 1100 | 9.0 | 77 | 75 |
| | | | 8-04-76 | 0910 | 6.6 | 74 | 78 |
| | | | 11-16-76 | 1305 | 17 | 50 | 43 |
| 01374988 | Gedney Brook near Mount Kisco | 2.01 | 8-04-76 | 1245 | .67 | 74 | 79 |
| 01374992 | Hunter Brook near Yorktown | 2.49 | 8-04-76 | 1400 | .47 | 76 | 79 |
| 01374993 | Hunter Brook below Mill Pond near Yorktown | 5.82 | 7-06-76 | 1030 | 3.0 | 72 | 72 |
| | | | 8-04-76 | 1600 | 1.5 | 76 | 79 |
| | | | 11-16-76 | 1200 | 6.7 | 52 | 43 |

* Substantial regulation known on this stream.

1 At site after channel relocation during construction of Interstate Highway 684.

2 Based on 1943-75 period of record.

3 Based on 1964-75 period of record.

individual sites with the streamflow at two nearby gaging stations (Blind Brook at Rye and Fishkill Creek at Hopewell Junction) for which long-term discharge records were available. The correlations were extended to the 7-day, 10-year low flow of the gaging stations to derive an estimate of the 7-day, 10-year low flow for the ungaged sites.

The method used for the computation of frequency characteristics is described in Riggs (1972), which also states (p. 10) that

> ...eight to ten measurements made on different recessions and in more than one year should provide adequate data to define a relation with concurrent flows at a long-record gaging station.

Thus, if only a small number of data points are available, the relationship between discharge at gaged sites and discharge at ungaged sites cannot be accurately derived by simple correlation, and when discharge during periods of low flow is derived from records of a period of heavy precipitation, such as 1976, the degree of accuracy is further reduced. Because of the time limitations of the study, only three discharge measurements were made at each site, and, for most sites, only one set of hydrologic conditions (1 season of 1 year) was represented. Thus, the estimated 7-day, 10-year low flows herein may be subject to large errors.

Table 3 gives the 7-day, 10-year low flow, as computed from correlations with each of the two index gaging stations and also the average of the two 7-day, 10-year low flows derived from the two correlations. The latter value is considered to be the best estimate obtainable from the scant data. Table 3 also includes the computed 7-day, 10-year low flow for Fishkill Creek at Hopewell Junction in lower Dutchess County, which was used as an index station, and for all gaging stations in Westchester County. Note that, except for the two gaging stations used for correlations in this study, stream regulation precludes the use of Westchester County gaging stations as index stations for correlation. Table 3 also includes 7-day, 10-year low flow for several sites in or adjacent to Westchester County whose correlations are based on data from 1956 to 1962.

Three long-term gaging stations on streams that have no known significant regulation were originally selected for correlation--Blind Brook at Rye, Beaver Swamp Brook at Mamaroneck, and Fishkill Creek at Hopewell Junction. However, correlations with Beaver Swamp Brook were not considered in the estimate of the 7-day, 10-year low flow because the correlations indicated values much lower than those at the other two index stations. Reasons for the low 7-day, 10-year low flow for Beaver Swamp Brook have not been determined. The best estimate of the 7-day, 10-year low flow was, therefore, based on the average of the correlations with Blind Brook and with Fishkill Creek. Factors that may indicate the relative accuracy of the 7-day, 10-year low flow but that cannot be quantified on the basis of available data are given below for each site.

Table 3.--Estimated 7-day, 10-year low flow at selected stations in or near Westchester County

| Station number | Station name | Type of station[1] | Period of record | Drainage area ($mi^2$) | 7-day, 10-year low flow [$(ft^3/s)/mi^2$] based on correlation with: Blind Brook | Fishkill Creek | 7-day, 10-year low flow: $ft^3/s$ | $(ft^3/s)/mi^2$ |
|---|---|---|---|---|---|---|---|---|
| 01209800 | Mill River at Scott Corners | PR | 1952-56 | 10.4 | -- | -- | 0.2 | .02 |
| 01210000 | Mianus River at Bedford | PR | 1952-56 | 10.4 | -- | -- | .7 | .07 |
| 01211300 | Byram River at Armonk[2] | PR | 1952-56 | [2]3.78 | -- | -- | .2 | .05 |
| 01300000 | Blind Brook at Rye | G | 1943- | 9.20 | -- | -- | [4].46 | .05 |
| 01300500 | Beaver Swamp Brook at Mamaroneck | G | 1943- | 4.71 | -- | -- | [4].06 | .01 |
| 01301000 | Mamaroneck River at Mamaroneck | G | 1943- | 23.4 | -- | -- | [3,4].31 | .01 |
| 01301500 | Hutchinson River at Pelham | G | 1943- | 5.76 | -- | -- | [3,4].05 | .01 |
| 01302000 | Bronx River at Bronxville | G | 1943- | 26.5 | -- | -- | [3,4]3.7 | .14 |
| 01372800 | Fishkill Creek at Hopewell Junction | G | 1957-75 | 57.3 | -- | -- | [5]1.8 | .03 |
| 01374150 | Canopus Creek at Continental Village | PR | 1954-66 | 14.5 | -- | -- | .3 | .02 |
| 01374290 | Peekskill Hollow Creek near Peekskill | M | 1976 | 42.0 | .08 | .07 | 3.1 | .07 |
| 01374300 | Peekskill Hollow Creek at Van Cortlandtville | PR | 1953-62 | 46.6 | -- | -- | 4.7 | .10 |
| 01374400 | Furnace Brook at Oscawana | PR | 1956-62 | 7.33 | -- | -- | 0 | 0 |
| 01374780 | Titicus River at Salem Center | M | 1976 | 12.4 | .05 | .02 | .47 | .04 |
| 01374880 | Waccabuc River at Boutonville | M | 1976 | 10.6 | .08 | .11 | 1.0 | .10 |
| 01374890 | Cross River at Cross River | M | 1974-76 | 17.1 | .04 | .02 | .48 | .03 |
| 01374908 | Stone Hill River at Bedford | M | 1976 | 7.55 | .03 | .06 | .37 | .05 |
| 01374919 | Stone Hill River at Katonah | M | 1976 | 18.6 | .10 | .16 | 2.4 | .13 |
| 01374930 | Muscoot River at Balwin Place | M | 1976 | 13.5 | <.01 | <.01 | <.1 | <.01 |
| 01374983 | Kisco River at Mt. Kisco | M | 1974-76 | 6.06 | .04 | .02 | .21 | .03 |
| 01374987 | Kisco River below Mt. Kisco | M | 1974-76 | 17.6 | .03 | .02 | .44 | .02 |
| 01374993 | Hunter Brook below Mill Pond near Yorktown | M | 1976 | 5.82 | .01 | .03 | .12 | .02 |
| 01376500 | Saw Mill River at Yonkers | G | 1943- | 25.6 | -- | -- | [3,4].56 | .02 |

[1] PR, partial-record station
G, long-term gaging station
M, Miscellaneous measuring sites

[2] At site before channel relocation during construction of Interstate Highway 684

[3] Regulated stream

[4] Based on 1943-75 period of record

[5] Based on 1964-75 period of record; no winter records 1957-63

01374290 Peekskill Hollow Creek near Peekskill. The best estimate was based on the average between the correlation with Blind Brook and Fishkill Creek. A slightly higher value might be expected, as indicated by the 7-day, 10-year low flow for 01374300 Peekskill Hollow Creek at Van Cortlandtville, which is estimated to be 4.7 $ft^3/s$ (0.1 $[ft^3/s]/mi^2$). The Van Cortlandtville site is 1.6 mi downstream and has an additional 4.6-$mi^2$ drainage area. No significant regulation is known or suspected upstream from the measurement site near Peekskill.

01374780 Titicus River at Salem Center. The best estimate is the average of the correlations with the two index stations. No significant regulation is known or suspected upstream from this site, and no other factors were available for consideration.

01374880 Waccabuc River at Boutonville. The best estimate seems relatively high and may be the result of the rather extensive lake and swamp geography in the basin upstream from this site. However, the higher 7-day, 10-year low flow is not reflected in the estimated 7-day, 10-year flow downstream at the Cross River at Cross River site. There probably should be better agreement between the estimated 7-day, 10-year low flow for 01374890 Cross River at Cross River site and that for the Waccabuc River site. Which of the two estimates is better cannot be determined from the available data.

01374908 Stone Hill River at Bedford and 01374919 Stone Hill River at Katonah. The best estimate for these two sites should probably be in better agreement with each other. The higher value for the Katonah site may be a result of the inflow of sewage in the Broad Brook, which enters Stone Hill River just upstream from the Katonah site.

01374930 Muscoot River at Baldwin Place. The estimated 7-day, 10-year low flow of less than 0.1 $ft^3/s$ (less than .01 $[ft^3/s]/mi^2$) is the lowest of the 10 estimates and seems anomalous. This low value is most likely a result of regulation in the upper basin, possibly at Lake Mahopac.

01374983 Kisco River at Mt. Kisco and 01374987 Kisco River below Mt. Kisco. The estimated 7-day, 10-year low flows seem reasonable and consistent with other estimates. An expected slight increase below Mt. Kisco was not evident. Possible explanations are that the lower drainage contributes much less flow than the headwater area, that undefined regulation is present, or that the data are insufficient.

01374993 Hunter Brook below Mill Pond near Yorktown. The estimated 7-day, 10-year low flow was estimated on the basis of the average of the correlations with the two index stations. Regulation from Mill Pond was apparently not significant.

## Bottom-Material Analyses

Bottom material from 9 streams at 17 sites was sampled from August to November 1976 to determine the presence or absence of potentially harmful substances. Some substances such as heavy metals that are relatively insoluble in oxygenated water concentrate in the stream-bottom material, particularly in areas of low stream velocity. Other substances, including metals and several types of organic chemicals, tend to concentrate on the surfaces of clay, organic detritus, and precipitated metal oxides in the bottom material. Thus, a potentially harmful substance that is not in water may be present in the stream-bottom material and may serve as a source of contamination for both the biota and the stream water.

The 17 sites were sampled for a broad range of pesticides, heavy metals, and nutrients. Three sites[1/] were sampled twice. Results of the chemical analyses are given in computer printout 2, in which sampling sites are listed in downstream order. Two types of site numbers are used in printout 2--the U.S. Geological Survey downstream-order identification number, where more than one type of data was collected at the site, and a geographical-location number, where only bottom-material samples were collected. The latter type contains 15 digits, the first 13 of which denote the degrees, minutes, and seconds of latitude and longitude, respectively, and the last 2 digits form sequential numbers for sites having the same latitude and longitude.

Although it is beyond the scope of this study to interpret the significance of stream-bottom-material analyses in terms of public health, computer printout 2 reveals that detectable concentrations of the pesticides chlordane, dieldrin, and DDT and its metabolites were present in most of the samples, that polychlorinated biphenyls (PCB's) were found in more than half the samples, and that the concentration of lead in the Sheldrake River at Mamaroneck was statistically higher than the average levels measured in the other streams sampled in this survey (that is, the concentration of lead was more than two standard deviations greater than the mean for all data in the survey).

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1/ (a) 405712073441800 Sheldrake River at Mamaroneck Avenue,
(b) 405449073510200 Bronx River at Mt. Vernon Avenue at Mount Vernon,
(c) 411218073434700 Kisco River tributary at Green Street at Mount Kisco.

# DATA FOR A WASTE-ASSIMILATION STUDY,

# HALLOCKS MILL BROOK - MUSCOOT RIVER

Data on stream velocity and water quality in a selected reach of Hallocks Mill Brook - Muscoot River were obtained as a basis for future evaluation of the stream's ability to assimilate effluent discharged into it from a sewage-treatment plant at Yorktown.

## Time of Travel

Time-of-travel data were obtained for the 1.4-mi reach of Hallocks Mill Brook from just upstream from the Yorktown Heights sewage-treatment-plant outfall to the mouth and then 1.1 mi down the Muscoot River to the Wood Street Bridge (fig. 2). Data on time of travel (the time needed by a stream to move water and its accompanying pollutants from point to point) provide one factor from which to determine the stream's capacity to transport, disperse, and assimilate sewage discharged into them. Time-of-travel studies using a fluorescent tracer dye were made on July 7 and 20, 1976 during periods of low base flow. Dye concentrations at successive time intervals during the two studies are plotted in figure 3; time-of-travel data are given in table 4. Discharge measurements at the five sampling sites on both dates are given in table 5.

## Water-Quality Analyses

Measurements of water temperature, pH, specific conductance, and dissolved-oxygen concentration were made at 2-hour intervals for a 24-hour period on July 20 and 21, 1976, at four sites on Hallocks Mill Brook - Muscoot River. Effluent of the Yorktown Heights sewage-treatment plant also was measured for these characteristics during the same period. Results of those measurements are given in computer printout 3. In addition, water samples were collected at 6-hour intervals at the same sites for nutrient analyses, 5-day biochemical oxygen demand measurements, and bacteria counts. Results of those analyses are given in computer printout 4. Biochemical oxygen demand of one of the 6-hour samples at each site was measured throughout a 29-day incubation period; the results are given in table 6.

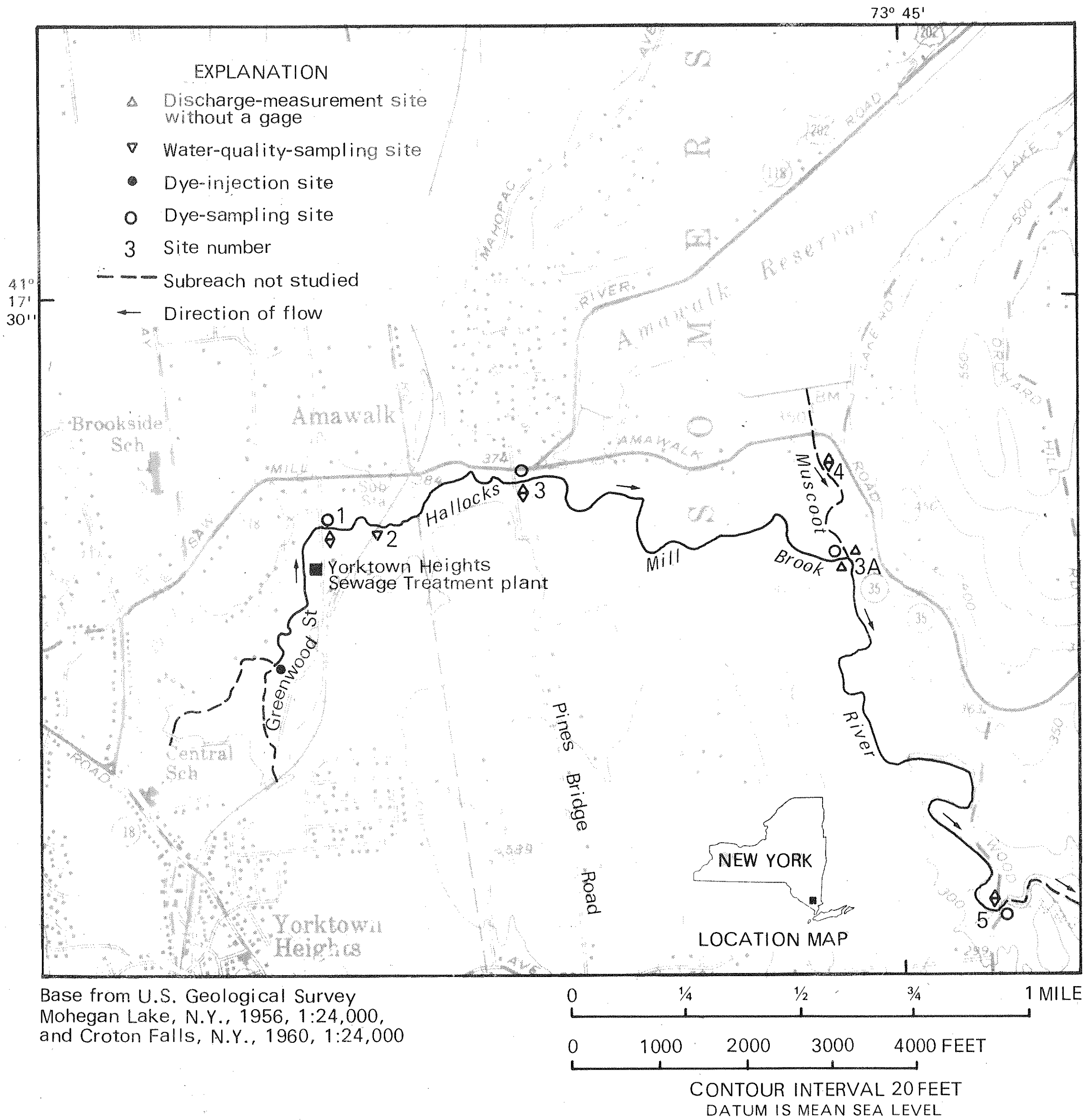


Figure 2. Location of sampling sites, Hallocks Mill Brook - Muscoot River.

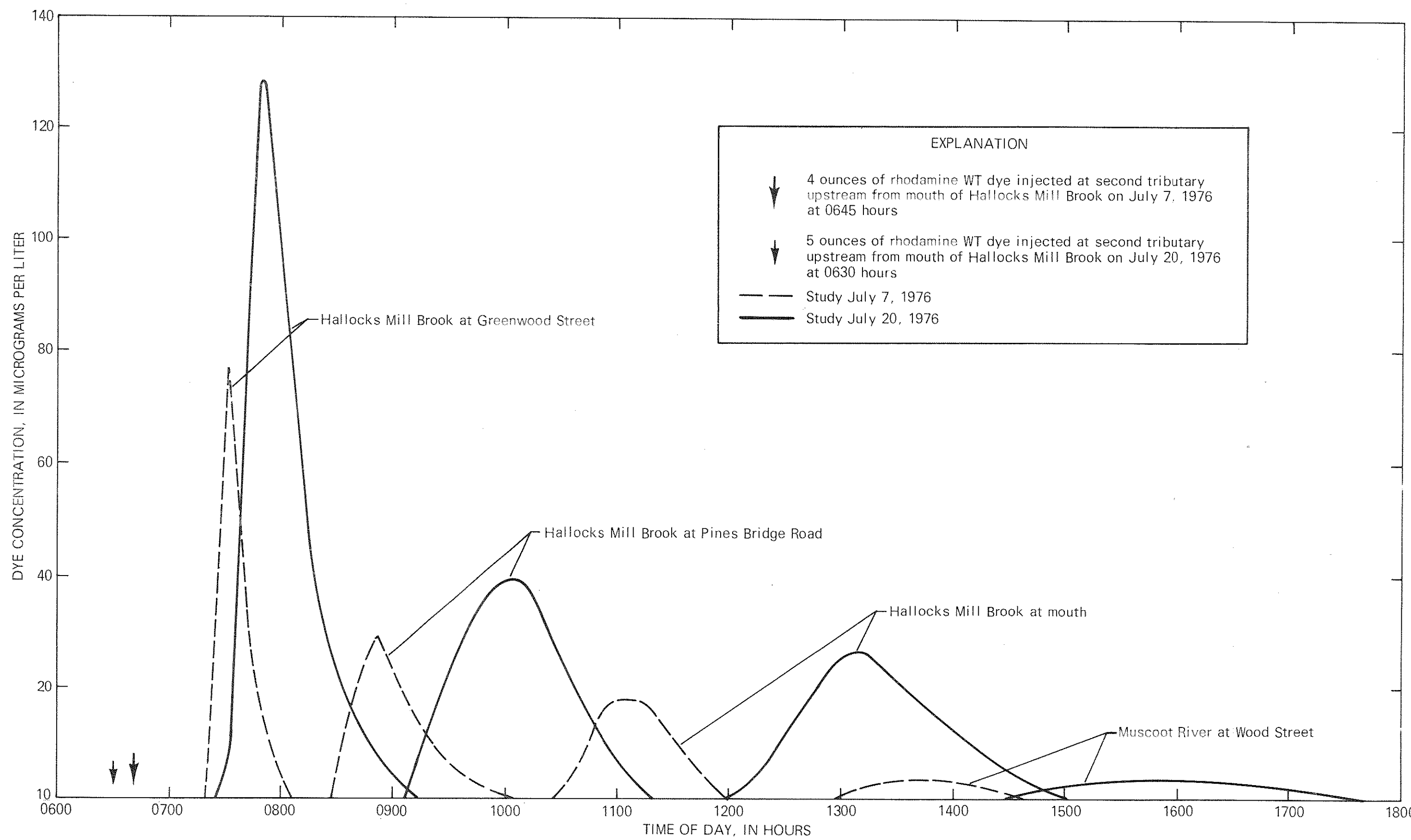


Figure 3. Dye concentration, Hallocks Mill Brook - Muscoot River

Table 4.--Time-of-travel data for Hallocks Mill Brook - Muscoot River during base flow

| Sampling site | Miles upstream from mouth | Miles traveled | Discharge at time of dye peak ($ft^3/s$) | Time of leading edge (hours after injection) | Velocity of leading edge (ft/s) | Time of peak (hours after injection) | Velocity of peak (ft/s) | Time of centroid (hours after injection) | Velocity of centroid (ft/s) | Time of trailing edge (hours after injection) |
|---|---|---|---|---|---|---|---|---|---|---|
| | July 7, 1976. Discharge at injection site 8.0 $ft^3/s$. Four oz rhodamine WT dye injected at 0645 hours. | | | | | | | | | |
| 1 | 3.8 | 0.4 | 8.0 | 0.65 | 0.90 | 0.85 | 0.69 | 0.89 | 0.66 | 1.23 |
| 3 | 3.4 | .8 | 9.0 | 1.75 | .67 | 2.13 | .55 | 2.29 | .51 | 3.02 |
| 3A | 2.4 | 1.8 | 11 | 3.72 | .71 | 4.38 | .60 | 4.48 | .59 | 5.25 |
| 5 | 1.3 | 2.9 | 33 | 6.05 | .70 | 7.10 | .60 | 7.16 | .59 | 8.35 |
| | July 20, 1976. Discharge at injection site 3.0 $ft^3/s$. Five oz rhodamine WT dye injected at 0630 hours. | | | | | | | | | |
| 1 | 3.8 | .4 | 3.5 | 1.00 | .59 | 1.33 | .44 | 1.50 | .39 | 2.20 |
| 3 | 3.4 | .8 | 4.2 | 2.55 | .46 | 3.55 | .33 | 3.64 | .32 | 4.85 |
| 3A | 2.4 | 1.8 | 5.0 | 5.40 | .49 | 6.65 | .40 | 6.84 | .39 | 8.40 |
| 5 | 1.3 | 2.9 | 31 | 7.90 | .54 | 9.35 | .46 | 9.62 | .44 | 11.70 |

Injection site - Hallocks Mill Brook 0.4 mile upstream from Greenwood Street
Sampling Site 1. Hallocks Mill Brook at Yorktown Heights (01374960) at bridge on Greenwood Street.
Sampling Site 3. Hallocks Mill Brook at Amawalk (00174963) at bridge on Pines Bridge Road.
Sampling Site 3A. Hallocks Mill Brook below Amawalk (01374965) 50 feet upstream from mouth.
Sampling Site 4. Muscoot River at Amawalk (01374942) 200 feet upstream from Hallocks Mill Brook.
Sampling Site 5. Muscoot River near Amawalk (01374970) at bridge on Wood Street.

