

STUDIES OF THE AQUATIC ECOLOGY  
AND WATER QUALITY OF THE  
BLENHEIM-GILBOA PUMPED STORAGE RESERVOIRS  
AND OF THE  
PRATTSVILLE PUMPED STORAGE SITE  
(SCHOHARIE RESERVOIR, SCHOHARIE CREEK,  
AND ESOPUS CREEK)

Field Report for the Period 1 January-31 December 1979

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## TABLE OF CONTENTS

	Page
INTRODUCTION . . . . .	1
A FISHERY SURVEY OF SCHOHARIE CREEK	
Introduction . . . . .	2
Materials and Methods. . . . .	2
Results. . . . .	4
TROUT MONITORING	
Introduction . . . . .	6
Materials and Methods. . . . .	6
Results. . . . .	8
A FISHERIES INVESTIGATION OF THE LOWER BLENHEIM-GILBOA RESERVOIR	
Introduction . . . . .	11
Materials and Methods. . . . .	11
Results. . . . .	13
A CREEL CENSUS OF THE UPPER BLENHEIM-GILBOA RESERVOIR	
Introduction . . . . .	14
Materials and Methods. . . . .	14
Results. . . . .	15
A FISHERY MANAGEMENT PROGRAM FOR THE BLENHEIM-GILBOA RESERVOIRS	
Introduction . . . . .	17
Management Programs. . . . .	17
WATER QUALITY	
Introduction . . . . .	24
Materials and Methods. . . . .	24
Results. . . . .	25
LITERATURE CITED . . . . .	29
TABLES . . . . .	31
MAPS . . . . .	68
FIGURES. . . . .	78

LIST OF TABLES

1.	Location and description of seine net, trap net, and chain electrofishing stations sampled in August and September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York	31
2.	Common and scientific names of fishes collected by Ichthyological Associates, Inc., in August and September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York. Nomenclature follows Bailey (1970).	32
3.	Fishes collected by seine net at four stations in August 1979 in Schoharie Creek between Schoharie Reservoir and Lexington, New York	33
4.	Fishes collected by trap net at two stations on 21 and 22 August 1979 in Schoharie Creek between Schoharie Reservoir and Lexington, New York.	34
5.	Fishes collected by chain electrofishing at two 45.7-m stations in September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York	34
6.	Fishes collected by seine net, trap net, and chain electrofishing in August and September 1979 in Schoharie Creek above Schoharie Reservoir.	35
7.	Fishes collected by boat electrofishing in 150 minutes on 4 June 1979 in Lower B-G.	36
8.	Fishes collected by boat electrofishing at 10 stations on 5 November 1979 in Lower B-G	36
9.	Fishes collected by boat electrofishing in 150 minutes on 31 May 1979 in Upper B-G.	37
10.	Fishes collected by boat electrofishing in 130 minutes on 30 October 1979 in Upper B-G.	37
11.	Fishes collected by experimental gill net at four stations on 29 and 30 October 1979 in Upper B-G	38
12.	Tagged rainbow trout observed during trout monitoring sampling in October 1979 in Upper B-G	39
13.	Fishes collected by boat electrofishing and experimental gill net in spring and fall 1979 in Lower and Upper B-G	40
14.	Fishes collected by experimental gill net in 92 hours on 13 and 14 September 1979 at four stations on Lower B-G.	41

15.	Fishes collected during 60 minutes of boat electrofishing on 13 September 1979 at five areas on Lower B-G. . . . .	42
16.	Fishes collected by seine net on 13 September 1979 at four stations on Lower B-G. . . . .	42
17.	Fishes collected by experimental gill net, boat electrofishing, and seine net on 13 and 14 September 1979 in Lower B-G . . . . .	43
18.	Dates during which a creel census was conducted in September 1979 on Upper B-G. . . . .	44
19.	Creel census data collected in September 1979 on Upper B-G . . . . .	44
20.	Estimated angler use in September 1979 on Upper B-G. . . . .	45
21.	Estimated angler success in September 1979 on Upper B-G. . . . .	45
22.	Tagged rainbow trout harvested by anglers in September 1979 on Upper B-G. . . . .	45
23.	Opinions of fishing quality from anglers interviewed during a creel census in September 1979 on Upper B-G (party response) . . . . .	46
24.	Catch preferences of anglers interviewed during a creel census in September 1979 on Upper B-G (party response). . . . .	46
25.	Summary by month and location of tags returned by anglers in 1979 from tagged rainbow trout (RT) and brown trout (BT) stocked in 1979 in Lower B-G (LBG) and Upper B-G (UBG) . . . . .	47
26.	Description of water quality stations sampled from April through October 1979 in Schoharie Reservoir, Schoharie Creek, Esopus Creek, and the Shandaken Tunnel outlet . . . . .	48
27.	Time of day water quality samples were collected from April through October 1979 in Schoharie Reservoir, Schoharie Creek, Esopus Creek, and the Shandaken Tunnel outlet. . . . .	49
28.	Procedures used by IA for water quality determinations in 1979 . . . . .	50
29.	Rainfall (inches) recorded at 0800 for the previous 24-hr period from April through October 1979 at Lower B-G (LBG), Schoharie Reservoir (SR), Tannersville Sewage Treatment Plant (TST), and Ashokan Reservoir (AR); and average values among four locations in the Esopus Creek watershed (EC) . . . . .	51
30.	Summary of daily discharge data (cfs) measured from January through December 1979 in the Shandaken Tunnel at Allaben, New York, by the New York City Department of Water Resources . . . . .	52
31.	Summary of turbidity data (nephelometric turbidity units) taken from April through October 1979 in Schoharie Reservoir . . . . .	53

32.	Summary of Secchi disc transparency data (cm) taken from April through October 1979 in Schoharie Reservoir. . . . .	55
33.	Summary of depth of euphotic zone data (m) taken from April through October 1979 in Schoharie Reservoir. . . . .	56
34.	Summary of air temperature data (C) taken from April through October 1979 at Schoharie Reservoir. . . . .	57
35.	Summary of water temperature data (C) taken from April through October 1979 in Schoharie Reservoir. . . . .	58
36.	Summary of dissolved oxygen data (ppm) taken from April through October 1979 in Schoharie Reservoir. . . . .	60
37.	Summary of turbidity data (nephelometric turbidity units) taken from April through October 1979 in Schoharie Creek . . . . .	62
38.	Summary of air temperature data (C) taken from April through October 1979 at Schoharie Creek. . . . .	63
39.	Summary of water temperature data (C) taken from April through October 1979 in Schoharie Creek. . . . .	64
40.	Summary of turbidity data (nephelometric turbidity units) taken from April through October 1979 in Esopus Creek and the Shandaken Tunnel outlet. . . . .	65
41.	Summary of air temperature data (C) taken from April through October 1979 at Esopus Creek and the Shandaken Tunnel outlet . .	66
42.	Summary of water temperature data (C) taken from April through October 1979 in Esopus Creek and the Shandaken Tunnel outlet . .	67

LIST OF MAPS

1.	Seine net, trap net, and chain electrofishing stations sampled in August and September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York . . . . .	68
2.	Areas sampled by boat electrofishing on 4 June 1979 in Lower B-G and on 31 May 1979 in Upper B-G. . . . .	70
3.	Stations sampled by boat electrofishing on 5 November 1979 in Lower B-G and areas sampled on 30 October 1979 in Upper B-G. . .	71
4.	Stations sampled by experimental gill net on 29 and 30 October 1979 in Upper B-G. . . . .	72
5.	Experimental gill net stations L-1 through L-4 and seine net stations L-1 through L-4 sampled on 13 and 14 September 1979 in Lower B-G. . . . .	73

6. Boat electrofishing areas L-1 through L-5 sampled on 13 September 1979 in Lower B-G. . . . .	74
7. Fisherman access points located on Upper B-G . . . . .	75
8. Water quality stations sampled from April through October 1979 in Schoharie Reservoir (26-28, 30) and Schoharie Creek (1, 2). .	76
9. Water quality stations sampled from April through October 1979 in Esopus Creek (21, 19, 31, 37) and the Shandaken Tunnel outlet (20) . . . . .	77

LIST OF FIGURES

1. Form used to record creel census data in September 1979 on Upper B-G. . . . .	78
2. Summary of elevation data (ft) recorded from January through December 1979 in Schoharie Reservoir by the New York City Department of Water Resources. . . . .	79

## INTRODUCTION

An investigation of the aquatic ecology of the Lower and Upper Blenheim-Gilboa (B-G) Pumped Storage Reservoirs, Schoharie Reservoir, Schoharie Creek, and Esopus Creek was conducted by Ichthyological Associates, Inc. (IA), from April through November 1979. The objective of the investigation was to acquire data on the existing aquatic environments as part of the licensing effort for the Proposed Prattsville Pumped Storage Project.

Supplemental data have been collected by IA at B-G since April 1973 and at Schoharie Reservoir and Esopus Creek since June 1975 (Culp 1974a, 1974b, 1975, 1976a, 1976b, 1978; Culp et al. 1976, 1977a, 1977b, 1977c, 1977d; Culp and Lechel 1977, 1978; Culp and Associates 1978, 1979).