Table 5.--Discharge measurements for Hallocks Mill Brook - Muscoot River

[Site locations are described in table 4]

| | Date | Time (hours) | Discharge ($ft^3/s$) |
|---|---|---|---|
| Site 1 | 7- 6-76 | 1145 | 8.2 |
| | 7-19-76 | 1015 | 3.8 |
| | 7-21-76 | 0720 | 3.1 |
| Site 3 | 7-19-76 | 1120 | 5.0 |
| | 7-21-76 | 0810 | 3.8 |
| Site 3A | 7- 6-76 | 1345 | 11 |
| | 7-19-76 | 1305 | 5.9 |
| | 7-20-76 | 1130 | 5.0 |
| Site 4 | 7- 6-76 | 1420 | 19 |
| | 7-19-76 | 1400 | 19 |
| | 7-21-76 | 0900 | 21 |
| Site 5 | 7- 6-76 | 1530 | 33 |
| | 7-19-76 | 1500 | 27 |
| | 7-21-76 | 1015 | 28 |

Table 6.--Biochemical oxygen demand, Hallocks Mill Brook - Muscoot River, July 21, 1976

[In milligrams per liter]

| Days of Incubation | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 |
|---|---|---|---|---|---|
| 1 | 0.0 | 0.0 | 0.5 | 0.5 | 0.1 |
| 2 | .3 | .1 | 1.7 | .4 | .3 |
| 5 | .8 | .4 | 5.8 | .8 | .9 |
| 7 | 1.3 | 1.9 | 8.3 | 1.4 | 1.3 |
| 10 | 1.8 | 10.5 | 10.6 | 1.8 | 1.6 |
| 14 | 2.7 | 18.7 | 12.1 | 2.7 | 2.5 |
| 16 | -- | 26.6 | -- | -- | -- |
| 17 | 2.8 | 27.2 | 12.6 | 2.5 | 2.3 |
| 19 | -- | 28.3 | -- | -- | -- |
| 21 | 3.4 | 28.9 | 13.5 | 2.7 | 2.6 |
| 23 | -- | 30.7 | -- | -- | -- |
| 29 | 4.8 | 33.8 | 15.1 | 4.0 | 3.8 |

Site 1. 01374960 Hallocks Mill Brook at Yorktown Height (Greenwood Street), 0005 hours

Site 2. 411704083462000 Yorktown Heights Sewage Treatment Plant (Effluent sample), 0030 hours

Site 3. 01374963 Hallocks Mill Brook at Amawalk (Pines Bridge Road), 0045 hours

Site 4. 01374942 Muscoot River at Amawalk (above Hallocks Mill Brook), 0100 hours

Site 5. 01374970 Muscoot River near Amawalk (at Wood Street), 0130 hours

## LIMNOLOGICAL STUDY OF SIX LAKES

Because of local concern by citizens and governmental agencies for preserving the quality of Westchester County lakes, the Westchester County Water Quality Planning Task Force requested cooperation of the U.S. Geological Survey in a limnological reconnaissance of representative lakes in the county. Data were collected from June to November 1976 in Lakes Katonah, Kitchawan, Lincolndale, Mohegan, Peach, and Trinity. Location of these lakes is shown in figure 1.

Basic limnological data were needed to characterize the chemical, physical, and biological condition of the lakes. Characteristics measured were temperature stratification; oxygen levels; population structure of algae and indicator bacteria; and the concentration of nitrogen, phosphorus, heavy metals, and major dissolved constituents. The possible role of nitrogen and phosphorus as limiting nutrients was also investigated through algal growth-potential measurements on spiked (artificially enriched with nutrients) and unspiked samples of filtered water from each lake.

Additionally, bottom materials from each lake were collected and analyzed for commonly used organic pesticides and some industrial organic chemicals. Because the chemicals studied are biologically active and more attracted to sediments than to water, they are rapidly removed from lake water to the lake bottom. Detection of these chemicals in water would be unlikely even if relatively large amounts enter the lake; however, the presence of organic chemicals under study can be readily determined through sampling and analysis of the lake sediments. Once the presence of chemicals such as polychlorinated biphenyls (PCB's), for example, is established, a program to determine sources and biological effects can be designed.

### Procedures

Samples for all constituents except indicator bacteria, which were collected nearshore, were taken from a single site in the area of maximum depth on each lake. The lakes' area of maximum depth was determined by running boat transects with a fathometer. Thermal stratification and concentration of dissolved oxygen were determined by profiling with a dissolved-oxygen meter.

When temperature stratification was observed, the epilimnion and hypolimnion (upper and lower water layers, respectively) were each divided into four strata of equal thickness, and samples of equal volume were collected from each stratum for further processing. In the absence of thermal stratification, the lake was arbitrarily divided at mid-depth, and the upper and lower layer were each subdivided and sampled as the stratified layers. The samples from each layer were analyzed for specific conductance, pH, dissolved orthophosphate, total orthophosphate, total phosphorus, silica, nitrite plus nitrate, ammonia, total kjeldahl nitrogen, calcium, magnesium, sodium, potassium, chloride, sulfate, bicarbonate, iron, manganese, lead, copper, zinc, mercury, cadmium, and arsenic. In addition, the top-layer samples were analyzed for chlorophyll A and for phytoplankton concentration and population structure.

Filtered samples of the top layer were divided into five subsamples, four of which were spiked, for determination of algal growth potential. Most spikes consisted of 0.1 and 1.0 mg/L phosphorus (P), 0.1 and 1.0 mg/L nitrogen (N), and 0.1 mg/L N and P. (See table 10.) Phosphorus was added as orthophosphate; nitrogen was added as nitrate. Greater amounts of nitrate were added to the October samples from Lakes Katonah, Lincolndale, and Mohegan because higher concentrations of nitrate were observed in these lakes at that time.

Indicator-bacteria samples for total coliform, fecal coliform, and fecal streptococci were collected nearshore in the areas used most heavily for swimming. In Trinity Lake, which is operated as a public water-supply source, bacteriological samples were collected from the area that seemed to be most heavily used by water fowl.

## Results of Analyses

Major dissolved ions.--The major products of the chemical weathering of a lake basin can be used to categorize lakes according to their chemical composition. Major differences in chemical composition of lake water may indicate differences in basin geology; however, chemical differences resulting from differing land uses among the lake basins are found in lakes having similar basin geology. Of the lakes studied, all except Lake Mohegan receive drainage from the Fordham Gneiss; Lake Mohegan lies entirely within the biotite granitic gneiss of the Highlands Complex. Lakes Peach, Trinity, and Kitchawan also receive drainage from the Schist of the Manhattan Formation; only Lakes Trinity and Kitchawan receive drainage from a markedly different rock type, the Inwood Marble, and can thus be expected to show greater hardness.

Because variations in evapotranspiration rate and the percentage of total lake inflow that has percolated through reactive rock influence the concentration of dissolved substances within the lake, the chemical composition of the lakes was compared by use of a concentration/specific-conductance ratio. Specific conductance increases with concentration of major dissolved ions in a water sample. In these lakes, for example, a 10-percent change in specific conductance would indicate an approximate 10-percent change in dissolved-solids concentration. Specific conductance of surface layers of Lakes Trinity, Kitchawan, Katonah, and Peach was near 170 µmho/cm at 25°C; that of Lake Mohegan averaged 230 µmho/cm; and that of Lake Lincolndale averaged 290 µmho/cm.

Table 7.--Ratio of concentration (milligrams per liter) to specific conductance (micromho per centimeter at 25°C) for selected chemical constituents of lakes studied

| Location and date of sample collection | Constituents | | | | | | | Specific conductance (µmho/cm at 25°C) |
|---|---|---|---|---|---|---|---|---|
| | Calcium (Ca) | Magnesium (mg) | Potassium (K) | Sodium (Na) | Bicarbonate ($HCO_3$) | Chloride (Cl) | Sulfate ($SO_4$) | |
| Trinity Lake | | | | | | | | |
| 7-08-76 | 0.14 | 0.02 | 0.01 | 0.02 | 0.43 | 0.04 | 0.07 | 182 |
| 8-31-76 | .13 | .03 | .01 | .02 | .42 | .04 | .06 | 190 |
| 10-26-76 | .13 | .02 | .01 | .02 | .51 | .05 | .07 | 180 |
| Mean ± standard deviation | 0.13 ±.01 | 0.02 ±.01 | 0.01 ±0 | 0.02 ±0 | 0.45 ±.05 | 0.04 ±.01 | 0.07 ±.01 | 184 ±5 |
| Lake Kitchawan | | | | | | | | |
| 7-06-76 | 0.14 | 0.01 | 0.01 | 0.02 | 0.42 | 0.04 | 0.04 | 170 |
| 8-26-76 | .13 | .02 | .01 | .02 | .40 | .03 | .05 | 160 |
| 10-27-76 | .15 | .02 | .01 | .02 | .48 | .04 | .05 | 160 |
| Mean ± standard deviation | 0.14 ±.01 | 0.02 ±.01 | 0.01 ±0 | 0.02 ±0 | 0.43 ±.04 | 0.04 ±.01 | 0.05 ±.01 | 163 ±6 |
| Lake Katonah | | | | | | | | |
| 7-01-76 | 0.09 | 0.03 | 0.01 | 0.04 | 0.35 | 0.07 | 0.06 | 185 |
| 8-26-76 | .09 | .03 | .01 | .04 | .39 | .06 | .02 | 195 |
| 10-21-76 | .09 | .03 | .01 | .05 | .43 | .08 | .04 | 160 |
| Mean ± standard deviation | 0.09 ±0 | 0.03 ±0 | 0.01 ±0 | 0.04 ±.01 | 0.39 ±.04 | 0.07 ±.01 | 0.04 ±.02 | 180 ±18 |
| Lake Mohegan | | | | | | | | |
| 6-30-76 | 0.10 | 0.03 | 0.01 | 0.05 | 0.30 | 0.10 | 0.07 | 230 |
| 8-24-76 | .09 | .03 | .01 | .05 | .30 | .09 | .05 | 240 |
| 10-20-76 | .10 | .03 | .01 | .05 | .35 | .10 | .05 | 220 |
| Mean ± standard deviation | 0.10 ±.01 | 0.03 ±0 | 0.01 ±0 | 0.05 ±0 | 0.32 ±.03 | 0.10 ±.01 | 0.06 ±.01 | 230 ±10 |
| Lake Lincolndale | | | | | | | | |
| 6-29-76 | 0.08 | 0.03 | 0.00 | 0.06 | 0.29 | 0.12 | 0.04 | 300 |
| 8-24-76 | .08 | .03 | .00 | .06 | .31 | .10 | .03 | 300 |
| 10-21-76 | .09 | .03 | .01 | .06 | .37 | .10 | .05 | 270 |
| Mean ± standard deviation | 0.08 ±.01 | 0.03 ±0 | 0.00 ±.01 | 0.06 ±0 | 0.32 ±.04 | 0.11 ±.01 | 0.04 ±.01 | 290 ±17 |
| Peach Lake | | | | | | | | |
| 7-07-76 | 0.09 | 0.03 | 0.01 | 0.03 | 0.30 | 0.06 | 0.08 | 170 |
| 8-30-76 | .07 | .02 | .01 | .03 | .24 | .05 | .06 | 210 |
| 10-27-76 | .12 | .04 | .01 | .04 | .41 | .08 | .08 | 140 |
| Mean ± standard deviation | 0.09 ±.03 | 0.03 ±.01 | 0.01 ±.01 | 0.03 ±.01 | 0.32 ±.09 | 0.06 ±.02 | 0.07 ±.01 | 173 ±.05 |

The concentration/specific-conductance ratios for major dissolved ions are presented in table 7, and results of chemical analyses are given in computer printout 5. Significant differences among the lakes are apparent only in calcium, bicarbonate, sodium, and chloride concentrations. The mean ratio of calcium to specific conductance lies within one standard deviation of 0.09 for each lake except Lakes Trinity and Kitchawan, which have significantly higher ratios. Lakes Trinity and Kitchawan also have the highest ratio of bicarbonate to specific conductance; their relative enrichment in bicarbonate is approximately the same as their relative enrichment in calcium. The calcium and bicarbonate enrichment is consistent with the expected effect of the Inwood Marble on the two lakes; however, it is not sufficient to affect the solubility of minor constituents markedly.

The ratio of sodium to specific conductance shows a significant variation among the six lakes, and this variation is parallel in direction and magnitude to changes in the ratio of chloride to specific conductance. Table 8 compares the range of chloride/specific-conductance ratios with the range in housing density (Charles R. Velzy Assoc., Inc. written commun., Nov. 3, 1976) around the six lakes. Although natural weathering of the basin and chloride loading through precipitation are likely to be major sources of chloride in all six lake basins, housing density is correlated with the ratio of chloride to specific conductance at the 90-percent confidence level for the residentially developed watersheds. Trinity Lake is not developed. Because the vicinity of the six lakes is entirely unsewered, septic waste would be expected to increase sodium and chloride loading of the lakes. Housing density may also indicate the degree of salt loading from winter road deicing. However, the concentrations of sodium and chloride are not sufficient to influence markedly the solubility, and thus the concentration, of minor chemical constituents of the lakes.

Dissolved oxygen and temperature profiling.--Figures 4-9 show the thermal and dissolved-oxygen profiles of the six lakes. Thermal stratification was observed in all but Lake Katonah. The profiles of dissolved-oxygen concentration and percent saturation generally parallel the temperature stratification.

Oxygen concentrations in the stratified lakes are generally higher near the surface, where oxygen can be renewed by exchange with the atmosphere and by photosynthesis. Oxygen concentration approached zero at the lower layers of each lake during at least one of the three collections.

The maximum surface temperature of all six lakes during the study period was approximately 27°C. This maximum may be attributed to such factors as the increased evaporative cooling with increasing water temperature and will vary from summer to summer depending upon weather conditions. The existence of a maximum attainable temperature would limit the amount of heat that could be stored during the summer by shallow lakes, but would not limit the amount stored by relatively deep lakes.

As the summer warming process is followed by fall cooling, the greater amount of heat that must be lost per unit of surface area by the deeper lakes preserves their thermal stratification longer than would be possible in shallower lakes.

The temperature and oxygen profiles of Trinity Lake indicate that this relatively deep lake remains stratified longer than the other lakes. The combination of relatively high light transmission (as indicated by Secchi disc) and greater depth than the other lakes allows the development of an epilimnion in Trinity Lake that is several times thicker than the maximum depth of the other lakes.

Table 8.--Comparison of chloride/specific-conductance ratio and mean total kjeldahl nitrogen concentration in hypolimnion with housing density in six lake basins, Westchester County

| Lake | Houses per acre (approximate) | Chloride/specific conductance ratio 1/ | Mean average total kjeldahl N 2/ (mg/L) |
|---|---|---|---|
| Trinity 3/ | 0 | 0.04 | 0.38 |
| Kitchawan | .32 | .04 | .50 |
| Peach | .59 | .06 | .83 |
| Katonah | .49 | .07 | .80 |
| Mohegan | .59 | .10 | 1.2 |
| Lincolndale | 1.23 | .11 | 1.1 |

1/ Mean of ratio of chloride concentration, in milligrams per liter, to specific conductance, in micromho per centimeter at 25°C, for all samples from each lake.

2/ Mean of total kjeldahl nitrogen, in milligrams per liter, for all hypolimnion (lower-layer) samples for each lake.

3/ Trinity Lake data are included only for comparative purposes. These data are not used in the correlation analysis.

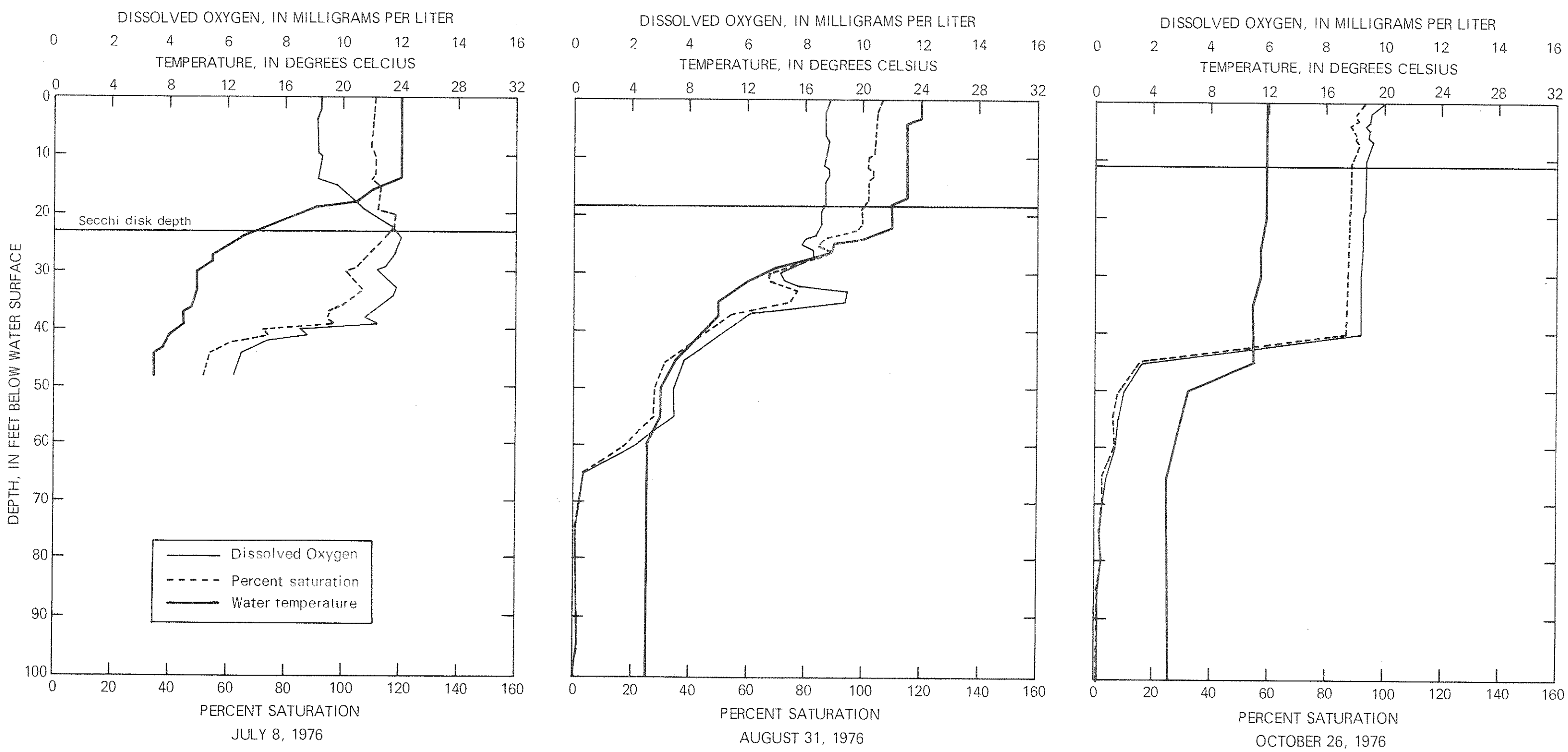


Figure 4. Thermal, dissolved-oxygen, and percent-saturation profiles for three dates during study period, Trinity Lake.

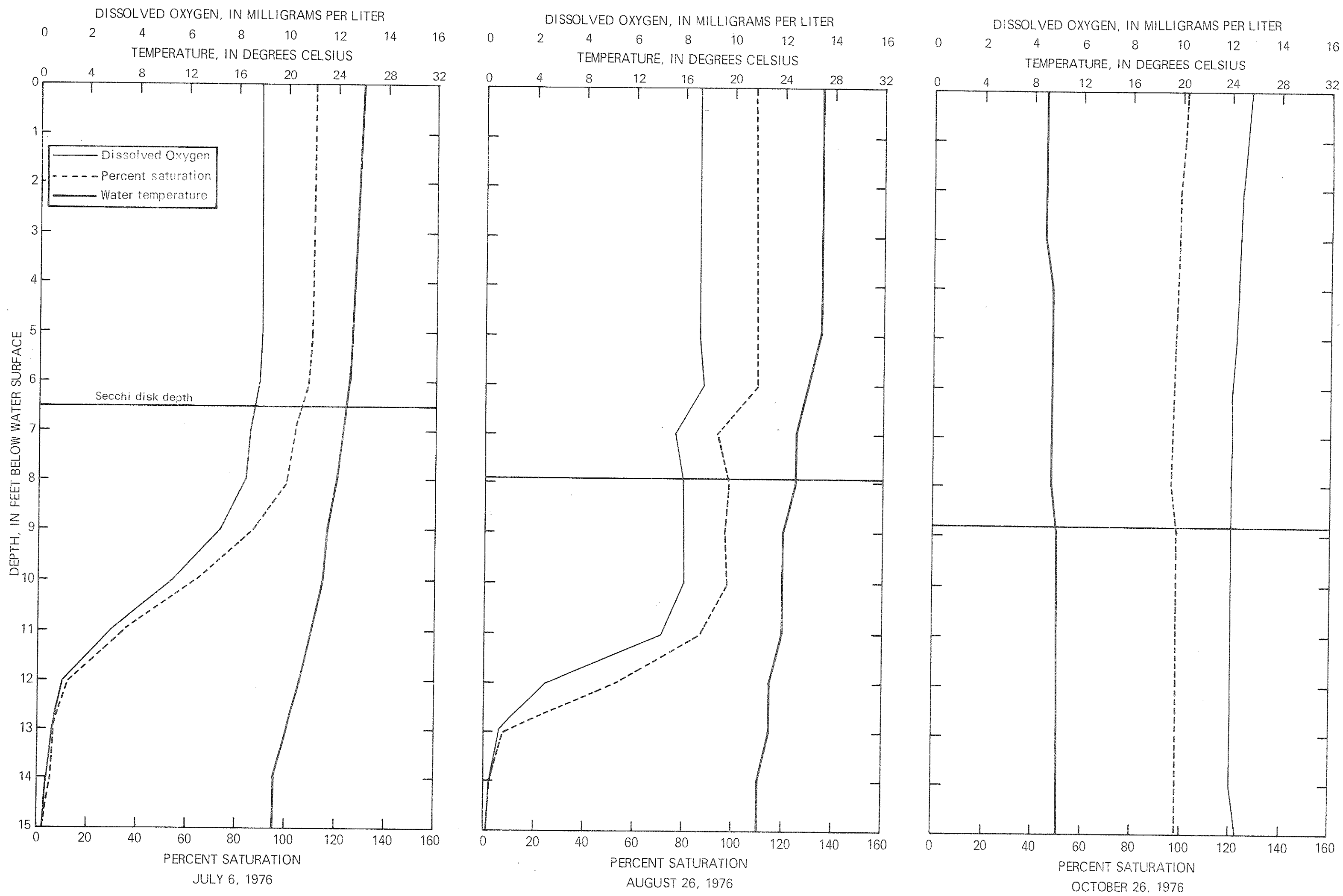


Figure 5. Thermal, dissolved-oxygen, and percent-saturation profiles for three dates during study period, Lake Kitchawan.

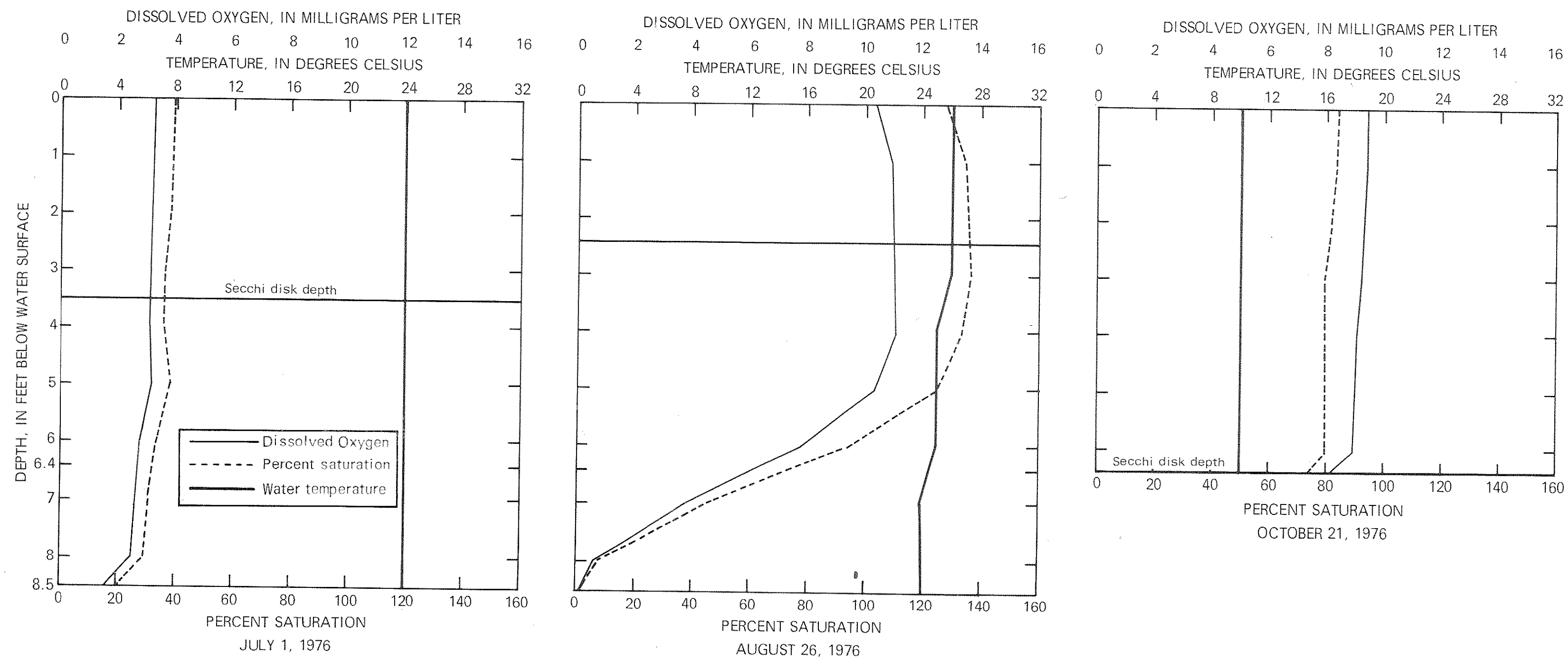


Figure 6. Thermal, dissolved-oxygen, and percent-saturation profiles for three dates during study period, Lake Katonah.

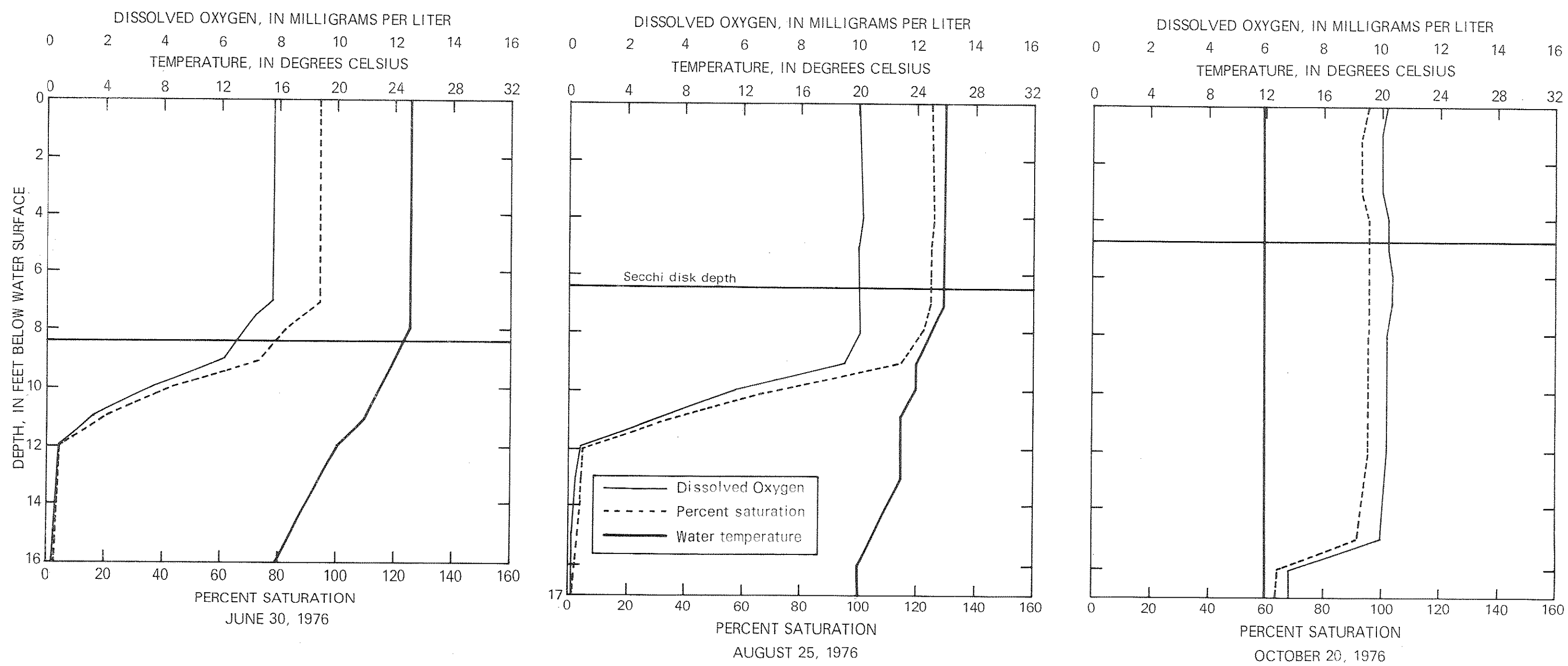


Figure 7. Thermal, dissolved-oxygen, and percent-saturation profiles for three dates during study period, Lake Mohegan.

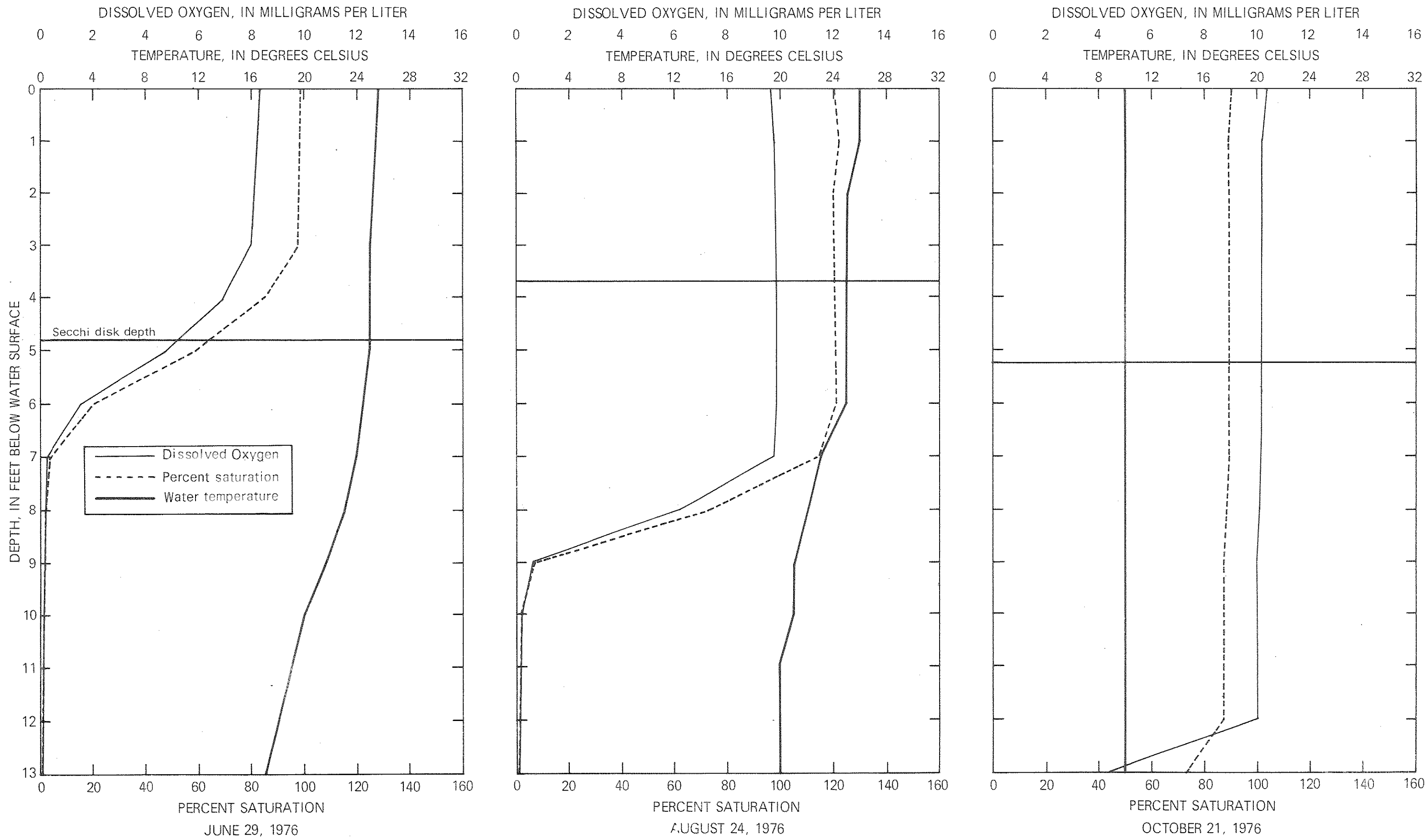


Figure 8. Thermal, dissolved-oxygen, and percent-saturation profiles for three dates during study period, Lake Lincolndale.

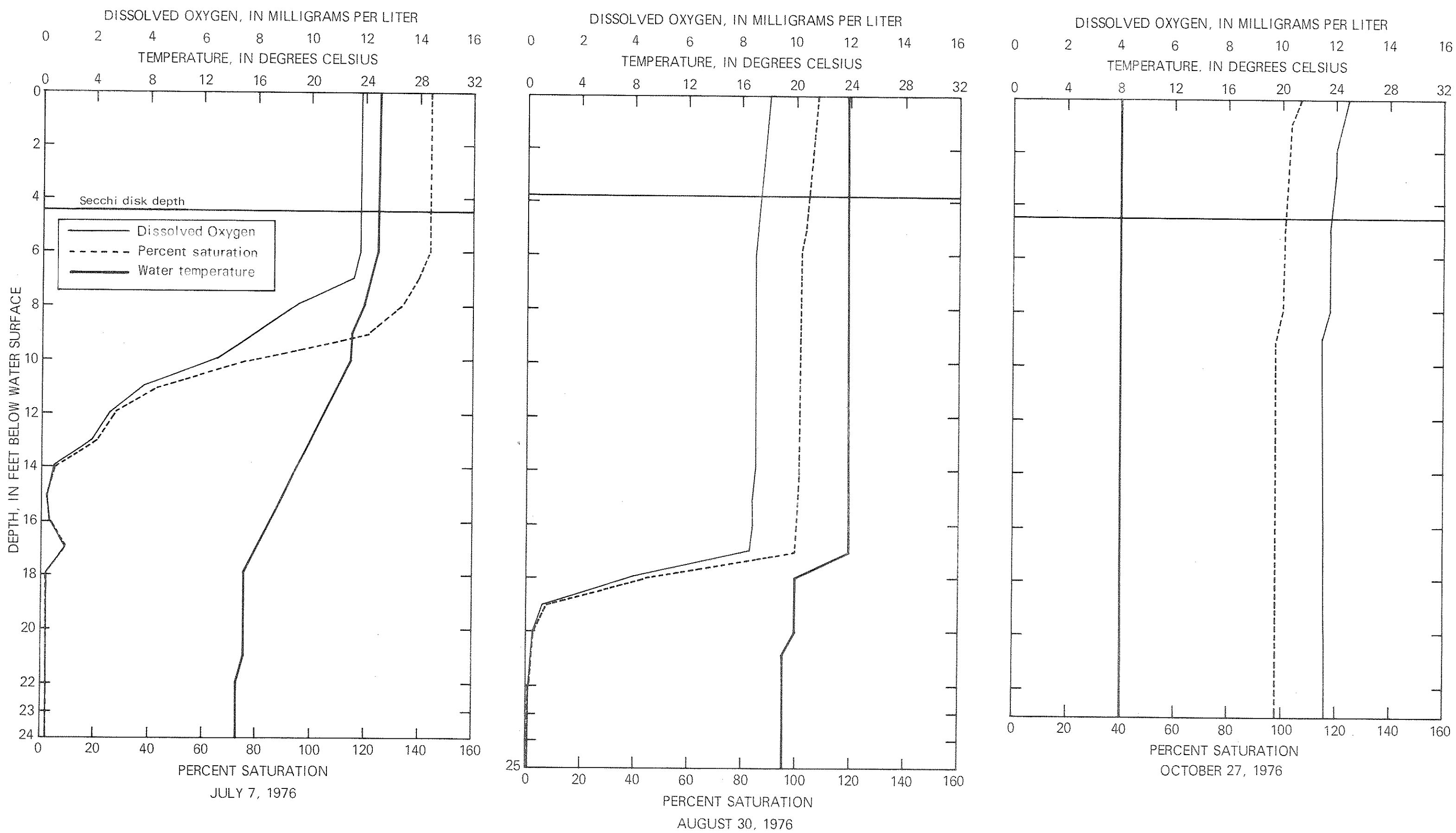


Figure 9. Thermal, dissolved-oxygen, and percent-saturation profiles for three dates during study period, Peach Lake.

The July 8 and August 31 samples from Trinity Lake display an oxygen profile that is markedly different from the October 26 profile and those of the other lakes. The oxygen bulge at approximately 30 feet could indicate either increased photosynthesis at a depth of approximately 30 feet or the preservation of previous higher concentrations of oxygen. Algal cell counts showed only 750 cells/mL in the July sample but 11,000 cells/mL in the August sample, when the oxygen bulge was smaller. A relatively high count of 7,000 cells/mL was shown in the October sample, at which time the oxygen bulge was absent.

Trinity Lake has cold, dense water averaging $5^3$C in the hypolimnion throughout the summer, a relic of the spring overturn of the lake after the final ice thaw. Oxygen saturation during spring overturn would have been approximately 13 mg/L, more than sufficient to account for the 12 mg/L observed in July. As the epilimnion warms after overturn, the water would be supersaturated with oxygen and would tend to lose oxygen through the lake surface, which would account for the decrease in oxygen at shallow levels. Respiration and inorganic oxidation in the hypolimnion would use up oxygen stored in the deeper part of the lake and account for the decrease in oxygen at deeper levels.

Temperature and oxygen profiles of Lake Katonah are also significantly different from those of the other lakes. None of the samples from Lake Katonah indicated thermal stratification; a marked drop in oxygen concentration with depth in August is the only indication that weak but effective stratification may exist. The high oxygen demand of respiration and inorganic oxidation indicated by the July measurement (less than 40 percent saturation in a shallow, unstratified system, and high ammonia concentration) suggest that the rapid drop in oxygen concentration with depth noted in August may be due to rapid uptake by decay processes on the lake bottom. During the same period, photosynthesis would be producing supersaturation of oxygen in the zone of light penetration, but oxygen concentrations may become low throughout the water column at night, when only respiration and oxidation occur.

Lakes Kitchawan, Mohegan, Peach, and Lincolndale exhibit temperature and oxygen profiles typical of small, stratified, productive lakes. In each of these lakes, a warm, oxygen-rich surface layer develops atop a cooler, oxygen-deficient lower layer during the summer. The oxygen deficiency in each of these lakes is sufficient to make the lower level incapable of supporting certain types of fish. Additionally, the destratification of each lake in the fall and spring should allow nutrients from the bottom to become available for early spring algal growth.

<u>Nitrogen, phosphorus, and heavy metals</u>.--The concentration of nitrogen varied from lake to lake with time and depth (computer printout 5). In Trinity Lake, even though the ammonia concentration (N) in the epilimnion was essentially constant at approximately 0.01 mg/L, it increased with time throughout the sampling period within the hypolimnion. This increase was paralleled by an almost equivalent decrease in the concentration of nitrite-plus-nitrate, although the relationship may not

be a causal one. In the poorly oxygenated hypolimnion, ammonia wastes may be accumulating without conversion from nitrate. Nitrate may be consumed directly as a source of nitrogen, in which case the relationship is causal, or as a source of energy for the oxidation of organic matter by the denitrification process, in which the nitrate nitrogen is not converted directly to ammonia.

In all sample analyses, Lake Katonah showed a significantly higher ammonia concentration at the surface than the other five lakes. The apparent lack of stratification in Lake Katonah may allow circulation of ammonia released from respiration and decay on the lake bottom, whereas in the other lakes, stratification restricts the ammonia to the hypolimnion. In each of the stratified lakes, ammonia concentrations were greater in the hypolimnion than in the epilimnion.

Total kjeldahl nitrogen (organic nitrogen plus ammonia) reflects nitrogen from former living matter such as algal cell material. Table 8 summarizes the range of the mean concentration of kjeldahl nitrogen in the lower level samples from each lake. The correlation with housing density is significant at the 95-percent confidence level; that is, chances are less than 1 in 20 that the statistical correlation between housing density and kjeldahl nitrogen concentration does not represent a direct cause-and-effect relationship. Only lower-level samples were used in this correlation because the rapid growth, death, and sinking of algae from surface layers to the lake bottom should result in wider fluctuations of kjeldahl nitrogen than would occur in the lower layers.

Total orthophosphate concentrations were uniformly low and averaged approximately 0.01 mg/L for each lake. Total phosphorus concentrations did not differ significantly from lake to lake.

Iron and manganese concentrations are normally influenced by stratification of lake systems because their solubility is highly dependent upon the presence of oxygen, which is greatest near the surface. Also, bottom deposits or sedimenting detritus from above containing these metals may be kept suspended temporarily within the denser water of the hypolimnion. In the stratified lakes, both iron and manganese were significantly higher in the hypolimnion than in the epilimnion. In lakes where the strata had mixed during the fall sampling, concentrations of iron and manganese were essentially the same in the upper and lower levels.

Other heavy metals such as lead, copper, and cadmium can be affected by stratification in the same manner as iron and manganese. Additionally, dissolution of iron and manganese can release other heavy metals that were adsorbed to the iron or manganese minerals. Of the other heavy metals, only copper, lead, and cadmium showed significant variations with depth.

The concentration of copper averaged 3 μg/L or less in all lakes except Katonah and Lincolndale, in which it averaged 13 and 8 μg/L, respectively. The relatively elevated levels in Lake Katonah probably reflect treatment for algae with copper sulfate; however, it is not clear whether Lake Lincolndale had received copper sulfate treatment. Although the copper concentrations did not exceed standards (New York State Department of Health, 1971) at the time of sampling, the apparent algal kill mentioned in the following section, "Biological Indicators of Lake Quality," suggests that copper treatment for algae can indirectly affect other life forms by depleting oxygen concentrations and generating ammonia.

Lead concentrations in all lakes averaged 11 μg/L or less; however, values as high as 29 μg/L were found. Relatively high values were found in Lakes Trinity, Katonah, and Mohegan. The higher lead concentrations were not limited to near-surface samples in which motor exhausts could be present. However, because occurrence of the higher lead concentrations was infrequent, no definition of the probable sources is possible. Nonpoint sources of lead would include runoff from roads, precipitation, and outboard-motor exhausts.

Cadmium concentrations averaged 1 μg/L or less in all lakes except Lake Mohegan, which averaged 2 μg/L. Cadmium concentrations significantly above the mean were always associated with the relatively high lead concentrations, which may indicate a common source of both cadmium and lead.

Arsenic, which often behaves like heavy metals, also varied significantly with depth. Significantly high concentrations of arsenic were found in Lakes Katonah and Lincolndale (as high as 55 and 15 μg/L, respectively). Because stratification was absent in Lake Katonah, arsenic concentrations were similar from top to bottom. Arsenic in the hypolimnion of Lake Lincolndale seemed to parallel the concentration of both iron and manganese. Lake Katonah has received treatment with algicides and herbicides, although it was not determined whether arsenical herbicides had been used. The use of arsenical herbicides is illegal at present in New York State; thus, the observed arsenic may have come from past applications that had been retained by the lake sediment. On two of the three sampling trips, arsenic concentrations in Lake Katonah exceeded the New York State source water standards for public drinking water supplies (New York State Department of Health, 1971). The extent to which this arsenic in Lakes Katonah and Lincolndale affects the fish and wildlife was not investigated.