The following studies were conducted during 1979 and are reported herein:

- I. A Fishery Survey of Schoharie Creek between Schoharie Reservoir and Hunter, New York (August and September 1979)
- II. Trout Monitoring in 1979 in the Lower and Upper Blenheim-Gilboa Reservoirs
- III. A Fisheries Investigation of the Lower Blenheim-Gilboa Reservoir (September 1979) to Duplicate the New York State Department of Environmental Conservation Fisheries Investigation of the Upper Blenheim-Gilboa Reservoir (August 1979)
- IV. A Creel Census of the Upper Blenheim-Gilboa Reservoir (September 1979)
- V. A Fishery Management Program for the Blenheim-Gilboa Reservoirs
- VI. Summary of Water Quality from April through October 1979 in Schoharie Reservoir, Schoharie Creek, Esopus Creek, and the Shandaken Tunnel Outlet

A FISHERY SURVEY OF SCHOHARIE CREEK

Introduction

Fish collections were made in August and September 1979 to identify the variety, abundance, and distribution of fishes in Schoharie Creek between Schoharie Reservoir and Hunter, New York, to determine the potential for recruitment of these fishes to Schoharie Reservoir.

Materials and Methods

Fishes were collected by seine net (with the aid of a backpack electroshocker), trap net, and chain electrofishing. Total length of time nets were set was recorded to the nearest hour. Fishes were identified to species according to Hubbs and Lagler (1970) and returned alive at the location of capture. Smallmouth bass were weighed (nearest 1.0 g wet weight for fish  $\leq 1000$  g and nearest 1.0 oz for fish  $> 1000$  g; all weights were reported in kilograms) and measured (total length to the nearest 1.0 mm). A length range and total weight were recorded for other fishes collected.

In all fish collection tables percent composition values and catch rates were rounded as follows:

(1) Percent composition rounded to the nearest tenth of a percent. Any value  $> 0$  but  $< 0.14\bar{9}$  rounded to 0.1.

(2) Catch rates (number/unit effort) rounded to the nearest hundredth. Any value  $> 0$  but  $< 0.014\bar{9}$  rounded to 0.01.

(3) Catch rates (biomass/unit effort) rounded to the nearest thousandth. Any value  $> 0$  but  $< 0.0014\bar{9}$  rounded to 0.001.

Seine Net

Four stations were sampled by seine net (with the aid of a backpack electroshocker) on 21 August 1979 in Schoharie Creek between Schoharie

Reservoir and Lexington, New York (Table 1, Map 1). A nylon bag seine (10.7 m by 1.2 m by 0.6-cm square mesh, bag 1.2 m by 1.2 m by 1.2 m) treated with tar for preservation was used. The seine net was placed in the stream parallel to the shoreline, and the ends were pulled to the shore. A Coffelt Model BP-3 variable voltage (250 or 500 v), pulsed (70/sec) DC backpack electroshocker was used to collect the fish trapped.

#### Trap Net

Two stations were sampled by trap net on 21 and 22 August 1979 in Schoharie Creek between Schoharie Reservoir and Lexington (Table 1, Map 1). One set was made at station T-1 (1.8 m deep), and two were made at station T-2 (2.0 m deep). Trap nets used were made of 1.0-cm cotton mesh treated with tar for preservation. The nets were composed of a 15-m long by 0.8-m deep by 0.5-m wide rectangular box with a funnel-shaped entrance, two 4.6-m by 0.5-m wings, and a 7.6-m by 0.5-m lead that bisected the angle of the wings. Extending behind the box was a 1.8-m by 0.6-m tube in which fish were trapped. Both the rectangular box and the tube were held open by metal frames. The wings and lead were equipped with floats on the top lines and weights on the bottom lines to keep them upright.

#### Chain Electrofishing

Two stations, each 45.7 m in length, were sampled by chain electrofishing on 17 September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter (Table 1, Map 1). A 115-v, 60-cycle, 1500-w Dayton alternator with a 4-hp Briggs and Stratton engine (15-amp rating) provided an alternating electrical current, which was rectified to direct pulsating current (DC) for the chain electrofisher. The chain consisted of a 12-gauge, three-wire lead with

alternating portions of insulated wire and bare copper pipe attached to wooden poles. Fish that passed within 0.20 m of the chain were stunned and were netted by IA personnel and placed in a live cage.

## Results

### Seine Net

Thirteen fishes (n = 237) were collected by seine net on 21 August 1979 in Schoharie Creek (Tables 2 and 3). Tessellated darter (n = 54, 22.8%) was most abundant, followed by smallmouth bass (47, 19.8%), cutlips minnow (34, 14.3%), and white sucker (32, 13.5%). Other fishes collected were stoneroller (n = 21, 8.9%); stonecat (16, 6.8%); creek chub (15, 6.3%); pumpkinseed (6, 2.5%); margined madtom (5, 2.1%); rock bass, blacknose dace, and fallfish (2 each, 0.8%); and bluntnose minnow (1, 0.4%). Smallmouth bass, collected at all four stations, ranged in size from 40 to 132 mm.

### Trap Net

Eight fishes (n = 80) were collected by trap net on 21 and 22 August 1979 in Schoharie Creek (Table 4). White sucker (n = 35, 43.8%) was most abundant. Other fishes collected were pumpkinseed and common shiner (n = 12 each, 15.0%), brown bullhead (8, 10.0%), stonecat (7, 8.8%), rock bass (4, 5.0%), and cutlips minnow and yellow perch (1 each, 1.3%).

### Chain Electrofishing

Six fishes (n = 65) were collected by chain electrofishing on 17 September 1979 in Schoharie Creek (Table 5). Common shiner (n = 36, 55.4%) was most abundant. Other fishes collected were longnose dace (n = 13, 20.0%), blacknose dace (11, 16.9%), white sucker and cutlips minnow (2 each, 3.1%), and tessellated darter (1, 1.5%).

Because of heavy rain in the period prior to sampling, high turbidity and water level in Schoharie Creek resulted in poor electrofishing efficiency. Fishes collected and their relative abundance were probably not representative of all fishes present and their relative abundance.

Combined Methods

Seventeen fishes (n = 382) were collected by seine net, trap net, and chain electrofishing in August and September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York (Table 6). White sucker (n = 69, 18.1%; 3.723 kg, 56.6%) was most abundant by number and weight. Tessellated darter (n = 55, 14.4%), common shiner (48, 12.6%), and smallmouth bass (47, 12.3%) were also numerically abundant.

Smallmouth bass were collected in Schoharie Creek as far upstream as Lexington, New York. Some recruitment of these fish to Schoharie Reservoir is expected.

## TROUT MONITORING

### Introduction

Fish sampling was conducted by IA in the spring and fall of 1979 in Lower and Upper B-G to monitor existing trout populations.

Lower B-G was stocked by the New York State Department of Environmental Conservation (DEC) with 1100 each of yearling brown trout and rainbow trout in both 1977 and 1978. All fish were marked with either a right ventral fin clip (700 of each species) or a jaw tag (400 of each species) in 1977 and with either an adipose fin clip (700 of each species) or a jaw tag (400 of each species) in 1978. To improve the quality of the fishery in Lower B-G, IA stocked 1174 yearling rainbow trout (all marked with a left ventral-adipose fin clip and 623 tagged with Carlin tags) and 1176 yearling brown trout (all marked with a left ventral-adipose fin clip and 625 tagged with Carlin tags) in April 1979.

Upper B-G was stocked by IA with 1100 each of brown trout and rainbow trout (marked with a right pectoral fin clip) in 1977 and 1250 each of brown trout and rainbow trout (marked with a left pectoral fin clip) in 1978. In April 1979, 1288 brown trout (all marked with a left ventral fin clip and 625 tagged with Carlin tags) and 1235 rainbow trout (all marked with a left ventral fin clip and 625 tagged with Carlin tags) were stocked by IA.

### Materials and Methods

Fishes were sampled in Lower and Upper B-G by boat electrofishing in the spring and fall and in Upper B-G by experimental gill net in the fall. Total length of time nets were set was recorded to the nearest one-half hour.

Fish collected were identified to species according to Hubbs and Lagler (1970) and returned alive at the location of capture. All fish collected were

measured (total length to nearest 1.0 mm) and weighed (nearest 1.0 g wet weight for fish  $\leq 1000$  g and nearest 1.0 oz for fish  $> 1000$  g; all weights were reported in kilograms).

#### Boat Electrofishing

Boat electrofishing was conducted at 5 locations on 4 June 1979 and at 10 stations on 5 November 1979 in Lower B-G (Maps 2 and 3). In Upper B-G all of the shoreline was sampled on 31 May 1979 and 30 October 1979 (Maps 2 and 3).

The electrofishing unit consisted of a 4.5-kw generator (Onan Company, Minneapolis, Minnesota) and a variable voltage pulsator (Power Control Corporation, Pittsburgh, Pennsylvania). The equipment was carried in a 6.1-m flat-bottomed Polar Kraft aluminum boat, powered by two outboard motors (15-hp and 40-hp).

The front deck, which accommodated two operators, was surrounded by safety railing to facilitate the collecting operation. The railing also supported the main lighting system of four 150-w floodlights. Two additional 150-w floodlights and one 150-w spotlight were mounted on an extendable pole near the stern. Two safety on-off foot switches, bow and stern, had to be activated before the system could be energized.

Pulsed direct current (130-180 pulses per second, 350 v, 2-4 amp) was used, which caused fish near the anodes to exhibit forced swimming (electrotaxis) toward the anodes. The anode array consisted of two 0.9-m aluminum rings supported by 5-m booms with 15 "dropper" electrodes suspended from each ring. The dropper electrodes were 15-cm lengths of copper tubing supported by copper wire connected to the rings by alligator clips. Five 0.9-m cathodes of 3-cm diameter greenfield conduit were suspended from each side of the boat.