<u>Biological indicators of lake quality</u>.--Counts of total coliforms, fecal coliforms, and fecal streptococci were generally within prescribed limits for primary contact recreation such as swimming (New York State Department of Health, 1973). Counts that were higher than desirable (Millipore Corp., 1976, p. 11) came from the August sample at Lake Kitchawan (with an undesirably high fecal coliform count, but permissible for swimming) and the August sample from Peach Lake (with a total coliform count above desirable levels for swimming).

The ratio of fecal coliform to fecal streptococci is often used as an indicator of the source of contaminating fecal material because the ratio differs according to type of animal source, with the ratio for human waste markedly higher than for common livestock or wildlife waste.

In all samples in which the fecal-streptococci density was greater than the minimum of 25 colonies/100 mL (Millipore Corp., 1976, p. 11), livestock wastes were indicated to be the source of fecal contamination. In the lake systems, interpretation of the ratio may be complicated by differences in the die-off rate of the two types of fecal bacteria because it is impossible to determine whether the samples were collected within 24 hours after discharge of the bacteria from the host species. The ratios for samples having a fecal streptococci density of 25 colonies/mL or greater are shown in table 9.

Table 10 summarizes the data on the algal population structure of the six lakes. At least one sample from each lake was dominated by blue-green algae, and blue-green algae were dominant in all samples from Lakes Trinity, Kitchawan, Mohegan, and Peach. Lake Lincolndale was the only lake in which blue-green algae were not dominant in at least two of the three samples; green algae were dominant in two of them.

Because the concentration of total algal cells varied so greatly with time within each lake, comparisons of average concentrations among the lakes could not be used for interpretation. The most noteworthy observation is that both the lowest and highest concentrations of algae were found in Lake Katonah, which reportedly was treated with 100 pounds of copper sulfate on June 26, 1976. This would explain the extremely low algal density on July 1 and also the high oxygen consumption shown in the oxygen profiles for July and August (fig. 6), because the decaying algae would use up dissolved oxygen. The decomposition of algae after copper sulfate treatment would also account for the high concentrations of ammonia observed in Lake Katonah (printout 5).

The high algal cell count observed in August reflects the inability of algicide treatment to eliminate this problem. Algal growth results from an abundant supply of nutrients, and the kill-off of an algal bloom liberates nutrients to support a new growth of algae. This conclusion is substantiated by the high algal-growth potential that immediately followed the copper sulfate treatment--it was higher than that of many of the samples spiked with nitrogen or phosphorus.

Table 9.--Ratio of fecal coliform to fecal streptococcus concentrations in samples from six lakes, Westchester County, N.Y.

| Lake | Date of sample collection | fecal coliform/ fecal streptococcus ratio |
|---|---|---|
| Trinity | 8-31-76 | 0.2 |
| Kitchawan | 7-06-76 | .4 |
| Katonah | 7-01-76 | .7 |
| | 10-21-76 | .3 |
| Mohegan | 10-30-76 | .0 |
| Lincolndale | 10-21-76 | .2 |
| Peach | 7-07-76 | .1 |

Table 10.--Predominant algal types in lakes studied

| Lake | Date (1976) | Algal type[1] | Cells/mL | Percent of total cell count | Diversity index |
|---|---|---|---|---|---|
| Trinity | 07-08 | *Anacystis*-B | 620 | 83 | 1.0 |
| | 08-31 | *Anacystis Incerta*-B | 6,500 | 57 | |
| | | *Oscillatoria*-B | 1,200 | 11 | 2.1 |
| | 10-26 | *Gomphosphaeria*-B | 3,200 | 45 | |
| | | *Oscillatoria*-B | 2,900 | 42 | 1.6 |
| Kitchawan | 07-06 | *Anacystis*-B | 9,700 | 72 | |
| | | *Fragilaria*-D | 2,400 | 18 | 1.4 |
| | 08-26 | *Anacystis*-B | 11,000 | 58 | |
| | | *Aphanizomenon*-B | 7,000 | 36 | 1.3 |
| | 10-27 | *Anacystis*-B | 20,000 | 96 | .3 |
| Katonah | 07-01 | *Nitzschia*-D | 73 | 28 | |
| | | *Anacystis*-B | 65 | 25 | |
| | | *Scenedesmus*-G | 49 | 19 | |
| | | *Fragilaria*-D | 49 | 19 | 2.4 |
| | 08-26 | *Aphanizomenon*-B | 190,000 | 75 | |
| | | *Anabaena*-B | 47,000 | 19 | 1.1 |
| | 10-21 | *Aphanizomenon*-B | 2,200 | 62 | |
| | | *Schroederia*-G | 450 | 12 | |
| | | *Sphaerocystis*-G | 360 | 10 | 1.8 |
| Mohegan | 06-30 | *Oscillatoria*-B | 26,000 | 70 | |
| | | *Agmenellum*-B | 7,800 | 21 | 1.2 |
| | 08-25 | *Gomphosphaeria*-B | 17,000 | 41 | |
| | | *Volvox*-G | 8,700 | 21 | |
| | | *Aphanizomenon*-B | 5,200 | 12 | |
| | | *Agmenellum*-B | 4,900 | 11 | 2.5 |
| | 10-20 | *Gomphosphaeria*-B | 44,000 | 77 | |
| | | *Melosira*-G | 6,900 | 12 | 1.1 |
| Lincolndale | 06-29 | *Anacystis*-B | 10,000 | 65 | |
| | | *Cryptomonas*-F | 2,800 | 18 | |
| | | *Schroederia*-G | 1,500 | 10 | 1.5 |
| | 08-24 | *Scenedesmus*-G | 57,000 | 81 | |
| | | *Cryptomonas*-F | 12,000 | 17 | .8 |
| | 10-21 | *Sphaerocystis*-G | 2,800 | 89 | .7 |
| Peach | 07-07 | *Aphanizomenon*-B | 25,000 | 41 | |
| | | *Agmenellum*-B | 19,000 | 31 | |
| | | *Oscillatoria*-B | 8,400 | 14 | 2.2 |
| | 08-30 | *Anacystis*-B | 97,000 | 48 | |
| | | *Gomphosphaeria*-B | 68,000 | 34 | |
| | | *Oscillatoria*-B | 19,000 | 10 | 1.6 |
| | 10-27 | *Aphanizomenon*-B | 2,400 | 24 | |
| | | *Anacystis*-B | 1,800 | 18 | |
| | | *Anabaena*-B | 1,600 | 16 | |
| | | *Melosira*-D | 1,300 | 13 | |
| | | *Scenedesmus*-G | 1,000 | 10 | 3.2 |

[1] B, blue-green algae; D, diatom; F, flagellate; G, green algae.

The diversity index, a measure of the variety among the populations contributing to the total algal cell count, is often used as a relative index of well-being of ecosystems. A low diversity-index value reflects the predominance of relatively few algal types in the total algal cell count, whereas high diversity-index values indicate relatively even proportions of many algal types in the total population. Although the diversity index has been widely used in rating the well-being of ecosystems such as stream bottoms, no generally accepted scale of values has yet been developed for lake systems. The diversity index for these samples is presented to allow comparison among the lakes in this study. The diversity indices tabulated in table 10 are computed at the generic level and reveal little real difference among the six lakes. The mean average diversity index of each lake is within two standard deviations of the mean for each of the other five lakes. In most cases, the mean of the diversity index is within one standard deviation of the mean for each other lake.

It is significant that Trinity Lake, which is both deeper than the other lakes and markedly lower in housing density, had a diversity index comparable to those of the other lakes, which are shallower and in densely populated basins. This indicates that the algal population in Trinity Lake is not in a more balanced state than those of the other lakes and that Trinity Lake is, therefore, as prone to blooms and die-offs of certain algal types as the lakes in uncontrolled watersheds. Algal conditions have been reported to be of sufficient magnitude in Lakes Katonah, Lincolndale, Kitchawan, and Mohegan to be classed as "nuisance" by representatives of the local lake associations.

<u>Algal growth-potential measurements</u>.--Results of the algal-growth-potential measurements on filtered samples, both spiked and unspiked, are given in table 11. The first samples for Lakes Katonah, Kitchawan, Peach, and Trinity were inadvertently spiked with nitrogen and phosphorus by contamination from the filters. Aside from the contaminated samples, all unspiked samples other than the October Lake Katonah sample had algal growth potentials of approximately 0.4 mg/L. The lakes did, however, show unequal responses to nitrogen and phosphorus.

In the August and November samples from Trinity Lake, the response to nutrient spikes indicates an initial phosphorus limitation to algal growth. In essence, the unspiked samples had adequate nutrients to support algal growth of about 0.4 mg/L; adding phosphorus alone allowed an additional algal growth of 1 to 2 mg/L before the nitrogen taken up by this growth exhausted the initial nitrogen available in the sample. A nitrogen spike after this induced growth then allowed the algae to continue to grow.

The August and November samples from Lake Kitchawan reflect the same general nutrient needs as the Trinity Lake samples. Phosphorus initially limited growth, whereas nitrogen had no effect. After initial growth, nitrogen became limiting in the November sample. Reasons for the discrepancy between the response to the 0.1-mg/L and the 1.0-mg/L phosphorus spikes in the August sample are not known.

Table 11.--Algal growth potential (AGP) in samples from lakes studied

[In milligrams per liter]

| Lake and date (1976) | Unspiked sample (AGP) | Phosphorus spikes | | | | Nitrogen spikes | | | | Phosphorus + nitrogen spike | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Spike | AGP | Spike | AGP | Spike | AGP | Spike | AGP | P | N | AGP |
| Trinity Lake | | | | | | | | | | | | |
| *July 8 | 1.8 | 0.1 | 2.6 | 1.0 | 2.8 | 0.1 | 2.6 | 1.0 | 9.8 | 0.1 | 0.1 | 2.8 |
| Aug. 31 | .4 | .1 | 1.7 | 1.0 | 1.6 | .1 | .7 | 1.0 | .3 | .1 | .1 | 5.4 |
| Nov. 17 | .3 | .1 | 2.5 | 1.0 | 2.2 | .1 | .3 | 1.0 | .3 | .1 | .1 | 13 |
| Lake Kitchawan | | | | | | | | | | | | |
| *July 6 | 3.2 | .1 | 2.7 | 1.0 | 2.5 | .1 | 3.3 | 1.0 | 10 | .1 | .1 | 3.3 |
| Aug. 26 | .4 | .1 | 3.8 | 1.0 | 1.8 | .1 | .5 | 1.0 | .4 | .1 | .1 | 4.2 |
| Nov. 17 | .4 | .1 | 4.7 | 1.0 | 3.4 | .1 | .4 | 1.0 | .4 | .1 | .1 | 16 |
| Lake Katonah | | | | | | | | | | | | |
| *July 1 | 11 | .1 | 11 | 1.0 | 11 | .1 | 14 | 1.0 | 20 | .1 | .1 | 14 |
| Aug. 26 | .2 | .1 | 5.2 | 1.0 | 2.6 | .1 | .3 | 1.0 | .4 | .1 | .1 | 7.1 |
| Oct. 21 | 1.8 | .1 | 11 | 1.0 | 16 | 1.8 | 1.9 | 18 | .7 | .1 | 1.8 | 26 |
| Oct. 21 | | .03 | 9.1 | .3 | 14 | .54 | 1.3 | 13 | 1.4 | .03 | .54 | 10 |
| Lake Mohegan | | | | | | | | | | | | |
| June 30 | .5 | .1 | 2.8 | 1.0 | 3.4 | .1 | .8 | 1.0 | .5 | .1 | .1 | 3.3 |
| Aug. 25 | .5 | .1 | 3.4 | 1.0 | 2.0 | .1 | .5 | 1.0 | .5 | .1 | .1 | 3.2 |
| Oct. 20 | .6 | .1 | 2.6 | 1.0 | 2.7 | 1.8 | .7 | 18 | .6 | .1 | 1.8 | 25 |
| Lake Lincolndale | | | | | | | | | | | | |
| June 29 | .2 | .1 | 2.0 | 1.0 | 2.1 | .1 | 1.2 | 1.0 | 1.3 | .1 | .1 | 1.9 |
| Aug. 24 | .4 | .1 | 2.4 | 1.0 | 1.9 | .1 | .3 | 1.0 | .3 | .1 | .1 | 3.0 |
| Oct. 21 | .4 | .1 | 7.7 | 1.0 | 8.7 | 1.8 | .5 | 18 | .4 | .1 | 1.8 | 24 |
| Peach Lake | | | | | | | | | | | | |
| *July 7 | 2.6 | .1 | 2.0 | 1.0 | 2.4 | .1 | 2.8 | 1.0 | 9.6 | .1 | .1 | 2.8 |
| Aug. 30 | .6 | .1 | 1.8 | 1.0 | 1.5 | .1 | .6 | 1.0 | .6 | .1 | .1 | 4.8 |
| Nov. 17 | .3 | .1 | 2.0 | 1.0 | 2.7 | .1 | .4 | 1.0 | .3 | .1 | .1 | 9.1 |

*All samples for this lake on this date had undefined additional phosphorus and nitrogen spike owing to contamination during filtration

The August and October samples from Lake Katonah showed the same initial phosphorus limitation followed by nitrogen limitation that was shown by Lakes Kitchawan and Trinity. The October sample showed not only a higher unspiked growth potential, but greater response to the appropriate limiting nutrient than the other samples.

All three samples from Lake Mohegan showed initial limitation by phosphorus. The June and August samples showed no response to nitrogen either alone or in combination with phosphorus, which indicates a lack of nitrogen limitation over the range of growth covered in these two samples. The October sample showed nitrogen to become limiting only after initial growth caused by the phosphorus spike.

The August and especially the October samples from Lake Lincolndale indicated initial phosphorus limitation followed by nitrogen limitation. The response to the nitrogen and phosphorus spikes of the June sample is puzzling; both nutrients seemed capable of inducing growth, either alone or in combination with one another, with no synergistic effect.

The August and November samples from Peach Lake showed the same initial phosphorus limitation followed by nitrogen limitation as that shown by the other lake samples. The magnitude of the response to the spikes is also of a magnitude comparable to that of the other lakes.

Nitrogen and phosphorus loading rates.--Surface-water loadings of nitrogen and phosphorus were not determined because the time available for the study was limited to June-November 1976 and because significant surface-water inputs were absent in the lakes studied. Surface-water loadings of nitrogen and phosphorus calculated for this project would be meaningless if not misleading because they would be for the time period of minimum probable transport. Also, the fact that there are no major surface-water inflows to these lakes suggests that surface-water loadings do not play the major role that they do in many other lake systems. The most important loadings of nitrogen and phosphorus for these systems are likely to originate from ground water and from surface runoff of precipitation directly into the lakes, rather than into streams. Because most of the lakes are generally shallow, internal cycling of nutrients is probably also a major factor in the productivity of these lake systems.

Atmospheric loadings of nitrogen and phosphorus were calculated from the loading rate at a precipitation-quality station at Mineola (Long Island), N.Y. over the 1975 water year, and from the drainage area of the individual lakes. The ground-water loadings attributed to septic discharges were calculated on the basis of population figures supplied by Charles R. Velzy Associates Inc. (1976) and per-capita loadings as used by the U.S. Environmental Protection Agency, (1974, p. 21) in the National Eutrophication Survey. For comparison, the calculated loadings are tabulated in table 12.

Table 12 shows that septic loadings have possibly supplanted natural loadings of nitrogen and phosphorus as the major source of these nutrients

Table 12.--Lake-basin loadings of nitrogen and phosphorus

| Lake | Lake area (acres) | Drainage area (acres) | Nitrogen Loading (kg/yr) | | Phosphorus Loading (kg/yr) | | Phosphorus Loading [(kg/acre)/yr] |
|---|---|---|---|---|---|---|---|
| | | | Precipitation 1/ | Septic | Precipitation 1/ | Septic | |
| Mohegan | 106 | 970 | 5,200 | 8,700 | 120 | 220 | 3.2 |
| Lincolndale | 21 | 324 | 1,700 | 6,000 | 40 | 150 | 9.0 |
| Katonah | 23 | 158 | 850 | 1,200 | 20 | 30 | 2.2 |
| Peach | 241 | 709 | 3,800 | 6,300 | 90 | 160 | 1.0 |
| Kitchawan | 99 | 588 | 3,100 | 2,900 | 70 | 70 | 1.4 |
| Trinity | 120 | 416 | 2,300 | -- | 50 | -- | .4 |

1/ Precipitation loadings include all precipitation transport into the entire lake basin. Within the basin, this loading may reach the lake as direct precipitation, surface-water inflow, ground-water inflow, or runoff.

for Lakes Mohegan, Lincolndale, Katonah, Peach, and possibly Lake Kitchawan. Table 12 also shows that the loading of the apparently limiting nutrient, phosphorus, is especially intense, compared to that of other lakes, in Lakes Lincolndale, Mohegan and Katonah, when expressed as loading per unit surface area of lake.

Trophic Status.--Assessment of the trophic status of the six lakes was not initially indicated as a need in the Westchester "208" program because the common observation of algal blooms was assumed to indicate eutrophic status for all six lakes. Additionally, a 10-month study of Lake Mohegan (R. R. Cardenas Jr., written commun. to Committee to Aid Lake Mohegan, April 9, 1973) concluded that this lake was in an advanced eutrophic state. Nevertheless, documentation of trophic status of the six lakes was requested after the field study was concluded.

Although several means of assigning the terms oligotrophic, mesotrophic, or eutrophic to lake systems have been proposed (Vollenweider, 1970; Hutchinson, 1967; Fruh, 1967), no single criterion for defining trophic status is universally appropriate. Geographic location, climate, morphometry, and hydrology can influence the relative importance of a given criterion, and also, trophic status actually refers only to the state of nutrient availability (Hutchinson, 1967).

Several factors evaluated during this study can be interpreted as indicators of the lakes' trophic status. In particular, the algal types and abundance, dissolved-oxygen distribution, and nitrogen and phosphorus concentrations are appropriate indicators for these lakes. However, one of the generally best indicators, phosphorus loading (Vollenweider, 1970), is not applicable to these lakes because the trophic classification of lakes by this criterion is based on surface-water input, and surface-water loading rates were not determined in this study. (See section "Nitrogen and phosphorus loading rates.") Even if it had been possible to determine surface-water loading rates for phosphorus, trophic-status assessment based on this factor would still be inadvisable. The phosphorus-loading system (Vollenweider, 1970) was developed for lakes that are fed primarily by surface water, but the lakes studied appear to be fed primarily by ground water so that literal application of the Vollenweider system would result in a less eutrophic rating of these lakes than is actually warranted. Use of total phosphorus loading from all sources would also be inadvisable because ground-water inflow below the thermocline may supply phosphorus that is not readily available for algae.

On the basis of algal cell count and algal type (table 10), all six lakes are eutrophic. Algal cell counts exceeded 1,000 cells/mL (Fruh, 1967), and the predominant types of blue-green and green algae observed are typically indicative of eutrophic lakes (Hutchinson, 1967).

On the basis of dissolved-oxygen distribution (figs. 4-9), all six lakes are eutrophic in that they have extreme clinograde dissolved-oxygen distributions and the dissolved-oxygen concentration approaches zero at depth at some period during the summer stratification (Hutchinson, 1957).

On the basis of nitrogen and phosphorus concentration (printout 5), all six lakes are eutrophic in terms of the method discussed by Sawyer (1947). Phosphorus concentrations exceeded 0.01 mg/L, and nitrogen concentrations exceeded 0.3 mg/L. In many respects, Sawyer's classification system is a steady-state simplification of the Vollenweider system, in that trophic status is based upon the net sum of all loading and removal mechanisms of the constituent in question.

In summary, three different criteria--algal type and abundance, dissolved-oxygen distribution, and nitrogen and phosphorus concentration--indicate that all six lakes are eutrophic.

Pesticides in bottom materials.--The results of analyses of bottom-material samples collected from each of the lakes in August 1976 are reported in computer printout 6. Samples from all lakes except Lake Lincolndale contained DDD and DDE (decomposition products of DDT) in amounts ranging from a trace to significant, or 3.5 to 700 μg/kg. Only the Trinity Lake sample contained chlordane and DDT. No samples contained any of the other 14 insecticides or the 3 herbicides analyzed for. Only the Lake Lincolndale sample contained PCB's.

## SUMMARY OF RESULTS

Water-quality data collected at sites on 33 Westchester County streams August 4 to 6, 1976 during low flow (80-percent or more duration) indicate that although the chemical characteristics of most streams met State standards for water-supply source waters, none met the coliform standard, and several failed to meet standards for organic nitrogen, pH, and dissolved oxygen. Chemical analyses of bottom materials indicated detectable concentrations of the insecticides chlordane, dieldrin, and DDT at most of the 17 stream sites sampled. Polychlorinated biphenyls (PCB's) were found in more than half the samples, and the lead concentration on one stream was significantly higher than at the other sites.

The six lakes studied are similar in bedrock geology, climate, and algal types and numbers. Minor differences in the chemistry of the lakes is attributable to the presence or absence of marble (calcium carbonate) in the gneissic basins, septic loadings of soluble constituents, or runoff containing salt from winter road deicing. The lakes probably receive most of their water by direct runoff and ground-water seepage rather than from major streams.

Oxygen depletion was found in all six lakes during the summer period of rapid plant growth and decay. Differences in the degree of oxygen depletion reflect the presence or absence of temperature stratification, distance from oxygen sources (algal production and atmospheric exchange) and oxygen sinks (bottom deposits and sedimenting algae), and anthropogenic causes such as algae control.

Nitrogen concentrations were highly variable from lake to lake and within individual lakes. Simple nitrogen species such as ammonia are apparently regenerated in the lower part of each lake. Thermal stratification, when present, confines the regenerated nitrogen to the unproductive bottom layer. Lack of thermal stratification, all year in Lake Katonah and during the fall and spring in the other lakes, allows the regenerated nitrogen to be used in algal production.

Phosphorus concentrations were similar in all six lakes, even though normalized loading rates varied by a factor of approximately 20. The apparent rapid uptake of phosphorus by plant growth limits orthophosphate concentrations to a consistently low value of approximately 0.01 mg/L.

Iron, manganese, and arsenic concentrations vary as an apparent function of the thermal stratification and oxygen depletion. Presence of arsenic may be due to past algal-control measures, whereas iron and manganese are presumed to be of natural origin. The elevated levels of arsenic, especially in Lake Katonah, may indicate degradation of the quality of the local ground water.

Bacteriological data indicate that the six lakes met New York State requirements for primary contact (swimming) water resources. The ratio of fecal coliform to fecal streptococci suggests that most fecal bacteria in the lakes are from livestock rather than human sources.

Algal types and numbers are similar among the lakes; blue-green algae normally predominate in all lakes except Lake Lincolndale. The generic diversity index values were also quite similar among the lakes.

Algal growth-potential measurements indicate phosphorus to be a growth limiting nutrient in all six lakes. Growth induced by phosphorus spikes was observed to deplete the available nitrogen and induce nitrogen limitation in most samples.

All six lakes can be classed as eutrophic on the basis of algal type and density, dissolved-oxygen distribution, and nitrogen and phosphorus concentrations.

Approximations of the nitrogen and phosphorus loadings derived from precipitation and septic waste showed large differences among the lakes as a result of residential development. In all lakes except Trinity, septic-waste loadings of nitrogen and phosphorus to the lake basins were calculated to approximate or exceed new nitrogen and phosphorus loadings from precipitation.

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## NOTE ON COMPUTER-PRINTED TABLES

The tables that follow were obtained through the National Water Data Storage and Retrieval System (WATSTORE) of the U.S. Geological Survey. Titles and footnotes have been added for readers' convenience.

In printouts 1 and 2, three pages are needed to accommodate the large number of chemical constituents and water-quality characteristics for which samples were analyzed. Thus, each of the first three pages lists the same sites, each with a different group of constituents. Similarly, the next three pages contain a second group of sites, with each page listing the same constituents as the corresponding page in the first group of sites.

Printouts 3 and 4 each consist of a single page.

In printout 5, the constituents are listed in three separate rows on each page; each page represents a different site.

Printout 6 contains two pages of constituents for one group of sites.

PRINTOUT 1.--WATER-QUALITY DATA FOR STREAM SITES AT LOW FLOW

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | AIR TEMPERATURE (DEG C) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | PERCENT SATURATION | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | STREPTOCOCCI (COLONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **01209797 - MILL RIVER AT POUND RIDGE NY (LAT 41 12 32 LONG 073 33 21)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1600 | 4.0 | 195 | 7.4 | 26.0 | 12.5 | 11.1 | 105 | 100 | B6 | 27 |
| **01210000 - MIANUS RIVER AT BEDFORD NY (LAT 41 12 06 LONG 073 37 59)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1300 | 4.2 | 210 | 7.3 | 25.0 | 20.5 | 7.2 | 80 | B9200 | B420 | B82 |
| **01211300 - BYRAM RIVER AT ARMONK NY (LAT 41 07 27 LONG 073 42 19)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 0800 | .99 | 415 | 7.1 | 19.0 | 16.0 | 8.7 | 88 | 1500 | 210 | 120 |
| **01211350 - WAMPUS RIVER AT ARMONK NY (LAT 41 07 18 LONG 073 42 38)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1000 | .97 | 342 | 7.3 | 22.0 | 20.0 | 6.8 | 74 | 1600 | B340 | 88 |
| **01374099 - ANNSVILLE C ABOVE WALLACE POND AT PEEKSKILL NY (LAT 41 19 05 LONG 073 55 50)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 0900 | .59 | 208 | 7.1 | 17.0 | 16.0 | 8.9 | 94 | 1100 | 240 | 95 |
| **01374200 - SPROUT BROOK NEAR ANNSVILLE NY (LAT 41 19 11 LONG 073 54 57)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 1200 | 3.4 | 144 | 7.2 | 23.0 | 22.0 | 8.7 | 104 | 640 | 80 | 240 |
| **01374260 - BARGER BROOK AT SHRUB OAK NY (LAT 41 19 53 LONG 073 49 15)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 06... | 0900 | .46 | 120 | 6.8 | 22.0 | 17.0 | 8.0 | 96 | 2300 | B290 | 300 |
| **01374268 - SHRUB OAK BROOK AT SHRUB OAK NY (LAT 41 20 03 LONG 073 49 34)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 06... | 1000 | 2.1 | 208 | 7.1 | 24.0 | 20.0 | 8.5 | 100 | 1200 | 130 | 400 |
| **01374290 - PEEKSKILL HOLLOW CREEK NEAR PEEKSKILL NY (LAT 41 19 45 LONG 073 53 02)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 1700 | 14 | 184 | 7.8 | 27.0 | 23.0 | 8.4 | 104 | 820 | 120 | 140 |
| **01374300 - PEEKSKILL HOLLOW CREEK AT VANCORTLANDTVILLE NY (LAT 41 19 04 LONG 073 54 19)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 1500 | 16 | 216 | 7.8 | 27.0 | 21.0 | 9.4 | 105 | 350 | B80 | 90 |
| **01374390 - FURNACE BROOK NEAR PEEKSKILL NY (LAT 41 14 22 LONG 073 53 55)** | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 0800 | .77 | 220 | 7.3 | 15.0 | 17.0 | 9.0 | 90 | -- | 46 | -- |
| SEP | | | | | | | | | | | |
| 01... | 0900 | -- | -- | -- | -- | -- | -- | -- | 640 | 21 | 370 |

B NONIDEAL COLONY COUNT
E ESTIMATED

PRINTOUT I.--WATER-QUALITY DATA FOR STREAM SITES AT LOW FLOW (CONT.)

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| 01209797 - MILL RIVER AT POUND RIDGE NY (LAT 41 12 32 LONG 073 33 21) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 5.0 | 25 | 5.1 | 5.4 | 1.5 | 80 | 9.0 | 13 | 83 | 18 |
| 01210000 - MIANUS RIVER AT BEDFORD NY (LAT 41 12 06 LONG 073 37 59) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 6.8 | 24 | 6.2 | 7.1 | 2.2 | 77 | 15 | 15 | 85 | 22 |
| 01211300 - BYRAM RIVER AT ARMONK NY (LAT 41 07 27 LONG 073 42 19) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 10 | 45 | 13 | 20 | 2.8 | 143 | 45 | 27 | 170 | 49 |
| 01211350 - WAMPUS RIVER AT ARMONK NY (LAT 41 07 18 LONG 073 42 38) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 8.6 | 32 | 11 | 17 | 3.1 | 112 | 30 | 25 | 130 | 33 |
| 01374099 - ANNSVILLE C ABOVE WALLACE POND AT PEEKSKILL NY (LAT 41 19 05 LONG 073 55 50) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 16 | 28 | 5.7 | 16 | 1.6 | 79 | 29 | 20 | 93 | 29 |
| 01374200 - SPROUT BROOK NEAR ANNSVILLE NY (LAT 41 19 11 LONG 073 54 57) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 7.0 | 19 | 3.7 | 5.7 | 1.1 | 55 | 10 | 12 | 63 | 18 |
| 01374260 - BARGER BROOK AT SHRUB OAK NY (LAT 41 19 53 LONG 073 49 15) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 06... | 9.2 | 14 | 4.7 | 6.0 | 1.1 | 50 | 10 | 9.5 | 54 | 13 |
| 01374268 - SHRUB OAK BROOK AT SHRUB OAK NY (LAT 41 20 03 LONG 073 49 34) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 06... | 5.0 | 26 | 8.8 | 19 | 2.6 | 94 | 26 | 22 | 100 | 24 |
| 01374290 - PEEKSKILL HOLLOW CREEK NEAR PEEKSKILL NY (LAT 41 19 45 LONG 073 53 02) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 6.9 | 19 | 6.0 | 9.4 | 1.8 | 64 | 16 | 14 | 72 | 20 |
| 01374300 - PEEKSKILL HOLLOW CREEK AT VANCORTLANDTVILLE NY (LAT 41 19 04 LONG 073 54 19) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 7.0 | 21 | 6.8 | 11 | 1.8 | 71 | 19 | 15 | 80 | 22 |
| 01374390 - FURNACE BROOK NEAR PEEKSKILL NY (LAT 41 14 22 LONG 073 53 55) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 11 | 18 | 14 | 10 | 2.2 | 105 | 16 | 13 | 100 | 16 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

B NONIDEAL COLONY COUNT
E ESTIMATED

PRINTOUT I.--WATER-QUALITY DATA FOR STREAM SITES AT LOW FLOW (CONT.)

| DATE | DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L) | TOTAL NONFILTRABLE RESIDUE (MG/L) | TOTAL ORGANIC NITROGEN (N) (MG/L) | TOTAL AMMONIA NITROGEN (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL KJELDAHL NITROGEN (N) (MG/L) | TOTAL NITROGEN (N) (MG/L) | TOTAL PHOSPHORUS (P) (MG/L) | BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| 01209797 - MILL RIVER AT POUND RIDGE NY (LAT 41 12 32 LONG 073 33 21) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 103 | 0 | .13 | .00 | .00 | .13 | .13 | .26 | .02 | .0 |
| 01210000 - MIANUS RIVER AT BEDFORD NY (LAT 41 12 06 LONG 073 37 59) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 114 | 3 | .42 | .01 | .01 | .23 | .43 | .67 | .04 | .3 |
| 01211300 - BYRAM RIVER AT ARMONK NY (LAT 41 07 27 LONG 073 42 19) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 233 | 3 | .44 | .01 | .02 | .64 | .45 | 1.1 | .02 | .1 |
| 01211350 - WAMPUS RIVER AT ARMONK NY (LAT 41 07 18 LONG 073 42 38) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 182 | 7 | .37 | .11 | .04 | .49 | .48 | 1.0 | .05 | .5 |
| 01374099 - ANNSVILLE C ABOVE WALLACE POND AT PEEKSKILL NY (LAT 41 19 05 LONG 073 55 50) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 155 | 1 | .09 | .01 | .01 | .44 | .10 | .55 | .04 | .5 |
| 01374200 - SPROUT BROOK NEAR ANNSVILLE NY (LAT 41 19 11 LONG 073 54 57) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 86 | 0 | .40 | .00 | .01 | .30 | .40 | .71 | .02 | .5 |
| 01374260 - BARGER BROOK AT SHRUB OAK NY (LAT 41 19 53 LONG 073 49 15) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 06... | 79 | 1 | .37 | .01 | .01 | .14 | .38 | .53 | .03 | .2 |
| 01374268 - SHRUB OAK BROOK AT SHRUB OAK NY (LAT 41 20 03 LONG 073 49 34) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 06... | 156 | 1 | .51 | .02 | .03 | 1.2 | .53 | 1.7 | .50 | 1.1 |
| 01374290 - PEEKSKILL HOLLOW CREEK NEAR PEEKSKILL NY (LAT 41 19 45 LONG 073 53 02) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 105 | 0 | .40 | .00 | .01 | .46 | .40 | .87 | .07 | .4 |
| 01374300 - PEEKSKILL HOLLOW CREEK AT VANCORTLANDTVILLE NY (LAT 41 19 04 LONG 073 54 19) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 117 | 0 | .30 | .00 | .01 | .65 | .30 | .96 | .07 | .6 |
| 01374390 - FURNACE BROOK NEAR PEEKSKILL NY (LAT 41 14 22 LONG 073 53 55) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 136 | 3 | .49 | .01 | .00 | .18 | .50 | .68 | .08 | .5 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

B NONIDEAL COLONY COUNT
E ESTIMATED

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | AIR TEMPERATURE (DEG C) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | PERCENT SATURATION | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | STREPTOCOCCI (COLONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01374398 - FURNACE BROOK NEAR CROTON-ON-HUDSON NY (LAT 41 13 51 LONG 073 54 24) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1100 | .94 | 220 | 7.6 | 22.0 | 20.0 | 8.3 | 91 | -- | 34 | -- |
| SEP | | | | | | | | | | | |
| 01... | 0900 | -- | -- | -- | -- | -- | -- | -- | 320 | B150 | 170 |
| 01374545 - EAST BRANCH CROTON RIVER AT CROTON FALLS NY (LAT 41 21 25 LONG 073 39 22) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 0830 | 56 | 223 | 7.8 | 18.5 | 18.5 | 8.9 | 95 | 96 | E40 | 26 |
| 01374705 - WEST BRANCH CROTON RIVER AT CROTON FALLS NY (LAT 41 20 55 LONG 073 40 03) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 0945 | 66 | 113 | 7.7 | 24.0 | 22.0 | 8.4 | 96 | 1300 | B14 | 77 |
| 01374780 - TITICUS RIVER AT SALEM CENTER NY (LAT 41 19 32 LONG 073 35 27) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 1700 | 3.9 | 292 | 7.6 | 24.0 | 21.0 | 8.3 | 93 | 280 | 22 | 110 |
| 01374788 - CROOK BROOK AT SALEM CENTER NY (LAT 41 19 24 LONG 073 35 51) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 1500 | .66 | 162 | 7.4 | 27.0 | 25.0 | 8.2 | 99 | 270 | 40 | 23 |
| 01374830 - CROTON RIVER TRIBUTARY AT GOLDENS BRIDGE NY (LAT 41 18 16 LONG 073 40 16) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1345 | .85 | 175 | 9.6 | 26.0 | 24.0 | 10.4 | 124 | 3200 | 47 | 69 |
| 01374840 - MUSCOOT RESERVOIR TRIBUTARY AT SOMERS NY (LAT 41 19 37 LONG 073 41 36) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 1545 | .39 | 295 | 7.8 | 27.0 | 24.0 | 10.5 | 121 | 1100 | 240 | 170 |
| 01374860 - PLUM BROOK AT LINCOLNDALE NY (LAT 41 19 20 LONG 073 42 42) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 1630 | 1.2 | 245 | 8.4 | 27.5 | 21.0 | 12.1 | 134 | 980 | B280 | 170 |
| 01374880 - WACCABUC RIVER AT BOUTONVILLE NY (LAT 41 15 29 LONG 073 33 59) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1800 | 7.0 | 158 | 7.2 | 26.5 | 20.5 | 8.6 | 95 | 520 | B90 | 180 |
| 01374890 - CROSS RIVER NEAR CROSS RIVER NY (LAT 41 15 37 LONG 073 36 09) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 1245 | 8.8 | 150 | 7.8 | 26.5 | 21.0 | 9.3 | 104 | 220 | 84 | 80 |
| 01374908 - STONE HILL RIVER AT BEDFORD NY (LAT 41 12 57 LONG 073 37 57) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1415 | 2.8 | 173 | 7.5 | 24.5 | 20.5 | 9.5 | 95 | 3800 | 31 | 80 |

B NONIDEAL COLONY COUNT
E ESTIMATED

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| 01374398 - FURNACE BROOK NEAR CROTON-ON-HUDSON NY (LAT 41 13 51 LONG 073 54 24) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 7.5 | 18 | 10 | 8.9 | 1.9 | 83 | 15 | 13 | 86 | 18 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 01374545 - EAST BRANCH CROTON RIVER AT CROTON FALLS NY (LAT 41 21 25 LONG 073 39 22) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 2.9 | 19 | 6.3 | 12 | 1.6 | 70 | 22 | 11 | 73 | 16 |
| 01374705 - WEST BRANCH CROTON RIVER AT CROTON FALLS NY (LAT 41 20 55 LONG 073 40 03) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 2.0 | 8.7 | 2.7 | 5.6 | .9 | 31 | 9.1 | 8.7 | 33 | 7 |
| 01374780 - TITICUS RIVER AT SALEM CENTER NY (LAT 41 19 32 LONG 073 35 27) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 8.7 | 33 | 11 | 8.3 | 2.3 | 130 | 17 | 13 | 130 | 21 |
| 01374788 - CROOK BROOK AT SALEM CENTER NY (LAT 41 19 24 LONG 073 35 51) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 5.0 | 18 | 4.7 | 4.1 | 1.4 | 71 | 6.7 | 11 | 64 | 6 |
| 01374830 - CROTON RIVER TRIBUTARY AT GOLDENS BRIDGE NY (LAT 41 18 16 LONG 073 40 16) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 9.2 | 16 | 4.8 | 8.0 | 1.7 | 60 | 12 | 8.2 | 60 | 11 |
| 01374840 - MUSCOOT RESERVOIR TRIBUTARY AT SOMERS NY (LAT 41 19 37 LONG 073 41 36) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 11 | 29 | 8.2 | 12 | 3.0 | 78 | 26 | 25 | 110 | 42 |
| 01374860 - PLUM BROOK AT LINCOLNDALE NY (LAT 41 19 20 LONG 073 42 42) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 8.1 | 22 | 8.2 | 11 | 1.7 | 88 | 20 | 11 | 89 | 17 |
| 01374880 - WACCABUC RIVER AT BOUTONVILLE NY (LAT 41 15 29 LONG 073 33 59) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 6.2 | 18 | 4.0 | 5.8 | 1.5 | 62 | 10 | 9.2 | 61 | 11 |
| 01374890 - CROSS RIVER NEAR CROSS RIVER NY (LAT 41 15 37 LONG 073 36 09) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 7.8 | 17 | 3.9 | 5.3 | 1.3 | 60 | 9.1 | 10 | 59 | 9 |
| 01374908 - STONE HILL RIVER AT BEDFORD NY (LAT 41 12 57 LONG 073 37 57) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 8.8 | 11 | 4.3 | 9.4 | 1.5 | 52 | 16 | 9.1 | 45 | 3 |

B NONIDEAL COLONY COUNT
E ESTIMATED

| DATE | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | TOTAL NON-FILT-RABLE RESIDUE (MG/L) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | BIO-CHEM-ICAL OXYGEN DEMAND 5 DAY (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| 01374398 - FURNACE BROOK NEAR CROTON-ON-HUDSON NY (LAT 41 13 51 LONG 073 54 24) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 115 | 0 | .57 | .01 | .01 | .26 | .58 | .85 | .06 | .5 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 01374545 - EAST BRANCH CROTON RIVER AT CROTON FALLS NY (LAT 41 21 25 LONG 073 39 22) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 109 | 6 | .41 | .02 | .01 | .16 | .43 | .60 | .04 | .7 |
| 01374705 - WEST BRANCH CROTON RIVER AT CROTON FALLS NY (LAT 41 20 55 LONG 073 40 03) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 53 | 2 | .48 | .02 | .01 | .03 | .50 | .54 | .02 | .2 |
| 01374780 - TITICUS RIVER AT SALEM CENTER NY (LAT 41 19 32 LONG 073 35 27) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 157 | 1 | .40 | .00 | .01 | .34 | .40 | .75 | .05 | .0 |
| 01374788 - CROOK BROOK AT SALEM CENTER NY (LAT 41 19 24 LONG 073 35 51) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 86 | 3 | .34 | .01 | .01 | .04 | .35 | .40 | .04 | .2 |
| 01374830 - CROTON RIVER TRIBUTARY AT GOLDENS BRIDGE NY (LAT 41 18 16 LONG 073 40 16) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 89 | 6 | .68 | .02 | .01 | .02 | .70 | .73 | .06 | 3.7 |
| 01374840 - MUSCOOT RESERVOIR TRIBUTARY AT SOMERS NY (LAT 41 19 37 LONG 073 41 36) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 153 | 28 | .44 | .01 | .01 | 2.2 | .45 | 2.7 | .08 | 1.2 |
| 01374860 - PLUM BROOK AT LINCOLNDALE NY (LAT 41 19 20 LONG 073 42 42) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 125 | 21 | .29 | .01 | .01 | .49 | .30 | .80 | .09 | .9 |
| 01374880 - WACCABUC RIVER AT BOUTONVILLE NY (LAT 41 15 29 LONG 073 33 59) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 85 | 4 | .67 | .01 | .01 | .13 | .68 | .82 | .07 | 1.4 |
| 01374890 - CROSS RIVER NEAR CROSS RIVER NY (LAT 41 15 37 LONG 073 36 09) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 84 | 2 | .35 | .00 | .01 | .11 | .35 | .47 | .06 | .4 |
| 01374908 - STONE HILL RIVER AT BEDFORD NY (LAT 41 12 57 LONG 073 37 57) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 86 | 6 | .49 | .01 | .01 | .24 | .50 | .75 | .03 | .0 |

B NONIDEAL COLONY COUNT
E ESTIMATED

| DATE | TIME | INSTANTANEOUS DISCHARGE (CFS) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | AIR TEMPERATURE (DEG C) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | PERCENT SATURATION | IMMEDIATE COLIFORM (COL. PER 100 ML) | FECAL COLIFORM (COL. PER 100 ML) | STREPTOCOCCI (COLONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01374917 - BROAD BROOK AT KATONAH NY (LAT 41 15 54 LONG 073 40 14) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 0915 | 2.5 | 408 | 7.7 | 20.0 | 17.5 | 9.0 | 94 | 520 | 75 | 260 |
| 01374919 - STONE HILL RIVER AT KATONAH NY (LAT 41 15 06 LONG 073 40 35) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | 0800 | 8.5 | 257 | 7.4 | 19.0 | 17.0 | 9.9 | 103 | 660 | 88 | 140 |
| 01374930 - MUSCOOT RIVER AT BALDWIN PLACE NY (LAT 41 20 17 LONG 073 46 09) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 06... | 0815 | 1.8 | 255 | 7.5 | 25.0 | 19.0 | 6.0 | 65 | 2600 | B530 | 200 |
| 01374937 - LAKE SHENOROCK OUTLET AT SHENOROCK NY (LAT 41 19 37 LONG 073 44 22) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1745 | .13 | 270 | 9.1 | 28.0 | 29.0 | 8.5 | 110 | 1300 | B72 | 73 |
| 01374948 - CROM POND OUTLET AT YORKTOWN NY (LAT 41 16 52 LONG 073 47 35) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1800 | 1.8 | 214 | 6.8 | 25.0 | 24.0 | 1.4 | 17 | -- | 30 | 32 |
| SEP | | | | | | | | | | | |
| 01... | 1100 | -- | -- | -- | -- | -- | -- | -- | 310 | 45 | 89 |
| 01374976 - ANGLE FLY BROOK AT WHITEHALL NY (LAT 41 16 57 LONG 073 43 33) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1330 | .40 | 215 | 7.5 | 26.0 | 18.0 | 8.6 | 92 | 1500 | 37 | 100 |
| 01374983 - KISKO RIVER AT LEXINGTON AVE AT MOUNT KISCO NY (LAT 41 11 40 LONG 073 44 00) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 0800 | 2.3 | 185 | 7.5 | 18.5 | 16.0 | 9.0 | 92 | B7100 | 160 | 310 |
| 01374987 - KISCO RIVER BELOW MOUNT KISCO NY (LAT 41 13 43 LONG 073 44 39) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 0910 | 6.6 | 290 | 7.8 | 17.0 | 16.5 | 9.1 | 95 | 1400 | B76 | 450 |
| 01374988 - GEDNEY BROOK NEAR MOUNT KISCO NY (LAT 41 12 52 LONG 073 46 16) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1245 | .67 | 280 | 7.6 | 23.0 | 16.5 | 9.1 | 95 | 5700 | 69 | 170 |
| 01374992 - HUNTER BROOK NEAR YORKTOWN NY (LAT 41 17 29 LONG 073 49 59.01) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1400 | .47 | 120 | 7.4 | 25.0 | 19.0 | 10.0 | 120 | -- | 42 | -- |
| SEP | | | | | | | | | | | |
| 01... | 1100 | -- | -- | -- | -- | -- | -- | -- | 950 | 44 | 130 |
| 01374993 - HUNTER BROOK BELOW MILL POND NEAR YORKTOWN NY (LAT 41 16 49 LONG 073 50 03) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | 1600 | 1.5 | 258 | 7.1 | 24.0 | 24.0 | 5.9 | 75 | -- | 140 | -- |
| SEP | | | | | | | | | | | |
| 01... | 1100 | -- | -- | -- | -- | -- | -- | -- | 780 | 31 | B94 |