The fish were netted by two IA personnel in the bow and placed in water-filled containers until processed. Electrofishing was conducted in the late afternoon and evening, parallel and as close to the shoreline as possible.

#### Experimental Gill Net

Experimental gill nets were set at four stations on 29 October 1979 in Upper B-G (Map 4). No experimental gill nets were set in Lower B-G because of DEC sampling restrictions. Two sizes of monofilament nets were used. One was 76.2 m long and 1.8 m high, with 15.2-m panels of square mesh sizes 4.4, 5.1, 5.7, 6.4, and 7.6 cm. The other was 91.4 m long and 2.4 m high, with 15.2-m panels of square mesh sizes 2.5, 3.8, 4.4, 5.1, 5.7, and 6.4 cm. The nets had a lead-core bottom line and a floating top line to keep them upright. All nets were set on the bottom for about 21 hours. The large gill net was set at station U-2; the small gill nets were set at stations U-1, U-3, and U-4. Gill nets were set with the small mesh inshore at all stations.

#### Results

##### Lower B-G

##### Spring

Eleven fishes (n = 186) were captured by boat electrofishing in 150 minutes in five areas on 4 June 1979 in Lower B-G (Table 7). White sucker (n = 100) was the most abundant fish collected. Game fishes collected were smallmouth bass (n = 24), brown trout (4), and walleye (3). All brown trout taken had been stocked in Lower B-G on 25 April 1979. Other fishes captured were yellow perch (n = 20), carp (14), rock bass (9), fallfish (6), brown bullhead (3), pumpkinseed (2), and golden shiner (1).

Fall

Three fishes (n = 13) were collected by boat electrofishing in 100 minutes at 10 stations on 5 November 1979 in Lower B-G (Table 8). White sucker (n = 8) was most abundant. Fallfish (n = 4) and rainbow trout (1) were also collected. The rainbow trout had been stocked in Upper B-G on 19 April 1979.

Upper B-G

Spring

Thirteen fishes (n = 122) were collected by boat electrofishing in 150 minutes in five areas on 31 May 1979 in Upper B-G (Table 9). Yellow perch (n = 44) was most abundant. Game fishes collected were walleye (n = 18), smallmouth bass (16), rainbow trout (4), and brown trout (2). All rainbow trout and brown trout captured had been stocked in Upper B-G on 19 April 1979. Other fishes collected were redbreast sunfish (n = 12), rock bass (7), logperch (5), carp (4), pumpkinseed (4), white sucker (3), fallfish (2), and emerald shiner (1).

Fall

Seven fishes (n = 40) were collected by boat electrofishing in 130 minutes in four areas on 30 October 1979 in Upper B-G (Table 10). Rainbow trout (n = 22) was most abundant. Walleye (n = 6), yellow perch (4), brown trout (3), smallmouth bass (3), largemouth bass (1), and white sucker (1) were also captured. Of the 22 rainbow trout captured, 20 had been stocked in Upper B-G in 1979 and 2 in 1978. Of the three brown trout captured, one had been stocked in Upper B-G in 1979 and two in 1978.

Eight fishes (n = 28) were captured on 30 October 1979 in four gill net

sets (Table 11). Walleye (n = 10) was most abundant, followed by rainbow trout (9). Brown trout (n = 3); carp (2); and cisco, yellow perch, rock bass, and white sucker (1 each) were also collected. Of nine rainbow trout captured, eight had been stocked in Upper B-G in 1979 and one in 1978. Of three brown trout captured, one had been stocked in Upper B-G in 1979 and one in 1978, and one had been stocked by DEC in Lower B-G in 1978.

Seven of 28 rainbow trout captured during the fall (30 October) in Upper B-G that had been stocked there on 19 April 1979 had tags (Table 12). These fish had grown an average of 63 mm (range: 41-72 mm) and 178 g (range: 122-238 g) in 193 days.

#### Lower and Upper B-G

##### Spring and Fall

Eleven fishes (n = 186) were collected in Lower B-G in the spring and three fishes (13) in the fall (Table 13). White sucker was most abundant in both spring and fall collections.

Thirteen fishes (n = 122) were collected in Upper B-G in the spring and 10 fishes (68) in the fall (Table 13). Yellow perch was most abundant in the spring and rainbow trout in the fall collections.

A FISHERIES INVESTIGATION OF THE  
LOWER BLENHEIM-GILBOA RESERVOIR

Introduction

Fish sampling was conducted by IA on 13 and 14 September 1979 in Lower B-G to duplicate the sampling effort on 6 and 7 August 1979 of DEC in Upper B-G.

Materials and Methods

Fishes were sampled in Lower B-G by experimental gill net, boat electrofishing, and seine net. Total length of time nets were set was recorded to the nearest hour.

Fish collected were identified to species according to Hubbs and Lagler (1970) and returned alive at the location of capture. All fish collected were measured (total length to nearest 1.0 mm) and weighed (nearest 1.0 g wet weight for fish  $\leq 1000$  g and nearest 1.0 oz for fish  $> 1000$  g; all weights were reported in kilograms).

Experimental Gill Net

Experimental gill nets were set for 23 hours each at four stations on 13 September 1979 in Lower B-G (Map 5). Two sizes of monofilament nets were used. One was 76.2 m long and 1.8 m high, with 15.2-m panels of square mesh sizes 4.4, 5.1, 5.7, 6.4, and 7.6 cm. The other was 91.4 m long and 2.4 m high, with 15.2-m panels of square mesh sizes 2.5, 3.8, 4.4, 5.1, 5.7, and 6.4 cm. The nets had a lead-core bottom line and a floating top line to keep them upright. All nets were set on the bottom. The large gill net was set at station L-2 and the small gill nets were set at stations L-1, L-3, and L-4. Gill nets were set with the small mesh inshore.

### Boat Electrofishing

Boat electrofishing was conducted during the day at five areas in Lower B-G on 13 September 1979 (Map 6).

The electrofishing unit consisted of a 4.5-kw generator (Onan Company, Minneapolis, Minnesota) and a variable voltage pulsator (Power Control Corporation, Pittsburgh, Pennsylvania). The equipment was carried in a 6.1-m flat-bottomed Polar Kraft aluminum boat, powered by two outboard motors (15-hp and 40-hp).

The front deck, which accommodated two operators, was surrounded by safety railing to facilitate the collecting operation. Two safety on-off foot switches, bow and stern, had to be activated before the system could be energized.

Pulsed direct current (130-180 pulses per second, 350 v, 2-4 amp) was used, which caused fish near the anodes to exhibit forced swimming (electrotaxis) toward the anodes. The anode array consisted of two 0.9-m aluminum rings supported by 5-m booms with 15 "dropper" electrodes suspended from each ring. The dropper electrodes were 15-cm lengths of copper tubing supported by copper wire connected to the rings by alligator clips. Five 0.9-m cathodes of 3-cm diameter greenfield conduit were suspended from each side of the boat.

The fish were netted by two IA personnel in the bow and placed in water-filled containers until processed.

### Seine Net

A nylon bag seine (10.7 m by 1.2 m by 0.6-cm square mesh, bag 1.2 m by 1.2 m by 1.2 m) treated with tar for preservation was used. The net was hauled parallel to shore at four stations in Lower B-G on 13 September 1979

Map 7). One haul was made at each station.

## Results

### Experimental Gill Net

Seven fishes (n = 52) were captured on 14 September 1979 in 92 hours in four gill net sets (Table 14). Fishes collected were carp (n = 20), white sucker (14), yellow perch (10), rock bass (3), fallfish (2), pumpkinseed (2), and smallmouth bass (1).

### Boat Electrofishing

Four fishes (n = 9) were captured in 60 minutes of boat electrofishing in five areas of Lower B-G (Table 15). Fishes collected were smallmouth bass (n = 4), white sucker (3), carp (1), and northern hog sucker (1).

### Seine Net

Five fish (3 sunfish spp. and 2 common shiner) were captured in four seine hauls in Lower B-G (Table 16).

### Combined Methods

Ten fishes (n = 66) were collected in Lower B-G by experimental gill net, boat electrofishing, and seine net (Table 17). Carp (n = 21, 20.860 kg) and white sucker (17, 8.582 kg) were most abundant. Smallmouth bass (n = 5, 2.644 kg) was the only game fish collected. Pan fishes present were yellow perch (n = 10, 1.238 kg), rock bass (3, 0.364 kg), sunfish spp. (3, 0.001 kg), and pumpkinseed (2, 0.230 kg).

## A CREEL CENSUS OF THE UPPER BLENHEIM-GILBOA RESERVOIR

### Introduction

A creel census was conducted in September 1979 on Upper B-G to (1) determine angler use, success, and residence (parties residing within 10 mi of Upper B-G were classified residents) and (2) provide data for growth and movement studies of trout stocked in the B-G reservoirs.

Only shore fishing was allowed on Upper B-G in 1979.

### Materials and Methods

Upper B-G was surveyed from dawn until dusk on all weekend days (the Labor Day holiday, 3 September, was classified a weekend day) and on two randomly selected weekdays each week in September 1979 (Table 18). A creel census agent interviewed anglers during and at the completion of their fishing trips (Fig. 1). Limited fisherman access to the reservoir (Map 7) allowed all anglers fishing Upper B-G to be interviewed on the days surveyed. Fish harvested were measured (total length to nearest 1.0 mm) and weighed (nearest 1.0 g for fish  $\leq 1000$  g and nearest 1.0 oz for fish  $> 1000$  g; all weights were reported in kilograms).