B NONIDEAL COLONY COUNT
E ESTIMATED

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| 01374917 - BROAD BROOK AT KATONAH NY (LAT 41 15 54 LONG 073 40 14) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 13 | 45 | 15 | 13 | 3.4 | 152 | 33 | 32 | 170 | 49 |
| 01374919 - STONE HILL RIVER AT KATONAH NY (LAT 41 15 06 LONG 073 40 35) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 11 | 26 | 8.6 | 10 | 2.2 | 86 | 20 | 20 | 100 | 30 |
| 01374930 - MUSCOOT RIVER AT BALDWIN PLACE NY (LAT 41 20 17 LONG 073 46 09) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 06... | 7.3 | 21 | 7.5 | 13 | 1.6 | 83 | 22 | 11 | 83 | 15 |
| 01374937 - LAKE SHENOROCK OUTLET AT SHENOROCK NY (LAT 41 19 37 LONG 073 44 22) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 6.4 | 24 | 9.9 | 13 | 2.2 | 110 | 22 | 5.6 | 100 | 10 |
| 01374948 - CROM POND OUTLET AT YORKTOWN NY (LAT 41 16 52 LONG 073 47 35) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 7.4 | 20 | 6.9 | 12 | 1.2 | 79 | 19 | 10 | 78 | 14 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 01374976 - ANGLE FLY BROOK AT WHITEHALL NY (LAT 41 16 57 LONG 073 43 33) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 9.7 | 21 | 7.9 | 6.7 | 1.2 | 88 | 11 | 11 | 85 | 13 |
| 01374983 - KISKO RIVER AT LEXINGTON AVE AT MOUNT KISCO NY (LAT 41 11 40 LONG 073 44 00) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 12 | 19 | 5.6 | 7.6 | 2.1 | 63 | 13 | 16 | 71 | 19 |
| 01374987 - KISCO RIVER BELOW MOUNT KISCO NY (LAT 41 13 43 LONG 073 44 39) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 13 | 27 | 7.6 | 16 | 3.4 | 93 | 29 | 15 | 99 | 22 |
| 01374988 - GEDNEY BROOK NEAR MOUNT KISCO NY (LAT 41 12 52 LONG 073 46 16) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 14 | 27 | 7.6 | 13 | 2.9 | 78 | 25 | 21 | 99 | 35 |
| 01374992 - HUNTER BROOK NEAR YORKTOWN NY (LAT 41 17 29 LONG 073 49 59.01) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 13 | 27 | 9.7 | 14 | 1.9 | 91 | 28 | 19 | 110 | 33 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 01374993 - HUNTER BROOK BELOW MILL POND NEAR YORKTOWN NY (LAT 41 16 49 LONG 073 50 03) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 11 | 26 | 8.1 | 15 | 2.2 | 93 | 23 | 15 | 98 | 22 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |



B NONIDEAL COLONY COUNT
E ESTIMATED

| DATE | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | TOTAL NON-FILT-RABLE RESIDUE (MG/L) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | BIO-CHEM-ICAL OXYGEN DEMAND 5 DAY (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| 01374917 - BROAD BROOK AT KATONAH NY (LAT 41 15 54 LONG 073 40 14) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 229 | 2 | .44 | .01 | .03 | .97 | .45 | 1.5 | .17 | .1 |
| 01374919 - STONE HILL RIVER AT KATONAH NY (LAT 41 15 06 LONG 073 40 35) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 05... | 140 | 1 | .33 | .00 | .01 | .53 | .33 | .87 | .07 | .0 |
| 01374930 - MUSCOOT RIVER AT BALDWIN PLACE NY (LAT 41 20 17 LONG 073 46 09) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 06... | 124 | 8 | .67 | .01 | .01 | .25 | .68 | .94 | .07 | 1.2 |
| 01374937 - LAKE SHENOROCK OUTLET AT SHENOROCK NY (LAT 41 19 37 LONG 073 44 22) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 137 | 4 | 1.2 | .02 | .01 | .00 | 1.2 | 1.2 | .07 | 5.2 |
| 01374948 - CROM POND OUTLET AT YORKTOWN NY (LAT 41 16 52 LONG 073 47 35) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 115 | 1 | .42 | .18 | .05 | .28 | .60 | .93 | .06 | 1.4 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 01374976 - ANGLE FLY BROOK AT WHITEHALL NY (LAT 41 16 57 LONG 073 43 33) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 112 | 53 | .28 | .00 | .00 | .10 | .28 | .38 | .06 | .0 |
| 01374983 - KISKO RIVER AT LEXINGTON AVE AT MOUNT KISCO NY (LAT 41 11 40 LONG 073 44 00) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 106 | 1 | .29 | .01 | .01 | .29 | .30 | .60 | .05 | .8 |
| 01374987 - KISCO RIVER BELOW MOUNT KISCO NY (LAT 41 13 43 LONG 073 44 39) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 157 | 1 | .28 | .00 | .01 | .35 | .28 | .64 | .07 | 1.0 |
| 01374988 - GEDNEY BROOK NEAR MOUNT KISCO NY (LAT 41 12 52 LONG 073 46 16) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 149 | 2 | .28 | .00 | .01 | 1.4 | .28 | 1.7 | .04 | .0 |
| 01374992 - HUNTER BROOK NEAR YORKTOWN NY (LAT 41 17 29 LONG 073 49 59.01) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 157 | 1 | .07 | .01 | .01 | 1.1 | .08 | 1.2 | .03 | .7 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 01374993 - HUNTER BROOK BELOW MILL POND NEAR YORKTOWN NY (LAT 41 16 49 LONG 073 50 03) | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | |
| 04... | 146 | 2 | .69 | .06 | .04 | .50 | .75 | 1.3 | .12 | 3.3 |
| SEP | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

B NONIDEAL COLONY COUNT
E ESTIMATED

PRINTOUT 2.--CHEMICAL ANALYSES OF STREAM-BOTTOM MATERIAL

| DATE | TOTAL KJEL. NITROGEN IN BOTTOM MAT. (MG/KG) | TOTAL NITRITE PLUS NITRATE IN BOT. MAT. (MG/KG) | TOTAL PHOSPHORUS IN BOTTOM MATERIAL (MG/KG) | TOTAL ARSENIC IN BOTTOM MATERIAL (UG/G) | TOTAL CADMIUM IN BOTTOM MATERIAL (UG/G) | TOTAL CHROMIUM IN BOTTOM MATERIAL (UG/G) | TOTAL COPPER IN BOTTOM MATERIAL (UG/G) | TOTAL IRON IN BOTTOM MATERIAL (UG/G) | TOTAL LEAD IN BOTTOM MATERIAL (UG/G) | TOTAL MANGANESE IN BOTTOM MATERIAL (UG/G) | TOTAL MERCURY IN BOTTOM MATERIAL (UG/G) | TOTAL ZINC IN BOTTOM MATERIAL (UG/G) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 410113073414100 - BLIND BROOK AT LINCOLN AVE AT RYE NY (LAT 41 01 13 LONG 073 41 41) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 03... | 92 | 4.4 | 230 | 2 | 0 | 11 | 9 | 6100 | 21 | 160 | .0 | 29 |
| 01300000 - BLIND BROOK AT RYE NY (LAT 40 59 00 LONG 073 41 14) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 03... | 520 | 8.3 | 250 | 2 | 1 | 12 | 30 | 7300 | 130 | 130 | .0 | 63 |
| 405724073463700 - SHELDRAKE R AT QUAKER RIDGE RD NEW ROCHELLE NY (LAT 40 57 24 LONG 073 46 37) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 03... | 980 | 11 | 270 | 10 | 1 | 16 | 25 | 11000 | 140 | 1100 | .1 | 85 |
| 405713073463700 - SHELDRAKE LAKE AT INLET AT NEW ROCHELLE NY (LAT 40 57 13 LONG 073 46 37) | | | | | | | | | | | | |
| NOV , 1976 | | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 405642073451800 - SHELDRAKE RIVER AT FERNWOOD AVE AT LARCHMONT NY (LAT 40 56 42 LONG 073 45 18) | | | | | | | | | | | | |
| NOV , 1976 | | | | | | | | | | | | |
| 17... | 111 | 3.0 | 71 | 2 | 0 | 4 | 6 | 3100 | 39 | 150 | .0 | 29 |
| 405712073441800 - SHELDRAKE RIVER AT MAMARONECK AVE (LAT 40 57 12 LONG 073 44 18) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 03... | 290 | 8.3 | 150 | 5 | 1 | 13 | 270 | 8600 | 970 | 99 | .0 | 220 |
| NOV | | | | | | | | | | | | |
| 17... | 172 | 1.4 | 57 | 4 | 1 | 7 | 120 | 4600 | 100 | 110 | .1 | 110 |
| 01302000 - BRONX RIVER AT BRONXVILLE NY (LAT 40 56 10 LONG 073 50 10) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 03... | 270 | 11 | 190 | 2 | 1 | 10 | 25 | 5700 | 270 | 110 | .0 | 53 |
| 405449073510200 - BRONX RIVER AT MT VERNON AVE AT MOUNT VERNON NY (LAT 40 54 44 LONG 073 51 02) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 03... | 310 | 9.6 | 190 | 3 | 1 | 14 | 28 | 10000 | 360 | 150 | .1 | 160 |
| NOV | | | | | | | | | | | | |
| 17... | 187 | 2.1 | 70 | 2 | 0 | 6 | 18 | 3600 | 50 | 75 | .0 | 50 |

PRINTOUT 2.--CHEMICAL ANALYSES OF STREAM-BOTTOM MATERIAL (CONT.)

| DATE | ALDRIN IN BOTTOM MA-TERIAL (UG/KG) | CHLOR-DANE IN BOTTOM MA-TERIAL (UG/KG) | DDD IN BOTTOM MA-TERIAL (UG/KG) | DDE IN BOTTOM MA-TERIAL (UG/KG) | DDT IN BOTTOM MA-TERIAL (UG/KG) | DI-ELDRIN IN BOTTOM MA-TERIAL (UG/KG) | ENDRIN IN BOTTOM MA-TERIAL (UG/KG) | HEPTA-CHLOR IN BOTTOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE IN BOT-TOM MA-TERIAL (UG/KG) | LINDANE IN BOTTOM MA-TERIAL (UG/KG) | TOX-APHENE IN BOTTOM MA-TERIAL (UG/KG) | DI-AZINON IN BOTTOM MA-TERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 410113073414100 - BLIND BROOK AT LINCOLN AVE AT RYE NY (LAT 41 01 13 LONG 073 41 41) | | | | | | | | | | | | |
| AUG , 1976 03... | .0 | 8 | 1.8 | 1.4 | 10 | .3 | .0 | .0 | .3 | .0 | 0 | .0 |
| 01300000 - BLIND BROOK AT RYE NY (LAT 40 59 00 LONG 073 41 14) | | | | | | | | | | | | |
| AUG , 1976 03... | .0 | 14 | 5.4 | .0 | 15 | .7 | .0 | .0 | .4 | .0 | 0 | .0 |
| 405724073463700 - SHELDRAKE R AT QUAKER RIDGE RD NEW ROCHELLE NY (LAT 40 57 24 LONG 073 46 37) | | | | | | | | | | | | |
| AUG , 1976 03... | .0 | 530 | 200 | .0 | 120 | 37 | .0 | .0 | 16 | .0 | 0 | 6.3 |
| 405713073463700 - SHELDRAKE LAKE AT INLET AT NEW ROCHELLE NY (LAT 40 57 13 LONG 073 46 37) | | | | | | | | | | | | |
| NOV , 1976 17... | .0 | 57 | 14 | 6.6 | 8.2 | 1.6 | .0 | .0 | .8 | .0 | 0 | .0 |
| 405642073451800 - SHELDRAKE RIVER AT FERNWOOD AVE AT LARCHMONT NY (LAT 40 56 42 LONG 073 45 18) | | | | | | | | | | | | |
| NOV , 1976 17... | .0 | 84 | .0 | 2.3 | .0 | 1.6 | .0 | .0 | .8 | .0 | 0 | .0 |
| 405712073441800 - SHELDRAKE RIVER AT MAMARONECK AVE (LAT 40 57 12 LONG 073 44 18) | | | | | | | | | | | | |
| AUG , 1976 03... | .0 | 18 | 1.0 | .0 | 1.8 | .3 | .0 | .0 | .0 | .0 | 0 | .0 |
| NOV 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 01302000 - BRONX RIVER AT BRONXVILLE NY (LAT 40 56 10 LONG 073 50 10) | | | | | | | | | | | | |
| AUG , 1976 03... | .0 | 13 | 5.3 | .0 | 4.2 | 1.0 | .0 | .0 | .3 | .0 | 0 | .0 |
| 405449073510200 - BRONX RIVER AT MT VERNON AVE AT MOUNT VERNON NY (LAT 40 54 44 LONG 073 51 02) | | | | | | | | | | | | |
| AUG , 1976 03... | .0 | 33 | 4.4 | .0 | 4.2 | 1.9 | .0 | .0 | .3 | .0 | 0 | .0 |
| NOV 17... | .0 | 12 | 1.7 | .0 | 1.0 | .4 | .0 | .0 | .0 | .0 | 0 | .0 |

PRINTOUT 2.--CHEMICAL ANALYSES OF STREAM-BOTTOM MATERIAL (CONT.)

| DATE | ETHION IN BOTTOM MA-TERIAL (UG/KG) | MALA-THION IN BOTTOM MA-TERIAL (UG/KG) | METHYL PARA-THION IN BOT-TOM MA-TERIAL (UG/KG) | METHYL TRI-THION IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION IN BOTTOM-MA-TERIAL (UG/KG) | TRI-THION IN BOTTOM MA-TERIAL (UG/KG) | 2,4-D IN BOTTOM MA-TERIAL (UG/KG) | 2,4,5-T IN BOTTOM MA-TERIAL (UG/KG) | SILVEX IN BOTTOM MA-TERIAL (UG/KG) | PCB IN BOTTOM MA-TERIAL (UG/KG) | ORGANIC CARBON IN BOT-TOM MA-TERIAL (C) (G/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 410113073414100 - BLIND BROOK AT LINCOLN AVE AT RYE NY (LAT 41 01 13 LONG 073 41 41) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 03... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 | 1.9 |
| 01300000 - BLIND BROOK AT RYE NY (LAT 40 59 00 LONG 073 41 14) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 03... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 150 | 6.2 |
| 405724073463700 - SHELDRAKE R AT QUAKER RIDGE RD NEW ROCHELLE NY (LAT 40 57 24 LONG 073 46 37) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 03... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 300 | 9.3 |
| 405713073463700 - SHELDRAKE LAKE AT INLET AT NEW ROCHELLE NY (LAT 40 57 13 LONG 073 46 37) | | | | | | | | | | | |
| NOV , 1976 | | | | | | | | | | | |
| 17... | .0 | .0 | .0 | .0 | .0 | .0 | -- | -- | -- | 0 | -- |
| 405642073451800 - SHELDRAKE RIVER AT FERNWOOD AVE AT LARCHMONT NY (LAT 40 56 42 LONG 073 45 18) | | | | | | | | | | | |
| NOV , 1976 | | | | | | | | | | | |
| 17... | .0 | .0 | .0 | .0 | .0 | .0 | -- | -- | -- | 0 | 2.4 |
| 405712073441800 - SHELDRAKE RIVER AT MAMARONECK AVE (LAT 40 57 12 LONG 073 44 18) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 03... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 | 8.9 |
| NOV | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5.3 |
| 01302000 - BRONX RIVER AT BRONXVILLE NY (LAT 40 56 10 LONG 073 50 10) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 03... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 76 | 2.7 |
| 405449073510200 - BRONX RIVER AT MT VERNON AVE AT MOUNT VERNON NY (LAT 40 54 44 LONG 073 51 02) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 03... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 130 | 10 |
| NOV | | | | | | | | | | | |
| 17... | .0 | .0 | .0 | .0 | .0 | .0 | -- | -- | -- | 8 | 2.4 |

PRINTOUT 2.--CHEMICAL ANALYSES OF STREAM-BOTTOM MATERIAL (CONT.)

| DATE | TOTAL KJEL. NITRO- GEN IN BOTTOM MAT. (MG/KG) | TOTAL NITRITE PLUS NITRATE IN BOT. MAT. (MG/KG) | TOTAL PHOS- PHORUS IN BOT- TOM MA- TERIAL (MG/KG) | TOTAL ARSENIC IN BOTTOM MA- TERIAL (UG/G) | TOTAL CADMIUM IN BOTTOM MA- TERIAL (UG/G) | TOTAL CHRO- MIUM IN BOTTOM MA- TERIAL (UG/G) | TOTAL COPPER IN BOTTOM MA- TERIAL (UG/G) | TOTAL IRON IN BOTTOM MA- TERIAL (UG/G) | TOTAL LEAD IN BOTTOM MA- TERIAL (UG/G) | TOTAL MANGA- NESE IN BOTTOM MA- TERIAL (UG/G) | TOTAL MERCURY IN BOTTOM MA- TERIAL (UG/G) | TOTAL ZINC IN BOTTOM MA- TERIAL (UG/G) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01374300 - PEEKSKILL HOLLOW CREEK AT VANCORTLANDTVILLE NY (LAT 41 19 04 LONG 073 54 19) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 05... | 750 | 5.4 | 290 | 4 | 1 | 11 | 29 | 18000 | 150 | 560 | .0 | 71 |
| 01374398 - FURNACE BROOK NEAR CROTON-ON-HUDSON NY (LAT 41 13 51 LONG 073 54 24) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 04... | 300 | 7.9 | 340 | 3 | 0 | 10 | 17 | 10000 | 52 | 550 | .0 | 50 |
| 01374963 - HALLOCKS MILL BROOK AT AMAWALK NY (LAT 41 17 08 LONG 073 45 58) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 04... | 300 | 6.9 | 170 | 2 | 1 | 6 | 13 | 8500 | 22 | 300 | .0 | 30 |
| 411218073434700 - KISCO RIVER TRIB AT GREEN ST AT MOUNT KISCO NY (LAT 41 12 18 LONG 073 43 47) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 04... | 930 | 9.8 | 300 | 6 | 1 | 77 | 40 | 13000 | 340 | 280 | .1 | 210 |
| NOV | | | | | | | | | | | | |
| 16... | 353 | 4.1 | 63 | 3 | 1 | 11 | 21 | 8800 | 390 | 170 | .0 | 130 |
| 411707073500900 - MILL POND TRIB OFF HUNTER BROOK RD AT YORKTOWN (LAT 41 17 07 LONG 073 50 09) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 05... | 930 | 11 | 220 | 2 | 0 | 7 | 12 | 8800 | 22 | 1000 | .0 | 55 |
| 410348073490300 - SAW MILL R AT BEAVER HILL RD ABOVE ELMSFORD NY (LAT 41 03 48 LONG 073 49 03) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 31... | 110 | 1.1 | 81 | 1 | 0 | 3 | 8 | 4200 | 60 | 230 | .0 | 50 |
| 410318073491600 - SAW MILL RIVER AT TARRYTOWN RD AT ELMSFORD NY (LAT 41 03 18 LONG 073 49 16) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 31... | 110 | .0 | 100 | 1 | 0 | 4 | 8 | 4900 | 40 | 110 | .0 | 40 |
| 405758073522000 - SAW MILL RIVER AT O DELL AVE ABOVE YONKERS NY (LAT 40 57 58 LONG 073 52 20) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 31... | 230 | .0 | 100 | 2 | 0 | 6 | 30 | 5800 | 150 | 140 | .1 | 60 |
| 01376500 - SAW MILL RIVER AT YONKERS NY (LAT 40 56 11 LONG 073 53 12) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 31... | 320 | .0 | 200 | 5 | 0 | 31 | 160 | 7300 | 200 | 90 | .2 | 290 |
| NOV | | | | | | | | | | | | |
| 17... | 553 | 1.9 | 160 | 4 | 3 | 21 | 190 | 8100 | 410 | 130 | .3 | 330 |

PRINTOUT 2.--CHEMICAL ANALYSES OF STREAM-BOTTOM MATERIAL (CONT.)