An estimate of the total number of anglers utilizing Upper B-G in September was determined. Because all weekend days were censused, the estimated number was the actual number of anglers counted. The estimated number on weekdays was determined by the following formula:

$$\text{Number of Anglers Counted} \times \frac{\text{Number of Days in Period}}{\text{Number of Days Censused}}$$

This value added to the total number of anglers counted on weekend days yielded an estimate of the total number of anglers utilizing Upper B-G in September.

An estimate of the total number of hours fished by anglers in September was determined by multiplying the estimated total anglers by the average angler trip.

Data were analyzed separately for weekdays and weekends.

An estimate of the total number of fish caught by anglers in September was determined by expanding the weekday data as follows:

$$\begin{array}{l} \text{Estimated Total Number} \\ \text{of Hours Fished} \end{array} \times \frac{\text{Total Number of Fish Caught}}{\text{Actual Hours Fished}}$$

This value added to the total number of fish caught on weekend days yielded an estimate of the total number of fish caught.

### Results

Five fishes (n = 19) were harvested by 112 fishermen (53 parties) in 191.50 hours in September 1979 (Table 19). Rank by abundance was rainbow trout (n = 14, 73.7%); yellow perch (2, 10.5%); and brown trout, smallmouth bass, and largemouth bass (1 each, 5.3%). Weekend day fishermen (average 9.0/day) were more common than weekday fishermen (average 1.6/day) and fished longer per trip (1.8 vs 1.0 hr, respectively).

An estimated 130 fishermen (31 on weekdays and 99 on weekend days) fished an estimated 210 hours (32 and 178, respectively) in September on Upper B-G (Table 20). They harvested an estimated 21 fish (14 rainbow trout; 2 each yellow perch, smallmouth bass, and largemouth bass; and 1 brown trout) (Table 21).

All trout harvested by anglers in September had been stocked in Upper B-G on 19 April 1979. Six rainbow trout caught had tags (Table 22). These fish had grown an average of 35 mm (range: 14-54 mm) and 213 g (range: 20-309 g).

Of the 53 fishing parties (112) anglers interviewed, 6 parties (11.3%)

were residents (residing within 10 mi of Upper B-G) and 47 parties (88.7%) or 101 anglers (90.2%) were nonresidents. Of these nonresident fishing parties, 5 (10.6%) traveled 11-25 mi to fish, 22 (46.8%) traveled 26-50 mi, 2 (4.3%) traveled 51-100 mi, and 18 (38.3%) traveled more than 100 mi.

Of the fishing parties interviewed, 34.0% considered the fishing quality poor, 20.8% fair, 18.9% good, and 1.9% excellent; 24.5% had no opinion (Table 23).

The majority (50.9%) of fishing parties interviewed fished for any species, 43.4% fished for trout, and 5.7% fished for trout and walleye (Table 24).

Most parties fished with worms (75.5%) and artificial lures (41.5%); minnows (7.5%), crayfish (5.7%), and others (3.8%) were also used.

The average number of poles used was 1.3/angler.

Location fished by anglers was not summarized because individuals tended to move to various locations ("natural" shoreline, north dike, and south dike).

A FISHERY MANAGEMENT PROGRAM  
FOR THE BLENHEIM-GILBOA RESERVOIRS

Introduction

From 1973 through 1979 IA monitored the aquatic ecology of Lower and Upper B-G (Culp 1974a, 1974b, 1975, 1976b, 1978; Culp and Lechel 1977, 1978; Culp et al. 1977b, 1977c; Culp and Associates 1978, 1979). Based on this monitoring a fishery management program (FMP) was developed by IA and the Power Authority of the State of New York (PASNY) to improve the fishery in the B-G reservoirs. Public fishing has been allowed in Lower B-G since water was first impounded in spring 1972. In 1977 a trout (rainbow and brown) stocking program was initiated by PASNY in Upper B-G and has continued to date. By 1978 fish populations in Upper B-G had developed sufficiently to support a viable fishery, and in May 1979 Upper B-G was opened by PASNY to public fishing from the shoreline. In 1979 the FMP was expanded to include Lower B-G, and additional programs were added for Upper B-G. Fishery management programs initiated for Lower B-G were (1) trout (rainbow and brown), largemouth bass, and pumpkinseed stocking and (2) rough fish removal. Additional programs initiated for Upper B-G were (1) largemouth bass and pumpkinseed stocking and (2) building of constant level ponds (CLPs).

Management Programs

Largemouth Bass and Pumpkinseed Stocking

Initial fish sampling in Lower B-G during 1973 indicated that largemouth bass and pumpkinseed were the most abundant game and pan fishes. Populations of both have decreased since 1973 because of limited reproductive success. To improve the B-G fishery, 600 largemouth bass each (4 to 14 inches) and 100 pumpkinseed each (6 to 9 inches) were stocked in both Lower

and Upper B-G on 18 and 19 June 1979; 500 largemouth bass each (3 to 6 inches) were stocked in both on 12 August. It is anticipated that these fishes will benefit the summer fishery when the catch rate of other game fishes (walleye, brown trout, and rainbow trout) naturally declines.

#### Trout Stocking

Water temperature and dissolved oxygen data collected by IA from 1973 through 1976 in the B-G reservoirs indicated that these parameters would not limit trout (rainbow and brown) survival during summer.

Lower B-G is open to public fishing and therefore is managed by DEC. The DEC attempted to create a "two-story" fishery by the stocking of brown trout and rainbow trout. In both 1977 and 1978 DEC stocked 1100 each of marked (fin clip, jaw tag, or both) yearling brown trout and rainbow trout. Angler tag returns were not adequate (100% by weight of trout stocked), and DEC discontinued the program. However, IA felt that additional stocking data were needed. Consequently, IA stocked 1174 yearling rainbow trout (all marked with a left ventral-adipose fin clip and 623 tagged with Carlin tags) and 1176 yearling brown trout (all marked with a left ventral-adipose fin clip and 625 tagged with Carlin tags) on 25 April 1979.

Of 623 tagged rainbow trout stocked in Lower B-G, 46 (7.4%) tags were returned by anglers (Table 25). Two (0.3%) tags were from fish caught in Schoharie Creek below Lower B-G, 43 (6.9%) in Schoharie Creek above Lower B-G, and 1 (0.2%) was from a fish caught in Upper B-G. No tags were returned from fish caught in Lower B-G. Most (n = 37, 80.4%) tags were returned during June and July, a period which corresponds to heavy use of Nickerson Park, located on Schoharie Creek.

Of 625 tagged brown trout stocked in Lower B-G, only two (0.3%) tags

were returned, one (0.2%) from Schoharie Creek above Lower B-G and one (0.2%) from Upper B-G.

Upper B-G was stocked by IA with 1100 each of brown trout and rainbow trout (marked with a right pectoral fin clip) in 1977 and 1250 each of brown trout and rainbow trout (marked with a left pectoral fin clip) in 1978. On 19 April 1979, 1288 brown trout (all marked with left ventral fin clip and 625 tagged with Carlin tags) and 1235 rainbow trout (all marked with a left ventral fin clip and 625 tagged with Carlin tags) were stocked by IA.

Of 625 tagged rainbow trout stocked, 101 (16.2%) were returned by anglers or collected during the Upper B-G creel census (September) (Table 25). Five (0.8%) tags were from fish caught in Schoharie Creek above Lower B-G and 96 (15.4%) from fish caught in Upper B-G. Most (n = 80, 79.2%) tags were returned in May and June.

Of 625 tagged brown trout stocked, 12 (1.9%) tags were returned, all from fish caught in Upper B-G in May and June.

The success or failure of the B-G reservoirs trout stocking program should not and cannot be fully evaluated until an estimate can be made of how many of the trout stocked in 1979 are creeled in 1980, and possibly 1981 (i.e., what percent are "holdover" trout of total trout creeled during a given season.

#### Rough Fish Removal

To increase growth of game and pan fish by reducing competition for food and space, rough fish (predominantly carp and suckers) were removed from Lower B-G weekly by block net and boat electrofishing. Between 14 May and 5 November 155 carp plus 7 fallfish (339 lb, 5 oz) and 662 white sucker plus 4 northern redhorse and 1 northern hog sucker (626 lb) were removed. Future

monitoring of fish populations in Lower B-G should indicate the degree of success of this management program.

#### Constant Level Ponds

To increase the number of centrarchid fishes in the B-G reservoirs, three CLPs were built in Upper B-G. Water level fluctuation in the B-G reservoirs is believed to be the major factor limiting centrarchid reproductive success. The CLPs should improve centrarchid reproduction and ultimately increase the number of centrarchid fishes (predominantly largemouth bass, pumpkinseed, redbreast sunfish, and rock bass) by (1) preventing centrarchid nests and fish food organisms (benthos) from being exposed and (2) favoring the establishment of aquatic macrophytes, which provide both cover for young fishes to escape predation and food for benthos.

Between 18 April and 19 May three approximately 1-ac ponds with surface elevations of 2003.4 ft, 2001.5 ft, and 2000.0 ft were constructed along the northeast shoreline of Upper B-G. Maximum depth of each pond was about 10 ft. From 6 to 11 June wire mesh fencing (1 inch by 1 3/8 inches) was erected around the two ponds at elevations 2000.0 ft and 2001.5 ft to prevent largemouth bass from escaping. On 18 and 19 June the ponds were stocked with largemouth bass (40 in the CLP with surface elevation 2000.0 ft and 35 each in the remaining two) ranging from 6 to 14 inches and pumpkinseed (10 in each pond) ranging from 6 to 8 inches. To provide forage for largemouth bass stocked, minnows (1 to 3 inches) were introduced into each of the ponds on 19 June and 15 July. On 19 June a mix of golden shiner, fathead minnow, and creek chub was stocked (350 in the CLP with surface elevation 2000.0 ft and 250 each in the remaining two), and on 15 July a mix of bluntnose minnow and golden shiner was stocked (200 in the CLP with surface elevation 2000.0 ft

and 150 each in the remaining two). Signs were posted along the shoreline stating that these ponds are experimental and therefore fishing was prohibited.