| DATE | ALDRIN IN BOTTOM MA-TERIAL (UG/KG) | CHLOR-DANE IN BOTTOM MA-TERIAL (UG/KG) | DDD IN BOTTOM MA-TERIAL (UG/KG) | DDE IN BOTTOM MA-TERIAL (UG/KG) | DDT IN BOTTOM MA-TERIAL (UG/KG) | DI-ELDRIN IN BOTTOM MA-TERIAL (UG/KG) | ENDRIN IN BOTTOM MA-TERIAL (UG/KG) | HEPTA-CHLOR IN BOTTOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE IN BOT-TOM MA-TERIAL (UG/KG) | LINDANE IN BOTTOM MA-TERIAL (UG/KG) | TOX-APHENE IN BOTTOM MA-TERIAL (UG/KG) | DI-AZINON IN BOTTOM MA-TERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01374300 - PEEKSKILL HOLLOW CREEK AT VANCORTLANDTVILLE NY (LAT 41 19 04 LONG 073 54 19) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 05... | .0 | 17 | 4.4 | 2.3 | 28 | .8 | .0 | .0 | .2 | .0 | 0 | .0 |
| 01374398 - FURNACE BROOK NEAR CROTON-ON-HUDSON NY (LAT 41 13 51 LONG 073 54 24) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 04... | .0 | 0 | .0 | 1.0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 | .0 |
| 01374963 - HALLOCKS MILL BROOK AT AMAWALK NY (LAT 41 17 08 LONG 073 45 58) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 04... | .0 | 4 | 2.4 | 1.5 | 6.8 | .0 | .0 | .0 | .0 | .0 | 0 | .0 |
| 411218073434700 - KISCO RIVER TRIB AT GREEN ST AT MOUNT KISCO NY (LAT 41 12 18 LONG 073 43 47) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 04... | .0 | 33 | 19 | 3.5 | .0 | 1.0 | .0 | .0 | .0 | .0 | 0 | .0 |
| NOV | | | | | | | | | | | | |
| 16... | .0 | 14 | 3.2 | .5 | 1.4 | 2.3 | .0 | .0 | .0 | .0 | 0 | .0 |
| 411707073500900 - MILL POND TRIB OFF HUNTER BROOK RD AT YORKTOWN (LAT 41 17 07 LONG 073 50 09) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 05... | .0 | 12 | 2.7 | 2.3 | 4.1 | .3 | .0 | .0 | .0 | .0 | 0 | .0 |
| 410348073490300 - SAW MILL R AT BEAVER HILL RD ABOVE ELMSFORD NY (LAT 41 03 48 LONG 073 49 03) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 31... | .0 | 11 | 1.4 | .0 | 1.3 | .0 | .0 | .0 | .0 | .0 | 0 | .0 |
| 410318073491600 - SAW MILL RIVER AT TARRYTOWN RD AT ELMSFORD NY (LAT 41 03 18 LONG 073 49 16) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 31... | .0 | 10 | 2.7 | .7 | 3.5 | .7 | .0 | .0 | .1 | .0 | 0 | .0 |
| 405758073522000 - SAW MILL RIVER AT O DELL AVE ABOVE YONKERS NY (LAT 40 57 58 LONG 073 52 20) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 31... | .0 | 55 | 12 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 | .0 |
| 01376500 - SAW MILL RIVER AT YONKERS NY (LAT 40 56 11 LONG 073 53 12) | | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | | |
| 31... | .0 | 99 | 24 | .0 | 18 | .0 | .0 | .0 | .0 | .0 | 0 | .0 |
| NOV | | | | | | | | | | | | |
| 17... | .0 | 110 | 41 | 7.6 | 23 | 5.5 | .0 | .0 | .0 | .0 | 0 | .0 |

PRINTOUT 2.--CHEMICAL ANALYSES OF STREAM-BOTTOM MATERIAL (CONT.)

| DATE | ETHION IN BOTTOM MA-TERIAL (UG/KG) | MALA-THION IN BOTTOM MA-TERIAL (UG/KG) | METHYL PARA-THION IN BOT-TOM MA-TERIAL (UG/KG) | METHYL TRI-THION IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION IN BOTTOM MA-TERIAL (UG/KG) | TRI-THION IN BOTTOM MA-TERIAL (UG/KG) | 2,4-D IN BOTTOM MA-TERIAL (UG/KG) | 2,4,5-T IN BOTTOM MA-TERIAL (UG/KG) | SILVEX IN BOTTOM MA-TERIAL (UG/KG) | PCB IN BOTTOM MA-TERIAL (UG/KG) | ORGANIC CARBON IN BOT-TOM MA-TERIAL (C) (G/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01374300 - PEEKSKILL HOLLOW CREEK AT VANCORTLANDTVILLE NY (LAT 41 19 04 LONG 073 54 19) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 18 | 14 |
| 01374398 - FURNACE BROOK NEAR CROTON-ON-HUDSON NY (LAT 41 13 51 LONG 073 54 24) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 | 4.8 |
| 01374963 - HALLOCKS MILL BROOK AT AMAWALK NY (LAT 41 17 08 LONG 073 45 58) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 | 5.1 |
| 411218073434700 - KISCO RIVER TRIB AT GREEN ST AT MOUNT KISCO NY (LAT 41 12 18 LONG 073 43 47) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 04... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 63 | 37 |
| NOV | | | | | | | | | | | |
| 16... | .0 | .0 | .0 | .0 | .0 | .0 | -- | -- | -- | 35 | 12 |
| 411707073500900 - MILL POND TRIB OFF HUNTER BROOK RD AT YORKTOWN (LAT 41 17 07 LONG 073 50 09) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 05... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 | 10 |
| 410348073490300 - SAW MILL R AT BEAVER HILL RD ABOVE ELMSFORD NY (LAT 41 03 48 LONG 073 49 03) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 31... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 | 2.7 |
| 410318073491600 - SAW MILL RIVER AT TARRYTOWN RD AT ELMSFORD NY (LAT 41 03 18 LONG 073 49 16) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 31... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 38 | 2.5 |
| 405758073522000 - SAW MILL RIVER AT O DELL AVE ABOVE YONKERS NY (LAT 40 57 58 LONG 073 52 20) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 31... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 42 | 7.6 |
| 01376500 - SAW MILL RIVER AT YONKERS NY (LAT 40 56 11 LONG 073 53 12) | | | | | | | | | | | |
| AUG , 1976 | | | | | | | | | | | |
| 31... | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 720 | 12 |
| NOV | | | | | | | | | | | |
| 17... | .0 | .0 | .0 | .0 | .0 | .0 | -- | -- | -- | 1300 | 28 |

PRINTOUT 3.--TWO-HOUR DATA FOR WASTE-ASSIMILATION STUDY,

HALLOCKS MILL BROOK - MUSCOOT RIVER

01374942 - MUSCOOT RIVER AT AMAWALK NY (LAT 41 17 00 LONG 073 45 08)

| DATE | TIME | STAGE (FT ABOVE DATUM) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | AIR TEMPERATURE (DEG C) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | PERCENT SATURATION |
|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | |
| 20... | 0935 | 14.39 | 220 | 6.8 | 22.0 | 11.0 | 9.8 | 90 |
| 20... | 1130 | 14.38 | 212 | 6.9 | 26.5 | 11.0 | 11.5 | 106 |
| 20... | 1330 | 14.46 | 215 | 6.8 | 27.0 | 11.0 | 12.3 | 113 |
| 20... | 1445 | 14.46 | 215 | 6.9 | 27.0 | 11.0 | 11.8 | 108 |
| 20... | 1730 | 14.34 | 220 | 6.8 | 24.5 | 11.0 | 11.2 | 100 |
| 20... | 1955 | 14.33 | 220 | 7.0 | 24.0 | 11.0 | 10.2 | 94 |
| 20... | 2115 | 14.34 | 220 | 7.1 | 26.0 | 12.5 | 8.9 | 82 |
| 20... | 2245 | 14.34 | 230 | 7.2 | 21.5 | 11.0 | 9.4 | 85 |
| 21... | 0105 | 14.45 | 220 | 7.1 | 20.0 | 10.0 | 9.1 | 80 |
| 21... | 0335 | 14.39 | 215 | 7.0 | 21.0 | 10.0 | 9.4 | 84 |
| 21... | 0455 | 14.39 | 215 | 7.0 | 21.5 | 10.0 | 9.8 | 88 |
| 21... | 0700 | 14.39 | 220 | 6.9 | 21.5 | 10.0 | 9.1 | 81 |

01374960 - HALLOCKS MILL BROOK AT YORKTOWN HEIGHTS NY (LAT 41 17 04 LONG 073 46 28)

| DATE | TIME | STAGE (FT ABOVE DATUM) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | AIR TEMPERATURE (DEG C) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | PERCENT SATURATION |
|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | |
| 20... | 0815 | 15.77 | 247 | 7.4 | 24.5 | 19.0 | 7.4 | 80 |
| 20... | 1030 | 15.77 | 252 | 7.5 | 27.5 | 20.0 | 9.6 | 105 |
| 20... | 1225 | 15.78 | 250 | 8.4 | 29.0 | 22.5 | 9.4 | 110 |
| 20... | 1400 | 15.77 | 243 | 8.2 | 28.0 | 23.0 | 9.6 | 113 |
| 20... | 1600 | 15.77 | 244 | 8.1 | 27.5 | 24.0 | 10.2 | 121 |
| 20... | 1840 | 15.76 | 252 | 8.0 | 27.0 | 23.0 | 7.4 | 86 |
| 20... | 2005 | 15.75 | 250 | 8.0 | 25.5 | 24.0 | 7.9 | 94 |
| 20... | 2205 | 15.75 | 255 | 7.8 | 23.0 | 23.5 | 7.1 | 84 |
| 21... | 0035 | 15.75 | 270 | 7.8 | 22.5 | 23.5 | 7.0 | 82 |
| 21... | 0205 | 15.75 | 255 | 7.8 | 22.0 | 22.0 | 7.0 | 80 |
| 21... | 0410 | 15.76 | 280 | 7.7 | 23.0 | 22.0 | 7.1 | 83 |
| 21... | 0600 | 15.75 | 255 | 7.7 | 23.0 | 22.0 | 7.0 | 80 |

01374963 - HALLOCKS MILL BROOK AT AMAWALK NY (LAT 41 17 08 LONG 073 45 58)

| DATE | TIME | STAGE (FT ABOVE DATUM) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | AIR TEMPERATURE (DEG C) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | PERCENT SATURATION |
|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | |
| 20... | 0915 | 13.92 | 325 | 7.1 | 23.5 | 20.0 | 7.1 | 90 |
| 20... | 1115 | 13.90 | 370 | 7.0 | 27.0 | 21.0 | 7.8 | 88 |
| 20... | 1500 | 13.96 | 375 | 7.2 | 31.0 | 23.0 | 8.7 | 102 |
| 20... | 1700 | 13.92 | 355 | 7.2 | 28.5 | 24.0 | 8.4 | 100 |
| 20... | 1940 | 13.90 | 385 | 7.1 | 27.5 | 24.0 | 6.4 | 76 |
| 20... | 2050 | 13.92 | 390 | 7.3 | 23.5 | 25.0 | 4.8 | 56 |
| 20... | 2230 | 13.90 | 395 | 7.2 | 22.5 | 23.5 | 5.2 | 61 |
| 21... | 0045 | 13.90 | 425 | 7.2 | 23.0 | 22.0 | 4.9 | 58 |
| 21... | 0325 | 13.90 | 460 | 7.2 | 23.5 | 22.0 | 4.5 | 52 |
| 21... | 0440 | 13.90 | 400 | 7.2 | 23.0 | 21.0 | 5.0 | 56 |
| 21... | 0640 | 13.89 | 355 | 7.3 | 22.5 | 21.0 | 5.6 | 62 |

01374970 - MUSCOOT RIVER NEAR AMAWALK NY (LAT 41 16 20 LONG 073 44 46)

| DATE | TIME | STAGE (FT ABOVE DATUM) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | AIR TEMPERATURE (DEG C) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | PERCENT SATURATION |
|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | |
| 20... | 1005 | 15.09 | 252 | 7.2 | 24.0 | 12.0 | 12.3 | 115 |
| 20... | 1150 | 15.09 | 240 | 7.6 | 25.0 | 14.0 | 12.0 | 118 |
| 20... | 1400 | 15.13 | 240 | 8.1 | 28.0 | 16.0 | 11.0 | 112 |
| 20... | 1515 | 15.15 | 250 | 7.7 | 30.0 | 15.0 | 12.1 | 121 |
| 20... | 1815 | 15.06 | 255 | 7.7 | 27.5 | 15.0 | 11.7 | 117 |
| 20... | 2015 | 15.06 | 260 | 7.7 | 26.0 | 15.0 | 10.8 | 108 |
| 20... | 2140 | 15.05 | 220 | 7.5 | 21.5 | 15.0 | 10.0 | 100 |
| 20... | 2300 | 15.06 | 255 | 7.3 | 21.0 | 14.0 | 10.2 | 100 |
| 21... | 0130 | 15.09 | 260 | 7.7 | 20.0 | 14.0 | 10.2 | 100 |
| 21... | 0355 | 15.10 | 250 | 7.5 | 20.5 | 13.0 | 10.5 | 100 |
| 21... | 0515 | 15.10 | 250 | 7.5 | 20.5 | 13.0 | 10.5 | 100 |
| 21... | 0730 | 15.09 | 235 | 7.3 | 21.0 | 12.0 | 10.7 | 100 |

411704073462000 - YORKTOWN HEIGHTS SEWAGE TREATMENT PLANT EFFLUENT (LAT 41 17 04 LONG 073 46 20)

| DATE | TIME | STAGE (FT ABOVE DATUM) | SPECIFIC CONDUCTANCE (MICROMHOS) | PH (UNITS) | AIR TEMPERATURE (DEG C) | TEMPERATURE (DEG C) | DISSOLVED OXYGEN (MG/L) | PERCENT SATURATION |
|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | |
| 20... | 0845 | -- | 659 | 6.6 | 23.5 | 20.0 | 4.2 | 46 |
| 20... | 1045 | -- | 728 | 6.4 | 26.5 | 20.0 | 5.1 | 57 |
| 20... | 1310 | -- | 700 | 6.7 | 30.5 | 22.0 | 5.5 | 63 |
| 20... | 1415 | -- | 724 | 6.5 | 29.0 | 22.5 | 4.1 | 48 |
| 20... | 1625 | -- | 725 | 6.5 | 29.5 | 24.0 | 4.6 | 55 |
| 20... | 1910 | -- | 725 | 6.7 | 27.0 | 24.0 | 2.8 | 33 |
| 20... | 2030 | -- | 720 | 6.8 | 24.5 | 24.0 | 3.9 | 46 |
| 20... | 2220 | -- | 725 | 6.8 | 25.0 | 24.0 | 3.7 | 44 |
| 21... | 0030 | -- | 725 | 6.9 | 24.0 | 23.0 | 3.6 | 42 |
| 21... | 0310 | -- | 750 | 6.8 | 23.5 | 22.0 | 3.9 | 45 |
| 21... | 0425 | -- | 750 | 6.9 | 23.0 | 22.0 | 3.7 | 43 |
| 21... | 0620 | -- | 740 | 6.9 | 22.5 | 21.5 | 3.6 | 41 |

PRINTOUT 4.--SIX-HOUR DATA FOR WASTE-ASSIMILATION STUDY,

HALLOCKS MILL BROOK - MUSCOOT RIVER

| DATE | TIME | TOTAL NON-FILT-RABLE RESIDUE (MG/L) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL NITRITE (N) (MG/L) | TOTAL NITRATE (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | TOTAL ORTHO PHOS-PHORUS (P) (MG/L) | BIO-CHEM-ICAL OXYGEN DEMAND 5 DAY (MG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01374942 - MUSCOOT RIVER AT AMAWALK NY (LAT 41 17 00 LONG 073 45 08) | | | | | | | | | | | | |
| JUL , 1976 | | | | | | | | | | | | |
| 20... | 1130 | -- | .19 | .04 | .01 | .35 | .23 | .02 | .01 | .7 | -- | -- |
| 20... | 1730 | -- | .26 | .04 | .01 | .35 | .30 | .02 | .01 | .4 | -- | -- |
| 21... | 0105 | -- | .33 | .05 | .01 | .36 | .38 | .04 | .02 | .8 | -- | -- |
| 21... | 0700 | -- | .37 | .03 | .01 | .38 | .40 | .02 | .02 | .6 | -- | -- |
| 01374960 - HALLOCKS MILL BROOK AT YORKTOWN HEIGHTS NY (LAT 41 17 04 LONG 073 46 28) | | | | | | | | | | | | |
| JUL , 1976 | | | | | | | | | | | | |
| 20... | 1030 | -- | .59 | .01 | .02 | .29 | .60 | .08 | .06 | 1.1 | -- | -- |
| 20... | 1600 | -- | .48 | .02 | .02 | .27 | .50 | .11 | .07 | 1.5 | -- | -- |
| 21... | 0005 | -- | .49 | .01 | .01 | .29 | .50 | .08 | .05 | .8 | -- | -- |
| 21... | 0600 | -- | .39 | .01 | .01 | .26 | .40 | .09 | .05 | .7 | -- | -- |
| 01374963 - HALLOCKS MILL BROOK AT AMAWALK NY (LAT 41 17 08 LONG 073 45 58) | | | | | | | | | | | | |
| JUL , 1976 | | | | | | | | | | | | |
| 20... | 1115 | -- | .69 | .51 | .40 | 2.8 | 1.2 | .11 | .09 | 8.3 | 100 | 25 |
| 20... | 1700 | -- | .68 | .52 | .60 | 1.6 | 1.2 | .14 | .11 | 4.0 | 88 | 88 |
| 21... | 0045 | -- | .96 | .94 | .88 | 2.8 | 1.9 | .16 | .10 | 5.8 | 54 | 0 |
| 21... | 0640 | -- | .55 | .55 | .81 | 1.1 | 1.1 | .13 | .09 | 5.5 | 440 | 25 |
| 01374970 - MUSCOOT RIVER NEAR AMAWALK NY (LAT 41 16 20 LONG 073 44 46) | | | | | | | | | | | | |
| JUL , 1976 | | | | | | | | | | | | |
| 20... | 1150 | -- | .24 | .01 | .02 | .77 | .25 | .04 | .02 | 1.1 | 120 | 80 |
| 20... | 1815 | -- | .37 | .01 | .05 | 1.1 | .38 | .04 | .02 | .5 | 160 | 37 |
| 21... | 0130 | -- | .29 | .01 | .02 | .98 | .30 | .04 | .02 | .9 | 220 | 36 |
| 21... | 0730 | -- | .34 | .01 | .04 | .93 | .35 | .04 | .02 | .9 | 130 | 29 |
| 411704073462000 - YORKTOWN HEIGHTS SEWAGE TREATMENT PLANT EFFLUENT (LAT 41 17 04 LONG 073 46 20) | | | | | | | | | | | | |
| JUL , 1976 | | | | | | | | | | | | |
| 20... | 1045 | 11 | .60 | 5.5 | .18 | 11 | 6.1 | .35 | .24 | .9 | -- | -- |
| 20... | 1625 | 2 | .10 | 5.8 | .42 | 4.8 | 5.9 | .33 | .27 | .5 | -- | -- |
| 21... | 0030 | 3 | .20 | 7.1 | .27 | 5.5 | 7.3 | .35 | .27 | .4 | -- | -- |
| 21... | 0620 | 10 | 1.7 | 9.3 | .32 | 4.0 | 11 | .37 | .30 | 1.4 | -- | -- |

PRINTOUT 5.--WATER-QUALITY ANALYSES FOR LAKES STUDIED

A. LAKE LINCOLNDALE

| DATE | TIME | DEPTH (FT) | TRANS-PAR-ENCY (SECCHI DISK) (IN) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | TOTAL ORTHO PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1976 | | | | | | | | | | | | |
| 29... | 1500 | 3.0 | 58 | 300 | 8.2 | .49 | .01 | .50 | .01 | .04 | .01 | .01 |
| 29... | 1505 | 11 | -- | 310 | 7.3 | .88 | .52 | 1.4 | .03 | .09 | .01 | .01 |
| AUG | | | | | | | | | | | | |
| 24... | 1400 | 3.0 | 38 | 300 | 6.7 | .50 | .00 | .50 | .01 | .01 | .00 | .00 |
| 24... | 1401 | 12 | -- | 330 | 8.1 | 1.2 | .22 | 1.4 | .03 | .10 | .01 | .01 |
| OCT | | | | | | | | | | | | |
| 21... | 1000 | 4.0 | 62 | 270 | 7.5 | .51 | .07 | .58 | .16 | .05 | .00 | .01 |
| 21... | 1001 | 10 | -- | 270 | 7.4 | .39 | .11 | .50 | .17 | .07 | .00 | .00 |

| DATE | TOTAL ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | TOTAL ZINC (ZN) (UG/L) | CHLORO-PHYLL A (UG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) | STREP-TOCOCCI (COL-ONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1976 | | | | | | | | | | | | |
| 29... | 5 | 0 | 10 | 210 | 3 | 70 | <.5 | 1 | 11.0 | 868 | 816 | 24 |
| 29... | 15 | 0 | 10 | 1300 | 4 | 2000 | <.5 | 10 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 24... | 3 | 0 | 10 | 150 | 7 | 70 | <.5 | 10 | 5.83 | B230 | 20 | 817 |
| 24... | 5 | 0 | 10 | 240 | 6 | 680 | <.5 | 10 | -- | -- | -- | -- |
| OCT | | | | | | | | | | | | |
| 21... | 2 | 0 | 0 | 220 | 3 | 180 | <.5 | 10 | 11.5 | 550 | **120 | 740 |
| 21... | 2 | 1 | 10 | 240 | 5 | 190 | <.5 | 0 | -- | -- | -- | -- |

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1976 | | | | | | | | | | | | |
| 29... | 2.4 | 23 | 9.7 | 18 | 1.4 | 88 | 0 | 35 | 12 | 145 | 97 | 25 |
| 29... | 3.2 | 24 | 10 | 18 | 1.6 | 95 | 0 | 35 | 11 | 150 | 100 | 23 |
| AUG | | | | | | | | | | | | |
| 24... | 5.1 | 23 | 9.5 | 17 | 1.3 | 93 | 0 | 29 | 10 | 141 | 97 | 21 |
| 24... | 5.3 | 24 | 8.6 | 16 | 1.3 | 97 | 0 | 28 | 10 | 141 | 95 | 15 |
| OCT | | | | | | | | | | | | |
| 21... | .3 | 23 | 8.8 | 16 | 1.8 | 101 | 0 | 28 | 13 | 141 | 94 | 11 |
| 21... | .3 | 24 | 9.1 | 15 | 1.7 | 102 | 0 | 28 | 13 | 141 | 97 | 14 |

* DEPTH IS APPROXIMATE MIDPOINT OF SAMPLED LAYER
** 0.7-UM MEMBRANE FILTER
B NONIDEAL COLONY COUNT

PRINTOUT 5.--WATER-QUALITY ANALYSES FOR LAKES STUDIED (CONT.)