Detailed observations of the CLPs, primarily for evidence of centrarchid reproduction, were made on 20 July and 20 August.

On Friday 20 July all ponds were observed by walking completely around each. Observations were as follows:

1. Pond at elevation 2000.0 ft. This pond was clear, with visibility greater than 4 ft. Six centrarchid nests (each about 2 ft across) were observed. One nest had a male pumpkinseed guarding it. Two smallmouth bass (about 3 inches long), one pumpkinseed (about 5 inches long), and a school of about 25 minnows were observed. Most nests in this pond and in other ponds were observed near the western shorelines.

2. Pond at elevation 2003.4 ft. It appeared that the water level was about 4 to 5 ft below maximum elevation. Consequently, this pond may have been filled only once since construction. The water was very turbid; visibility was less than 1 ft. One centrarchid nest (about 2 ft across) was observed but no fish were sighted. A small amount of algal scum was floating on the surface.

3. Pond at elevation 2001.5 ft. This pond was fairly clear; visibility was 2 1/2 to 3 ft. One centrarchid nest (about 2 ft across), two largemouth bass (about 5 to 6 inches long), and about 15 golden shiner (each about 3 inches long) swimming in a school with a yellow perch (about 4 inches long) were observed.

The CLPs were visited on Monday 20 August. Observations were as follows:

1. Pond at elevation 2000.0 ft. Water was extremely clear, and aquatic macrophytes were present. Cattails were starting to emerge and herbaceous

vegetation was starting to grow on the dike. There was a large quantity of floating wood debris, under which numerous fish were hiding. Filamentous algae was growing on the pond bottom. Numerous largemouth bass (8 to 13 inches long), as well as pumpkinseed (5 to 6 inches long) were observed. All along the shoreline young fishes were observed, including smallmouth bass and sunfish spp. Nests that had previously been observed were covered with silt. Several schools of small sunfish spp. were present that had most likely been spawned in this pond.

2. Pond at elevation 2003.4 ft. This pond was about 5 ft below maximum elevation and was very turbid, with visibility less than 6 inches. The dike between the reservoir and pond was very badly eroded (down about 1 to 1 1/2 ft), and sediment from this erosion had entered the pond. Some fish (not identified) were noted near shore but no nests were observed. Surface scum was abundant at the southern end of this pond.

3. Pond at elevation 2001.5 ft. Water was clear, with a greenish tinge. Aquatic plants were becoming established. Three large schools (more than 100) of sunfish spp. were observed, as well as several other young fishes. No nests were observed. Evidence (fishing lure) was found of a fisherman using the pond.

The ponds at elevations 2000.0 ft and 2001.5 ft provided for successful production of nest-building fishes. Aquatic plants are becoming established in these ponds. Numerous other fish, including smallmouth bass and yellow perch, have entered these ponds from Upper B-G.

On 31 August about 100 ft of the dike surrounding the pond at elevation 2003.4 ft was lowered to elevation 2002.4 ft so that overtopping of the dike would occur more frequently.

On 14 September approximately 50 ft of shoreline along each of the CLPs was seined by IA personnel, and the following fishes were collected:

Pond at elevation 2000.0 ft: 2 tessellated darter (45, 47 mm)  
27 yellow perch (76-103 mm)

Pond at elevation 2001.5 ft: 5 sunfish spp. (25-35 mm)

Pond at elevation 2002.4 ft: 4 sunfish spp. (33-45 mm)

One 50-ft seine haul in the reservoir near the CLPs caught one tessellated darter (40 mm) and one sunfish spp. (43 mm). One 50-ft seine haul near the southeast shore caught four tessellated darter (32-34 mm) and one smallmouth bass (70 mm).

In 1979 nest-building fish successfully reproduced in the Upper B-G CLPs. Physical modifications made during 1979 should improve spawning success in 1980. The lack of largemouth bass spawning activity in the CLPs during 1979 may have resulted from stocking mature fish that had spawned prior to stocking and stocking immature fish. In 1980 largemouth bass will be stocked earlier and of a larger size. Future monitoring of the B-G reservoirs will indicate the success of the CLPs in providing centrarchids to the fishery.

## WATER QUALITY

### Introduction

Six physical and chemical water quality parameters (turbidity, Secchi disc transparency, depth of euphotic zone, air temperature, water temperature, and dissolved oxygen) important to raw water supply and aquatic life were measured by IA from April through October 1979. Water quality data were collected at four stations on Schoharie Reservoir, two stations on Schoharie Creek, four stations on Esopus Creek, and the Shandaken Tunnel outlet (STO).

### Materials and Methods

Description and location of all water quality stations are given in Table 26 and shown on Maps 8 and 9. Water quality samples were taken during unusual weather events (i.e., after excessive rainfall and high air temperatures) and following initial opening of the Shandaken Tunnel in 1979. Water samples were generally collected at stream stations one day after each occurrence of excessive rainfall (0.50 inches or more of rainfall in a 24-hr period) and at reservoir stations two or three days after the rainfall. Stream stations were also sampled on 1 June, the day after the Shandaken Tunnel was first opened in 1979, and on 25 and 26 July during excessively hot and dry weather. The time during the day samples were collected depended upon personnel availability, weather conditions, and equipment reliability (Table 27).

Procedures used for water quality determinations are described in Table 28. APHA (1976) and EPA (1974) recommendations for sample analysis, preservation, handling time prior to analysis, and minimum sample volume were met.

Field thermometers were calibrated against a National Bureau of Standards certified thermometer (Fisher 75A-446 NBS 76). Thermistor thermometers (YSI Model 57) were read to the nearest tenth of a degree; mercury hand-held (Taylor Model 21431) and digital (IMC Model 2200) thermometers were read to the nearest degree (C).

Rainfall data at Lower B-G were provided by Mr. J. M. Collyer, Resident Manager of the B-G Pumped Storage Project (Table 29).

Daily elevation at Schoharie Reservoir; discharge through the Shandaken Tunnel; and rainfall data at Schoharie Reservoir, the Tannersville Sewage Treatment Plant, and the Esopus Creek watershed (Esopus Creek and Ashokan Reservoir) were provided by the New York City Department of Water Resources (Tables 29 and 30, Fig. 2). The Tannersville Sewage Treatment Plant is located in the upper Schoharie Creek watershed about 22 mi southeast of Schoharie Reservoir. Rainfall at Ashokan Reservoir was measured at Brown Station. Average daily rainfall on Esopus Creek was computed by IA from values at four locations: Highmount (Pine Hill), Slide Mountain, Phoenicia, and Coldbrook (Mount Tremper).

## Results

### Schoharie Reservoir

During April turbidity was lowest at station 26 (range: 3.9-9.8 NTU) and increased with distance north among stations 27 (7.8-26), 28 (8.2-23), and 30 (8.8-27) (Table 31). From May through August turbidity was greatest at station 26 (range: 1.7-22 NTU), varied from 1.4 to 11 NTU at station 27, and was lowest at stations 28 (1.3-8.8) and 30 (1.3-12). Surface values at all stations ranged from 16 to 27 NTU on 16 September. In October turbidity was again lowest at station 26 (range: 3.8-11 NTU); ranges of 6.5-33, 6.3-56,

and 6.0-54 NTU were recorded at stations 27, 28, and 30, respectively.

Secchi disc transparency ranged from 42 cm at stations 28 and 30 on 11 April to 515 cm at station 28 on 24 July (Table 32). Depth of the euphotic zone ranged from 1.1 m at station 28 on 11 April to 7.5 m at station 28 on 19 July (Table 33).

Air temperature varied from 6 to 33 C and was dependent on weather conditions and time of sampling (Table 34).

Water temperature ranged from 2.2 C at all depths at station 26 on 11 April to 26.7 C at the surface at station 30 on 3 August (Table 35). Thermal stratification occurred at all stations and was most pronounced at stations 28 and 30. Depth to the thermocline generally ranged from 12 to 14 m, and the greatest temperature difference in a 2-m interval was 8.8 C at station 30 on 3 August (16.7 and 7.9 C at 12 and 14 m, respectively). Water temperature in the hypolimnion ranged from 5.2 to 7.6 C at station 28 during July and August and from 4.5 to 8.0 C at station 30 from June through September.

Dissolved oxygen concentration at the surface ranged from 14.6 ppm on 11 April at station 26 to 6.0 ppm on 14 August at stations 27 and 28 (Table 36). Values at all stations generally remained at or near saturation during April, decreased through August, and increased through October. Oxygen depletion (concentrations of 0.1 to 2.6 ppm) occurred at the bottom at station 26 during July and early August and at stations 28 and 30 on 3 October. Hypolimnetic dissolved oxygen concentrations ranged from 4.4 to 8.4 ppm at station 28 during July and August and from 5.0 to 10.3 ppm at station 30 from June through September.

Schoharie Reservoir elevation varied 37.71 ft, from 1132.37 ft on 25 March to 1094.66 ft on 6 September (Fig. 2).

Schoharie Creek

Turbidity ranged from 2.3 NTU on 3 and 12 August to 55 NTU on 14 April at station 1 and from 0.90 NTU on 3 August to 27 NTU on 11 April at station 2 (Table 37). Air temperature varied from 7 to 30 C depending on weather conditions and time of sampling (Table 38). Water temperature ranged from 4 C on 11 April to 27 C on 25 July at station 1 and from 4 C on 11 and 14 April to 28 C on 25 July and 3 August at station 2 (Table 39).

Esopus Creek and the Shandaken Tunnel Outlet

At station 21 (above the STO) turbidity ranged from 0.58 NTU on 18 July to 8.9 NTU on 6 October (Table 40). Turbidity at station 20 (STO) ranged from 2.4 NTU on 17 July to 17 NTU on 15 September. Below the STO turbidity ranged from 1.5 NTU at station 19 on 30 May to 21 NTU at station 37 on 27 April. Turbidity at station 31 was considerably greater than that at station 19 during April and May and on 6 October; these differences may be related to turbid discharge from Woodland Creek and Stony Clove Creek.

On 1 June, the day after the Shandaken Tunnel was first opened in 1979, discharge through the Shandaken Tunnel was 557 cfs (Table 30). Turbidity at station 20 was 5.8 NTU, and values at stations 19, 31, and 37 were 5.0, 4.4, and 3.8 NTU, respectively, compared with a value of 1.1 NTU at station 21.

Air temperature along the Esopus Creek and at the STO varied from 4 to 31 C depending on weather conditions and time of sampling (Table 41). Water temperature ranged from 4 C on 14 April to 26 C on 3 August at station 21 (Table 42). At station 20 values ranged from 8 C on 1 June to 19 C on 15 September. Water temperature at station 20 was 12 C on 25 July, 13 C lower than the water temperature above the STO (25 C at station 21) on that day. Below the STO the lowest water temperature recorded was 4 C on 14 April at

stations 19, 31, and 37. The highest temperature was 18 C on 3 August and 15 September at station 19, 19 C on 2 and 3 August at station 31, and 22 C on 3 August at station 37. Water temperature below the STO was similar among stations 19, 31, and 37 during April and generally increased slightly with distance downstream from 24 May through 12 August; thereafter, values were similar among those stations or decreased with distance downstream.

Mean monthly discharge from the Shandaken Tunnel at Allaben was greatest in August (417 cfs) (Table 30). The tunnel was closed for repair from 1 January through 30 May and from 11 October through 31 December. From 31 May through 10 October mean daily discharge was 343 cfs; values ranged from 0 to 774 cfs.

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Table 1. Location and description of seine net, trap net, and chain electrofishing stations sampled in August and September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York.

Station*	Location	Stream Habitat			Substrate (Roelofs 1944)		
		% Run	% Riffle	% Pool	% Boulder	% Rubble	% Gravel
S-1	0.5 km downstream of Prattsville iron bridge (PIB)	100	0	0	0	50	50
S-2	0.1 km downstream of PIB	100	0	0	0	80	20
S-3	0.1 km upstream of PIB	100	0	0	50	30	20
S-4	13.9 km upstream of PIB	100	0	0	0	75	25
T-1	1.4 km upstream of PIB (Prattsville barrier dam)	0	0	100	30	60	10
T-2	10.0 km upstream of PIB (Mosquito Point)	0	0	100	10	80	10
C-1	14.0 km upstream of PIB	0	100	0	10	70	20
C-2	23.5 km upstream of PIB	50	50	0	30	70	0

Station	Width (m)		Midstream Depth (m)		Shore Cover		
	Maximum	Minimum	Maximum	Minimum	% Deciduous	% Conifer	% Open
S-1	49	40	1.0	0.8	0	0	100
S-2	50	40	1.3	0.3	0	0	100
S-3	25	20	2.5	0.3	10	0	90
S-4	25	22	1.5	0.3	0	0	100
T-1	22	14	2.3	1.5	10	0	90
T-2	25	18	2.5	1.5	70	20	10
C-1	24	18	1.5	0.3	0	0	100
C-2	20	15	1.3	0.3	70	0	30

\* S = seine net, T = trap net, C = chain electrofishing.

Table 2. Common and scientific names of fishes collected by Ichthyological Associates, Inc., in August and September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York. Nomenclature follows Bailey (1970).

Common Name	Scientific Name	Angler Classification*
<u>Catfishes - Ictaluridae</u>		
Brown bullhead	<i>Ictalurus nebulosus</i>	P
Margined madtom	<i>Noturus insignis</i>	R
Stonecat	<i>Noturus flavus</i>	R
<u>Minnows - Cyprinidae</u>		
Blacknose dace	<i>Rhinichthys atratulus</i>	R
Bluntnose minnow	<i>Pimephales notatus</i>	R
Common shiner	<i>Notropis cornutus</i>	R
Creek chub	<i>Semotilus atromaculatus</i>	R
Cutlips minnow	<i>Exoglossum maxillingua</i>	R
Fallfish	<i>Semotilus corporalis</i>	R
Longnose dace	<i>Rhinichthys cataractae</i>	R
Stoneroller	<i>Campostoma anomalum</i>	R
<u>Perches - Percidae</u>		
Tessellated darter	<i>Etheostoma olmstedii</i>	R
Yellow perch	<i>Perca flavescens</i>	P
<u>Suckers - Catostomidae</u>		
White sucker	<i>Catostomus commersoni</i>	R
<u>Sunfishes - Centrarchidae</u>		
Pumpkinseed	<i>Lepomis gibbosus</i>	P
Rock bass	<i>Ambloplites rupestris</i>	P
Smallmouth bass	<i>Micropterus dolomieu</i>	G

\* P = pan fish, R = rough fish, G = game fish.

Table 3. Fishes collected by seine net at four stations in August 1979 in Schoharie Creek between Schoharie Reservoir and Lexington, New York.

Station	S-1					S-2					S-3				
	Water Temperature (C)		14.0		Biomass (kg)	16.0		17.0		17.0		Biomass			
Species	#	%	Length Range (mm)	%		#	%	Length Range (mm)	(kg)	%	#	%	Length Range (mm)	(kg)	%
Tessellated darter	3	9.1	36-62	0.020	10.8	26	45.6	36-68	0.019	6.8	25	21.6	38-65	0.024	8.7
Smallmouth bass	14	42.4	45-112	0.049	26.3	9	15.8	43-132	0.057	20.4	22	19.0	40-70	0.050	18.1
Cutlips minnow	9	27.3	44-111	0.054	29.0	10	17.5	42-145	0.095	34.1	10	8.6	51-69	0.017	6.2
White sucker	-	-	-	-	-	1	1.8	63	0.002	0.7	29	25.0	53-103	0.072	26.1
Stoneroller	-	-	-	-	-	3	5.3	48-65	0.007	2.5	18	15.5	46-55	0.029	10.5
Stonecat	5	15.2	69-118	0.061	32.8	4	7.0	67-124	0.061	21.9	-	-	-	-	-
Creek chub	2	6.1	43-52	0.002	1.1	-	-	-	-	-	-	-	-	-	-
Pumpkinseed	-	-	-	-	-	3	5.3	70-81	0.037	13.3	3	2.6	67-75	0.021	7.6
Margined madtom	-	-	-	-	-	-	-	-	-	-	5	4.3	65-140	0.058	21.0
Rock bass	-	-	-	-	-	1	1.8	30	0.001	0.4	1	0.9	13	0.002	0.7
Blacknose dace	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fallfish	-	-	-	-	-	-	-	-	-	-	2	1.7	58	0.002	0.7
Bluntnose minnow	-	-	-	-	-	-	-	-	-	-	1	0.9	58	0.001	0.4
Total	33			0.186		57			0.279		116			0.276	

Station	S-4					S-1 through S-4						
	Water Temperature (C)		17.0		Biomass (kg)	14.0-17.0		14.0-17.0		Biomass		kg/haul
Species	#	%	Length Range (mm)	%		#	%	#/haul	Length Range (mm)	(kg)	%	
Tessellated darter	-	-	-	-	-	54	22.8	13.50	36-68	0.063	5.9	0.016
Smallmouth bass	2	6.5	56-62	0.005	1.6	47	19.8	11.75	40-132	0.161	15.2	0.040
Cutlips minnow	5	16.1	56-101	0.041	12.8	34	14.3	8.50	42-145	0.207	19.5	0.052
White sucker	2	6.5	38-53	0.002	0.6	32	13.5	8.00	38-103	0.076	7.2	0.019
Stoneroller	-	-	-	-	-	21	8.9	5.25	46-65	0.036	3.4	0.009
Stonecat	7	22.6	128-140	0.155	48.4	16	6.8	4.00	67-140	0.277	26.1	0.069
Creek chub	13	41.9	76-103	0.109	34.1	15	6.3	3.75	43-103	0.111	10.5	0.028
Pumpkinseed	-	-	-	-	-	6	2.5	1.50	67-81	0.058	5.5	0.015
Margined madtom	-	-	-	-	-	5	2.1	1.25	65-140	0.058	5.5	0.015
Rock bass	-	-	-	-	-	2	0.8	0.50	13-30	0.003	0.3	0.001
Blacknose dace	2	6.5	72-86	0.008	2.5	2	0.8	0.50	72-86	0.008	0.8	0.002
Fallfish	-	-	-	-	-	2	0.8	0.50	58	0.002	0.2	0.001
Bluntnose minnow	-	-	-	-	-	1	0.4	0.25	58	0.001	0.1	0.001
Total	31			0.320		237				1.061		
Catch per haul									59.30			0.265

Table 4. Fishes collected by trap net at two stations on 21 and 22 August 1979 in Schoharie Creek between Schoharie Reservoir and Lexington, New York.