B. LAKE MOHEGAN

| DATE | TIME | DEPTH (FT) | TRANS-PAR-ENCY (SECCHI DISK) (IN) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | TOTAL ORTHO PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1976 | | | | | | | | | | | | |
| 30... | 1400 | 4.0 | 101 | 230 | 8.0 | .61 | .04 | .65 | .01 | .04 | .01 | .01 |
| 30... | 1405 | 14 | -- | 230 | 7.1 | 2.1 | .09 | 2.2 | .02 | .18 | -- | .02 |
| AUG | | | | | | | | | | | | |
| 25... | 1200 | 4.0 | 77 | 240 | 8.8 | .68 | .03 | .71 | .01 | .02 | .00 | .01 |
| 25... | 1201 | 14 | -- | 285 | 7.4 | .69 | .06 | .75 | .01 | .08 | .01 | .01 |
| OCT | | | | | | | | | | | | |
| 20... | 1200 | 5.0 | 56 | 220 | 7.6 | .70 | .05 | .75 | .17 | .06 | .00 | .01 |
| 20... | 1201 | 13 | -- | 225 | 7.7 | .60 | .05 | .65 | .02 | .05 | .00 | .00 |

| DATE | TOTAL ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | TOTAL ZINC (ZN) (UG/L) | CHLORO-PHYLL A (UG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) | STREP-TOCOCCI (COL-ONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1976 | | | | | | | | | | | | |
| 30... | 0 | 0 | 0 | 70 | 2 | 50 | <.5 | 1 | 11.2 | 86 | 84 | 83 |
| 30... | 0 | 0 | 0 | 150 | 2 | 520 | <.5 | 7 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 25... | 0 | 4 | 0 | 70 | 19 | 30 | <.5 | 0 | 16.0 | 800 | <1 | 22 |
| 25... | 1 | 4 | 0 | 100 | 29 | 180 | <.5 | 10 | -- | -- | -- | -- |
| OCT | | | | | | | | | | | | |
| 20... | 1 | 1 | 0 | 60 | 7 | 90 | <.5 | 0 | 19.4 | 760 | ::B5 | B500 |
| 20... | 1 | 1 | 0 | 60 | 6 | 90 | <.5 | 0 | -- | -- | -- | -- |

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUN , 1976 | | | | | | | | | | | | |
| 30... | .3 | 22 | 5.8 | 12 | 1.9 | 70 | 0 | 24 | 15 | 116 | 79 | 21 |
| 30... | .8 | 22 | 5.9 | 12 | 1.9 | 74 | 0 | 24 | 11 | 114 | 79 | 19 |
| AUG | | | | | | | | | | | | |
| 25... | 3.1 | 21 | 6.3 | 13 | 1.8 | 72 | 0 | 21 | 11 | 113 | 78 | 19 |
| 25... | 3.6 | 22 | 6.2 | 13 | 1.8 | 74 | 0 | 20 | 11 | 114 | 80 | 19 |
| OCT | | | | | | | | | | | | |
| 20... | 2.1 | 21 | 6.0 | 12 | 2.0 | 78 | 0 | 23 | 12 | 117 | 77 | 13 |
| 20... | 2.1 | 20 | 6.0 | 12 | 2.0 | 78 | 0 | 23 | 12 | 116 | 75 | 11 |

: DEPTH IS APPROXIMATE MIDPOINT OF SAMPLED LAYER
:: 0.7-UM MEMBRANE FILTER
B NONIDEAL COLONY COUNT

PRINTOUT 5.--WATER-QUALITY ANALYSES FOR LAKES STUDIED (CONT.)

C. LAKE KATONAH

| DATE | TIME | DEPTH (FT) | TRANS-PAR-ENCY (SECCHI DISK) (IN) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | TOTAL ORTHO PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 01... | 1200 | 2.0 | 42 | 185 | 6.8 | .64 | .26 | .90 | .03 | .06 | -- | .02 |
| 01... | 1205 | 6.0 | -- | 183 | 6.8 | .62 | .28 | .90 | .04 | .07 | -- | .02 |
| AUG | | | | | | | | | | | | |
| 26... | 1200 | 3.0 | 29 | 195 | 7.8 | .90 | .07 | .97 | .00 | .04 | .00 | .00 |
| 26... | 1201 | 8.0 | -- | 205 | 8.2 | .84 | .11 | .95 | .01 | .07 | .01 | .01 |
| OCT | | | | | | | | | | | | |
| 21... | 1400 | 1.5 | 77 | 160 | 7.3 | .32 | .18 | .50 | .17 | .04 | .00 | .01 |
| 21... | 1401 | 4.5 | -- | 160 | 7.2 | .34 | .21 | .55 | .18 | .04 | .01 | .01 |

| DATE | TOTAL ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | TOTAL ZINC (ZN) (UG/L) | CHLORO-PHYLL A (UG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) | STREP-TOCOCCI (COL-ONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 01... | 45 | 0 | 30 | 750 | 2 | 260 | <.5 | 1 | .000 | 250 | 880 | 120 |
| 01... | 52 | 0 | 30 | 820 | 3 | 280 | <.5 | 4 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 26... | 50 | 3 | 10 | 600 | 18 | 80 | <.5 | 0 | 27.7 | 83 | <1 | <1 |
| 26... | 55 | 1 | 0 | 600 | 8 | 90 | <.5 | 0 | -- | -- | -- | -- |
| OCT | | | | | | | | | | | | |
| 21... | 23 | 0 | 0 | 520 | 1 | 60 | <.5 | 0 | 3.61 | 1200 | **B10 | 38 |
| 21... | 17 | 1 | 10 | 530 | 14 | 60 | <.5 | 0 | -- | -- | -- | -- |

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 01... | 4.5 | 17 | 5.7 | 8.0 | 2.1 | 64 | 0 | 13 | 12 | 94 | 66 | 13 |
| 01... | 4.5 | 16 | 5.6 | 7.8 | 2.1 | 63 | 0 | 13 | 9.8 | 90 | 63 | 11 |
| AUG | | | | | | | | | | | | |
| 26... | 7.3 | 17 | 6.0 | 8.7 | 2.2 | 76 | 0 | 12 | 4.8 | 95 | 67 | 5 |
| 26... | 7.2 | 18 | 6.4 | 8.7 | 2.2 | 76 | 0 | 11 | 4.2 | 95 | 71 | 9 |
| OCT | | | | | | | | | | | | |
| 21... | 5.4 | 14 | 5.3 | 7.7 | 2.2 | 69 | 0 | 13 | 6.4 | 88 | 57 | 0 |
| 21... | 5.4 | 14 | 5.4 | 7.7 | 2.2 | 69 | 0 | 13 | 6.5 | 88 | 57 | 1 |

* DEPTH IS APPROXIMATE MIDPOINT OF SAMPLED LAYER
** 0.7-UM MEMBRANE FILTER
B NONIDEAL COLONY COUNT

PRINTOUT 5.--WATER-QUALITY ANALYSES FOR LAKES STUDIED (CONT.)

D. LAKE KITCHAWAN

| DATE | TIME | DEPTH (FT) | TRANS-PAR-ENCY (SECCHI DISK) (IN) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | TOTAL ORTHO PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 06... | 1500 | 4.0 | 78 | 170 | 8.1 | .47 | .01 | .48 | .00 | .03 | -- | .01 |
| 06... | 1505 | 13 | -- | 172 | 7.2 | .49 | .06 | .55 | .01 | .03 | -- | .01 |
| AUG | | | | | | | | | | | | |
| 26... | 1600 | 3.0 | 95 | 160 | 7.9 | .53 | .01 | .54 | .01 | .01 | .00 | .00 |
| 26... | 1601 | 13 | -- | 180 | 6.7 | .59 | .05 | .63 | .01 | .04 | .00 | .01 |
| OCT | | | | | | | | | | | | |
| 27... | 1000 | 5.0 | 88 | 160 | 7.8 | .40 | .00 | .40 | .04 | .06 | .01 | .01 |
| 27... | 1001 | 12 | -- | 160 | 7.7 | .33 | .05 | .38 | .03 | .05 | -- | .01 |

| DATE | TOTAL ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | TOTAL ZINC (ZN) (UG/L) | CHLORO-PHYLL A (UG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) | STREP-TOCOCCI (COL-ONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 06... | 0 | 1 | 0 | 40 | 5 | 50 | <.5 | 0 | 6.12 | B300 | B15 | 37 |
| 06... | 0 | 0 | 0 | 110 | 4 | 140 | <.5 | 10 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 26... | 1 | 1 | 0 | 120 | 6 | 30 | <.5 | 10 | .000 | 290 | B480 | B12 |
| 26... | 1 | 1 | 0 | 300 | 6 | 70 | <.5 | 10 | -- | -- | -- | -- |
| OCT | | | | | | | | | | | | |
| 27... | 0 | 1 | 0 | 50 | 4 | 10 | <.5 | 10 | .000 | 1000 | **33 | 23 |
| 27... | 0 | 2 | 0 | 50 | 12 | 10 | <.5 | 0 | -- | -- | -- | -- |

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 06... | 5.0 | 24 | 2.5 | 3.9 | 1.1 | 72 | 0 | 6.6 | 6.1 | 85 | 70 | 11 |
| 06... | 6.0 | 25 | 2.6 | 3.9 | 1.2 | 74 | 0 | 6.4 | 5.5 | 87 | 73 | 12 |
| AUG | | | | | | | | | | | | |
| 26... | 7.7 | 21 | 3.2 | 3.5 | 1.0 | 64 | 0 | 4.9 | 8.7 | 82 | 66 | 13 |
| 26... | 7.9 | 21 | 3.0 | 3.5 | 1.0 | 68 | 0 | 3.9 | 7.4 | 81 | 65 | 9 |
| OCT | | | | | | | | | | | | |
| 27... | 5.5 | 24 | 3.2 | 3.1 | 1.3 | 76 | 0 | 6.9 | 8.3 | 90 | 73 | 11 |
| 27... | 5.5 | 24 | 3.2 | 3.1 | 1.4 | 76 | 0 | 7.1 | 8.5 | 90 | 73 | 11 |

* DEPTH IS APPROXIMATE MIDPOINT OF SAMPLED LAYER

** 0.7-UM MEMBRANE FILTER

B NONIDEAL COLONY COUNT

PRINTOUT 5.--WATER-QUALITY ANALYSES FOR LAKES STUDIED (CONT.)

E. PEACH LAKE

| DATE | TIME | DEPTH (FT) | TRANS-PAR-ENCY (SECCHI DISK) (IN) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | TOTAL ORTHO PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 07... | 1500 | 4.0 | 53 | 170 | 8.1 | .81 | .04 | .85 | .00 | .05 | -- | .01 |
| 07... | 1505 | 23 | -- | 155 | 6.6 | .91 | .07 | .98 | .01 | .08 | -- | .01 |
| AUG | | | | | | | | | | | | |
| 30... | 1200 | 8.5 | 44 | 210 | 8.1 | .62 | .01 | .63 | .01 | .04 | .01 | .01 |
| 30... | 1201 | 21 | -- | 235 | 7.5 | .83 | .10 | .93 | .01 | .09 | .02 | .01 |
| OCT | | | | | | | | | | | | |
| 27... | 1400 | 7.5 | 52 | 140 | 7.4 | .60 | .00 | .60 | .01 | .09 | -- | .01 |
| 27... | 1401 | 18 | -- | 140 | 7.6 | .55 | .03 | .58 | .00 | .07 | -- | .01 |

| DATE | TOTAL ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | TOTAL ZINC (ZN) (UG/L) | CHLORO-PHYLL A (UG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) | STREP-TOCOCCI (COL-ONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 07... | 0 | 0 | 0 | 40 | 3 | 40 | <.5 | 10 | 19.2 | 55 | B5 | 66 |
| 07... | 0 | 1 | 0 | 140 | 3 | 430 | <.5 | 0 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 30... | 0 | 0 | 0 | 60 | 4 | 40 | <.5 | 0 | 9.55 | 4900 | B70 | B18 |
| 30... | 0 | 0 | 0 | 230 | 9 | 440 | <.5 | 0 | -- | -- | -- | -- |
| OCT | | | | | | | | | | | | |
| 27... | 0 | 1 | 10 | 80 | 9 | 50 | <.5 | 0 | 22.6 | B900 | B11 | 7 |
| 27... | 0 | 1 | 10 | 70 | 8 | 60 | <.5 | 0 | -- | -- | -- | -- |

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 07... | 2.0 | 16 | 4.5 | 5.7 | 1.5 | 51 | 0 | 11 | 13 | 79 | 58 | 17 |
| 07... | 4.3 | 16 | 4.8 | 5.7 | 1.6 | 57 | 0 | 11 | 12 | 84 | 60 | 13 |
| AUG | | | | | | | | | | | | |
| 30... | 2.7 | 15 | 4.4 | 5.5 | 1.5 | 50 | 0 | 11 | 12 | 77 | 56 | 15 |
| 30... | 4.9 | 16 | 5.0 | 5.5 | 1.6 | 61 | 0 | 11 | 10 | 84 | 61 | 11 |
| OCT | | | | | | | | | | | | |
| 27... | .9 | 17 | 5.2 | 5.1 | 1.7 | 58 | 0 | 11 | 11 | 81 | 64 | 16 |
| 27... | 1.0 | 16 | 5.0 | 5.0 | 1.7 | 58 | 0 | 12 | 11 | 80 | 61 | 13 |

* DEPTH IS APPROXIMATE MIDPOINT OF SAMPLED LAYER
** 0.7-UM MEMBRANE FILTER
B NONIDEAL COLONY COUNT

PRINTOUT 5.--WATER-QUALITY ANALYSES FOR LAKES STUDIED (CONT.)

F. TRINITY LAKE

| DATE | TIME | DEPTH (FT) | TRANS-PAR-ENCY (SECCHI DISK) (IN) | SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) | PH (UNITS) | TOTAL ORGANIC NITRO-GEN (N) (MG/L) | TOTAL AMMONIA NITRO-GEN (N) (MG/L) | TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L) | TOTAL NITRITE PLUS NITRATE (N) (MG/L) | TOTAL PHOS-PHORUS (P) (MG/L) | DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L) | TOTAL ORTHO PHOS-PHORUS (P) (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 08... | 1300 | 7.5 | 276 | 182 | 7.5 | .27 | .01 | .28 | .01 | .02 | -- | .01 |
| 08... | 1305 | 65 | -- | 187 | 6.1 | .34 | .01 | .35 | .22 | .03 | -- | .01 |
| AUG | | | | | | | | | | | | |
| 31... | 1200 | 11 | 223 | 190 | 7.9 | .30 | .00 | .30 | .01 | .01 | .01 | .01 |
| 31... | 1201 | 80 | -- | 170 | 6.9 | .37 | .11 | .48 | .16 | .04 | .02 | .01 |
| OCT | | | | | | | | | | | | |
| 26... | 1200 | 22 | 132 | 180 | 7.6 | .20 | .00 | .20 | .02 | .04 | -- | .01 |
| 26... | 1201 | 70 | -- | 195 | 7.4 | .11 | .19 | .30 | .06 | .04 | -- | .01 |

| DATE | TOTAL ARSENIC (AS) (UG/L) | TOTAL CAD-MIUM (CD) (UG/L) | TOTAL COPPER (CU) (UG/L) | TOTAL IRON (FE) (UG/L) | TOTAL LEAD (PB) (UG/L) | TOTAL MAN-GANESE (MN) (UG/L) | TOTAL MERCURY (HG) (UG/L) | TOTAL ZINC (ZN) (UG/L) | CHLORO-PHYLL A (UG/L) | IMME-DIATE COLI-FORM (COL. PER 100 ML) | FECAL COLI-FORM (COL. PER 100 ML) | STREP-TOCOCCI (COL-ONIES PER 100 ML) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 08... | 0 | 0 | 0 | 40 | 4 | 10 | <.5 | 10 | .000 | 25 | 86 | 22 |
| 08... | 0 | 0 | 0 | 110 | 3 | 60 | <.5 | 10 | -- | -- | -- | -- |
| AUG | | | | | | | | | | | | |
| 31... | 0 | 0 | 0 | 170 | 9 | 10 | <.5 | 10 | 2.96 | 27 | 88 | 52 |
| 31... | 0 | 0 | 0 | 570 | 6 | 640 | <.5 | 10 | -- | -- | -- | -- |
| OCT | | | | | | | | | | | | |
| 26... | 0 | 3 | 10 | 90 | 22 | 50 | <.5 | 10 | -- | 580 | **B7 | 83 |
| 26... | 0 | 1 | 0 | 200 | 4 | 1100 | <.5 | 10 | -- | -- | -- | -- |

| DATE | DIS-SOLVED SILICA (SIO2) (MG/L) | DIS-SOLVED CAL-CIUM (CA) (MG/L) | DIS-SOLVED MAG-NE-SIUM (MG) (MG/L) | DIS-SOLVED SODIUM (NA) (MG/L) | DIS-SOLVED PO-TAS-SIUM (K) (MG/L) | BICAR-BONATE (HCO3) (MG/L) | CAR-BONATE (CO3) (MG/L) | DIS-SOLVED CHLO-RIDE (CL) (MG/L) | DIS-SOLVED SULFATE (SO4) (MG/L) | DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L) | HARD-NESS (CA,MG) (MG/L) | NON-CAR-BONATE HARD-NESS (MG/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JUL , 1976 | | | | | | | | | | | | |
| 08... | 1.5 | 25 | 4.0 | 4.2 | 1.4 | 78 | 0 | 7.4 | 12 | 94 | 79 | 15 |
| 08... | 5.0 | 26 | 4.0 | 4.4 | 1.5 | 79 | 0 | 7.5 | 10 | 97 | 81 | 17 |
| AUG | | | | | | | | | | | | |
| 31... | 1.8 | 24 | 4.8 | 4.6 | 1.3 | 79 | 0 | 8.0 | 11 | 94 | 80 | 15 |
| 31... | 5.9 | 26 | 4.7 | 4.4 | 1.5 | 85 | 0 | 8.0 | 12 | 104 | 84 | 15 |
| OCT | | | | | | | | | | | | |
| 26... | 2.9 | 23 | 4.5 | 4.1 | 1.5 | 91 | 0 | 8.4 | 12 | 101 | 76 | 1 |
| 26... | 5.8 | 25 | 4.4 | 4.0 | 1.6 | 85 | 0 | 8.5 | 12 | 103 | 81 | 11 |

* DEPTH IS APPROXIMATE MIDPOINT OF SAMPLED LAYER
** 0.7-UM MEMBRANE FILTER
B NONIDEAL COLONY COUNT

PRINTOUT 6.--PESTICIDE ANALYSES OF BOTTOM MATERIAL OF LAKES STUDIED

| DATE | ALDRIN IN BOTTOM MA-TERIAL (UG/KG) | CHLOR-DANE IN BOTTOM MA-TERIAL (UG/KG) | DDD IN BOTTOM MA-TERIAL (UG/KG) | DDE IN BOTTOM MA-TERIAL (UG/KG) | DDT IN BOTTOM MA-TERIAL (UG/KG) | DI-ELDRIN IN BOTTOM MA-TERIAL (UG/KG) | ENDRIN IN BOTTOM MA-TERIAL (UG/KG) | HEPTA-CHLOR IN BOTTOM MA-TERIAL (UG/KG) | HEPTA-CHLOR EPOXIDE IN BOT-TOM MA-TERIAL (UG/KG) | LINDANE IN BOTTOM MA-TERIAL (UG/KG) | TOX-APHENE IN BOTTOM MA-TERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 411318073331200 - TRINITY LAKE AT TRINITY LAKE NY (LAT 41 13 18 LONG 073 33 12) | | | | | | | | | | | |
| AUG , 1976 31... | .0 | 45 | 120 | 81 | 18 | .0 | .0 | .0 | .0 | .0 | 0 |
| 411436073325000 - LAKE KITCHAWAN AT LAKE KITCHAWAN (LAT 41 14 36 LONG 073 32 50) | | | | | | | | | | | |
| AUG , 1976 26... | .0 | 0 | 18 | 13 | .0 | .0 | .0 | .0 | .0 | .0 | 0 |
| 411713073391700 - LAKE KATONAH AT LAKE KATONAH NY (LAT 41 17 13 LONG 073 39 17) | | | | | | | | | | | |
| AUG , 1976 26... | .0 | 0 | 18 | 19 | .0 | .0 | .0 | .0 | .0 | .0 | 0 |
| 411905073510200 - LAKE MOHEGAN AT MOHEGAN LAKE NY (LAT 41 19 05 LONG 073 51 02) | | | | | | | | | | | |
| AUG , 1976 25... | .0 | 0 | 700 | 72 | .0 | .0 | .0 | .0 | .0 | .0 | 0 |
| 412024073434000 - LAKE LINCOLNDALE AT LINCOLNDALE NY (LAT 41 20 24 LONG 073 43 40) | | | | | | | | | | | |
| AUG , 1976 24... | .0 | 0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 |
| 412152073345400 - PEACH LAKE AT PEACH LAKE NY (LAT 41 21 52 LONG 073 34 54) | | | | | | | | | | | |
| AUG , 1976 30... | .0 | 0 | 4.7 | 3.5 | .0 | .0 | .0 | .0 | .0 | .0 | 0 |

PRINTOUT 6.--PESTICIDE ANALYSES OF BOTTOM MATERIAL OF LAKES STUDIED (CONT.)

| DATE | DI-AZINON IN BOTTOM MA-TERIAL (UG/KG) | ETHION IN BOTTOM MA-TERIAL (UG/KG) | MALA-THION IN BOTTOM MA-TERIAL (UG/KG) | METHYL PARA-THION IN BOT-TOM MA-TERIAL (UG/KG) | METHYL TRI-THION IN BOT-TOM MA-TERIAL (UG/KG) | PARA-THION IN BOTTOM MA-TERIAL (UG/KG) | TRI-THION IN BOTTOM MA-TERIAL (UG/KG) | 2,4-D IN BOTTOM MA-TERIAL (UG/KG) | 2,4,5-T IN BOTTOM MA-TERIAL (UG/KG) | SILVEX IN BOTTOM MA-TERIAL (UG/KG) | PCB IN BOTTOM MA-TERIAL (UG/KG) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 411318073331200 - TRINITY LAKE AT TRINITY LAKE NY (LAT 41 13 18 LONG 073 33 12) | | | | | | | | | | | |
| AUG , 1976 31... | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 |
| 411436073325000 - LAKE KITCHAWAN AT LAKE KITCHAWAN (LAT 41 14 36 LONG 073 32 50) | | | | | | | | | | | |
| AUG , 1976 26... | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 |
| 411713073391700 - LAKE KATONAH AT LAKE KATONAH NY (LAT 41 17 13 LONG 073 39 17) | | | | | | | | | | | |
| AUG , 1976 26... | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 |
| 411905073510200 - LAKE MOHEGAN AT MOHEGAN LAKE NY (LAT 41 19 05 LONG 073 51 02) | | | | | | | | | | | |
| AUG , 1976 25... | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 |
| 412024073434000 - LAKE LINCOLNDALE AT LINCOLNDALE NY (LAT 41 20 24 LONG 073 43 40) | | | | | | | | | | | |
| AUG , 1976 24... | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 28 |
| 412152073345400 - PEACH LAKE AT PEACH LAKE NY (LAT 41 21 52 LONG 073 34 54) | | | | | | | | | | | |
| AUG , 1976 30... | .0 | .0 | .0 | .0 | .0 | .0 | .0 | 0 | 0 | 0 | 0 |