Station	T-1					T-2					T-1 and T-2						
Water Temperature (C)	17.0					17.0					17.0						
Hours Fished	24					48					72						
Species	#	%	Length Range (mm)	Biomass (kg)	%	#	%	Length Range (mm)	Biomass (kg)	%	#	%	#/hr	Length Range (mm)	Biomass (kg)	%	kg/hr
White sucker	-	-	-	-	-	35	47.3	103-362	3.628	72.3	35	43.8	0.49	103-362	3.628	67.7	0.050
Pumpkinseed	1	16.7	108	0.021	6.3	11	14.9	97-111	0.241	4.8	12	15.0	0.17	97-111	0.262	4.9	0.004
Common shiner	-	-	-	-	-	12	16.2	112-142	0.287	5.7	12	15.0	0.17	112-142	0.287	5.4	0.004
Brown bullhead	-	-	-	-	-	8	10.8	142-220	0.641	12.8	8	10.0	0.11	142-220	0.641	12.0	0.009
Stonecat	-	-	-	-	-	7	9.5	125-152	0.200	4.0	7	8.8	0.10	125-152	0.200	3.7	0.003
Rock bass	4	66.7	126-181	0.291	86.9	-	-	-	-	-	4	5.0	0.06	126-181	0.291	5.4	0.004
Cutlips minnow	-	-	-	-	-	1	1.4	132	0.024	0.5	1	1.3	0.01	132	0.024	0.4	0.001
Yellow perch	1	16.7	131	0.023	6.9	-	-	-	-	-	1	1.3	0.01	131	0.023	0.4	0.001
Total	6			0.335		74			5.021		80				5.356		
Catch per hour													1.11				0.074

Table 5. Fishes collected by chain electrofishing at two 45.7-m stations in September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York.

Station	C-1					C-2					C-1 and C-2				
Water Temperature (C)	14.5					15.0					14.5-15.0				
Species	#	%	Length Range (mm)	Biomass (kg)	%	#	%	Length Range (mm)	Biomass (kg)	%	#	%	Length Range (mm)	Biomass (kg)	%
Common shiner	7	41.2	37-77	0.015	27.8	29	60.4	31-101	0.045	43.3	36	55.4	31-101	0.060	38.0
Longnose dace	4	23.5	41-77	0.010	18.5	9	18.8	65-95	0.037	35.6	13	20.0	41-95	0.047	29.7
Blacknose dace	2	11.8	65-70	0.005	9.3	9	18.8	29-80	0.017	16.3	11	16.9	29-80	0.022	13.9
White sucker	2	11.8	93-108	0.019	35.2	-	-	-	-	-	2	3.1	93-108	0.019	12.0
Cutlips minnow	1	5.9	72	0.004	7.4	1	2.1	79	0.005	4.8	2	3.1	72-79	0.009	5.7
Tessellated darter	1	5.9	43	0.001	1.9	-	-	-	-	-	1	1.5	43	0.001	0.6
Total	17			0.054		48			0.104		65			0.158	

Table 6. Fishes collected by seine net, trap net, and chain electrofishing in August and September 1979 in Schoharie Creek above Schoharie Reservoir.

Species	#	%	Biomass (kg)	%
White sucker	69	18.1	3.723	56.6
Tessellated darter	55	14.4	0.064	1.0
Common shiner	48	12.6	0.347	5.3
Smallmouth bass	47	12.3	0.161	2.4
Cutlips minnow	37	9.7	0.240	3.7
Stonecat	23	6.0	0.477	7.3
Stoneroller	21	5.5	0.036	0.5
Pumpkinseed	18	4.7	0.320	4.9
Creek chub	15	3.9	0.111	1.7
Longnose dace	13	3.4	0.047	0.7
Blacknose dace	13	3.4	0.030	0.5
Brown bullhead	8	2.1	0.641	9.7
Rock bass	6	1.6	0.294	4.5
Margined madtom	5	1.3	0.058	0.9
Fallfish	2	0.5	0.002	0.1
Bluntnose minnow	1	0.3	0.001	0.1
Yellow perch	<u>1</u>	0.3	<u>0.023</u>	0.3
Total	382		6.575	

Table 7. Fishes collected by boat electrofishing in 150 minutes on 4 June 1979 in Lower B-G.

Location	Schoharie Creek		Mine Kill Cove		West Shore to North of Boat Landing		North Dike to Northeast Corner		East Shore to North of Powerhouse		Total			
	50		20		30		25		25		150			
Minutes Fished	#	kg	#	kg	#	kg	#	kg	#	kg	#	#/min	kg	kg/min
White sucker	40	14.129	37	13.221	9	2.916	5	1.774	9	3.345	100	0.67	35.385	0.236
Smallmouth bass	10	0.724	1	0.168	2	0.068	9	0.458	2	0.120	24	0.16	1.538	0.010
Yellow perch	5	0.232	-	-	5	0.236	3	0.090	7	0.406	20	0.13	0.964	0.006
Carp	3	3.317	4	3.184	7	5.747	-	-	-	-	14	0.09	12.248	0.082
Rock bass	2	0.106	1	0.124	4	0.090	-	-	2	0.064	9	0.06	0.384	0.003
Fallfish	2	0.060	-	-	3	0.009	1	0.002	-	-	6	0.04	0.071	0.001
Brown trout*	1**	0.172	-	-	1	0.192	1	0.198	1	0.144	4	0.03	0.706	0.005
Walleye	1	0.056	1	0.564	-	-	1	0.048	-	-	3	0.02	0.668	0.004
Brown bullhead	2	0.908	1	0.268	-	-	-	-	-	-	3	0.02	1.176	0.008
Pumpkinseed	1	0.100	-	-	1	0.242	-	-	-	-	2	0.01	0.342	0.002
Golden shiner	1	0.020	-	-	-	-	-	-	-	-	1	0.01	0.020	0.001
Total	68	19.824	45	17.529	32	9.500	20	2.570	21	4.079	186	1.24	53.502	0.357

\* All trout captured were stocked in Lower B-G in 1979.

\*\* One brown trout recaptured, tag #2198; when tagged: 256 mm, 168 g; when recaptured: 255 mm, 172 g.

Table 8. Fishes collected by boat electrofishing at 10 stations on 5 November 1979 in Lower B-G.\*

Station	L-1		L-3		L-4		L-7		L-8		L-9		L-1 through L-10			
	10		10		10		10		10		10		100			
Minutes Fished	#	kg	#	#/min	kg	kg/min										
White sucker	4	2.250	1	0.095	-	-	-	-	3	1.504	-	-	8	0.08	3.849	0.038
Fallfish	-	-	1	0.042	1	0.038	1	0.041	1	0.041	-	-	4	0.04	0.121	0.001
Rainbow trout	-	-	-	-	-	-	-	-	-	-	1	0.384	1	0.01	0.384	0.004
Total	4	2.250	2	0.137	1	0.038	1	0.041	4	1.545	1	0.384	13	0.13	4.354	0.044

\* No fish collected at stations L-2, L-5, L-6, and L-10; sampled 10 minutes each.

Table 9. Fishes collected by boat electrofishing in 150 minutes on 31 May 1979 in Upper B-G.

Location Minutes Fished Species	South Half of East Shore 25		North Half of East Shore 25		North Shore 35		West Shore 40		South Shore 25		Total 150			
	#	kg	#	kg	#	kg	#	kg	#	kg	#	#/min	kg	kg/min
Yellow perch	2	0.023	30	0.460	3	0.018	8	0.084	1	0.056	44	0.29	0.641	0.004
Walleye	12	2.808	5	0.427	-	-	-	-	1	0.022	18	0.12	3.257	0.022
Smallmouth bass	2	0.374	1	0.680	6	1.031	4	0.124	3	0.308	16	0.11	2.517	0.017
Redbreast sunfish	-	-	1	0.077	3	0.196	7	0.566	1	0.040	12	0.08	0.879	0.006
Rock bass	2	0.068	-	-	-	-	4	0.256	1	0.038	7	0.05	0.362	0.002
Logperch	1	0.010	1	0.005	1	0.014	2	0.022	-	-	5	0.03	0.051	0.001
Rainbow trout*	1	0.248	-	-	2**	0.512	1	0.208	-	-	4	0.03	0.968	0.006
Carp	-	-	4	4.961	-	-	-	-	-	-	4	0.03	4.961	0.033
Pumpkinseed	-	-	1	0.036	-	-	2	0.048	1	0.020	4	0.03	0.104	0.001
White sucker	2	1.472	1	0.907	-	-	-	-	-	-	3	0.02	2.379	0.016
Brown trout*	-	-	-	-	2	0.444	-	-	-	-	2	0.01	0.444	0.003
Fallfish	-	-	-	-	1	0.002	1	0.016	-	-	2	0.01	0.018	0.001
Emerald shiner	-	-	-	-	-	-	-	-	1	0.002	1	0.01	0.002	0.001
<b>Total</b>	<b>22</b>	<b>5.003</b>	<b>44</b>	<b>7.553</b>	<b>18</b>	<b>2.217</b>	<b>29</b>	<b>1.324</b>	<b>9</b>	<b>0.486</b>	<b>122</b>	<b>0.81</b>	<b>16.583</b>	<b>0.111</b>

\* All trout captured were stocked in Upper B-G in 1979.

\*\* One rainbow trout recaptured, tag #0989; when tagged: 269 mm, 218 g; when recaptured: 280 mm, 232 g.

Table 10. Fishes collected by boat electrofishing in 130 minutes on 30 October 1979 in Upper B-G.

Location Minutes Fished Species	North Shore 35		West Shore 20		South Shore 30		East ("Natural") Shore 45		Total 130			
	#	kg	#	kg	#	kg	#	kg	#	#/min	kg	kg/min
Rainbow trout	6	2.574	9	3.570	6	2.690	1	0.350	22	0.17	9.184	0.071
Walleye	-	-	1	0.073	-	-	5	2.608	6	0.05	2.681	0.021
Yellow perch	-	-	1	0.056	-	-	3	0.132	4	0.03	0.188	0.001
Brown trout	-	-	-	-	1	0.320	2	0.696	3	0.02	1.016	0.008
Smallmouth bass	1	0.764	2	0.941	-	-	-	-	3	0.02	1.705	0.013
Largemouth bass	1	0.344	-	-	-	-	-	-	1	0.01	0.344	0.003
White sucker	1	0.485	-	-	-	-	-	-	1	0.01	0.485	0.004
<b>Total</b>	<b>9</b>	<b>4.167</b>	<b>13</b>	<b>4.640</b>	<b>7</b>	<b>3.010</b>	<b>11</b>	<b>3.786</b>	<b>40</b>	<b>0.31</b>	<b>15.603</b>	<b>0.120</b>

Table 11. Fishes collected by experimental gill net at four stations on 29 and 30 October 1979 in Upper B-G.

Station Hours Fished Species	U-1 20.5		U-2 21.0		U-3 21.0		U-4 21.5		U-1 through U-4 84.0			
	#	kg	#	kg	#	kg	#	kg	#	#/hr	kg	kg/hr
Walleye	4	3.176	6	3.355	-	-	-	-	10	0.12	6.531	0.078
Rainbow trout	5	2.136	-	-	-	-	4	2.176	9	0.11	4.312	0.051
Brown trout	1	0.368	-	-	-	-	2	0.737	3	0.04	1.105	0.013
Carp	1	1.531	-	-	1	1.503	-	-	2	0.02	3.034	0.036
Cisco	-	-	-	-	-	-	1	0.796	1	0.01	0.796	0.009
Yellow perch	-	-	1	0.090	-	-	-	-	1	0.01	0.090	0.001
Rock bass	1	0.320	-	-	-	-	-	-	1	0.01	0.320	0.004
White sucker	1	0.608	-	-	-	-	-	-	1	0.01	0.608	0.007
<b>Total</b>	<b>13</b>	<b>8.139</b>	<b>7</b>	<b>3.445</b>	<b>1</b>	<b>1.503</b>	<b>7</b>	<b>3.709</b>	<b>28</b>	<b>0.33</b>	<b>16.796</b>	<b>0.200</b>

Table 12. Tagged rainbow trout observed during trout monitoring sampling in October 1979 in Upper B-G.\*

Tag Number	Length (mm)		Weight (g)	
	At Tagging	At Recapture	At Tagging	At Recapture
0435	274	345	220	400
0837	274	315	210	338
0861	300	370	260	442
0944	288	352	224	446
1092	300	370	260	498
1163	284	340	220	342
1257	263	335	196	370

\* Trout had been tagged for 193 days before being recaptured.

Table 13. Fishes collected by boat electrofishing and experimental gill net in spring and fall 1979 in Lower and Upper B-G.

Species	Lower B-G		Upper B-G	
	#	Biomass (kg)	#	Biomass (kg)
<u>Spring</u>				
White sucker	100	35.385	3	2.379
Smallmouth bass	24	1.538	16	2.517
Yellow perch	20	0.964	44	0.641
Carp	14	12.248	4	4.961
Rock bass	9	0.384	7	0.362
Fallfish	6	0.071	2	0.018
Brown trout	4	0.706	2	0.444
Walleye	3	0.668	18	3.257
Brown bullhead	3	1.176	-	-
Pumpkinseed	2	0.342	4	0.104
Golden shiner	1	0.020	-	-
Redbreast sunfish	-	-	12	0.879
Logperch	-	-	5	0.051
Rainbow trout	-	-	4	0.968
Emerald shiner	-	-	1	0.002
<b>Total</b>	<b>186</b>	<b>53.502</b>	<b>122</b>	<b>16.583</b>
-----				
<u>Fall</u>				
White sucker	8	3.849	2	1.093
Fallfish	4	0.121	-	-
Rainbow trout	1	0.384	31	13.496
Walleye	-	-	16	9.212
Brown trout	-	-	6	2.121
Yellow perch	-	-	5	0.278
Smallmouth bass	-	-	3	1.705
Carp	-	-	2	3.034
Cisco	-	-	1	0.796
Largemouth bass	-	-	1	0.344
Rock bass	-	-	1	0.320
<b>Total</b>	<b>13</b>	<b>4.354</b>	<b>68</b>	<b>32.399</b>

Table 14. Fishes collected by experimental gill net in 92 hours on 13 and 14 September 1979 at four stations on Lower B-G.\*

Station	L-1					L-2					L-3				
Depth of Capture (m)	1.8-2.0					3.0-6.1					3.0-7.6				
Hours Fished	23					23					23				
Species	#	#/hr	Length Range (mm)	Biomass (kg)	kg/hr	#	#/hr	Length Range (mm)	Biomass (kg)	kg/hr	#	#/hr	Length Range (mm)	Biomass (kg)	kg/hr
Carp	6	0.26	397-428	5.557	0.242	5	0.22	388-470	5.614	0.244	3	0.13	420-441	3.119	0.136
White sucker	6	0.26	339-402	3.119	0.136	7	0.30	345-395	3.515	0.153	-	-	-	-	-
Yellow perch	-	-	-	-	-	10	0.43	180-252	1.238	0.054	-	-	-	-	-
Rock bass	-	-	-	-	-	3	0.13	154-252	0.364	0.016	-	-	-	-	-
Fallfish	-	-	-	-	-	2	0.09	254-263	0.320	0.014	-	-	-	-	-
Pumpkinseed	2	0.09	192-210	0.230	0.010	-	-	-	-	-	-	-	-	-	-
Smallmouth bass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>14</b>	<b>0.61</b>		<b>8.906</b>	<b>0.387</b>	<b>27</b>	<b>1.17</b>		<b>11.051</b>	<b>0.480</b>	<b>3</b>	<b>0.13</b>		<b>3.119</b>	<b>0.136</b>

Station	L-4					L-1 through L-4				
Depth of Capture (m)	3.0-10.7					1.8-10.7				
Hours Fished	23					92				
Species	#	#/hr	Length Range (mm)	Biomass (kg)	kg/hr	#	#/hr	Length Range (mm)	Biomass (kg)	kg/hr
Carp	6	0.26	409-438	5.670	0.247	20	0.87	388-470	19.960	0.868
White sucker	1	0.04	366	0.540	0.023	14	0.61	339-402	7.174	0.312
Yellow perch	-	-	-	-	-	10	0.43	180-252	1.238	0.054
Rock bass	-	-	-	-	-	3	0.13	154-252	0.364	0.016
Fallfish	-	-	-	-	-	2	0.09	254-263	0.320	0.014
Pumpkinseed	-	-	-	-	-	2	0.09	192-210	0.230	0.010
Smallmouth bass	1	0.04	378	0.660	0.029	1	0.04	378	0.660	0.287
<b>Total</b>	<b>8</b>	<b>0.35</b>		<b>6.870</b>	<b>0.299</b>	<b>52</b>	<b>2.26</b>		<b>29.946</b>	<b>1.302</b>

\* Water temperature 20.5 C.

Table 15. Fishes collected during 60 minutes of boat electrofishing on 13 September 1979 at five areas on Lower B-G.\*

Area	L-3			L-4		
	#	Length Range (mm)	Biomass (kg)	#	Length Range (mm)	Biomass (kg)
Smallmouth bass	3	163-420	1.240	1	257	0.204
White sucker	1	338	0.404	1	353	0.544
Carp	1	405	0.900	-	-	-
Northern hog sucker	1	222	0.156	-	-	-
Total	6		2.700	2		0.748

Area	L-5			L-1 through L-5				
	#	Length Range (mm)	Biomass (kg)	#	#/min	Length Range (mm)	Biomass (kg)	kg/min
Smallmouth bass	-	-	-	4	0.07	163-420	1.984	0.033
White sucker	1	360	0.460	3	0.05	338-360	1.408	0.023
Carp	-	-	-	1	0.02	405	0.900	0.015
Northern hog sucker	-	-	-	1	0.02	222	0.156	0.003
Total	1		0.460	9	0.15		4.448	0.074

\* Water temperature 20.5 C. No fish collected at areas L-1 and L-2.

Table 16. Fishes collected by seine net on 13 September 1979 at four stations on Lower B-G.\*

Station	L-3			L-4			L-1 through L-4		
	Number	Length Range (mm)	Biomass (kg)	Number	Length Range (mm)	Biomass (kg)	Number	Length Range (mm)	Biomass (kg)
Sunfish spp.	3	21-31	0.001	-	-	-	3	21-31	0.001
Common shiner	-	-	-	2	74-76	0.006	2	74-76	0.006
Total	3		0.001	2		0.006	5		0.007

\* Water temperature 20.5 C. No fish collected at stations L-1 and L-2.

Table 17. Fishes collected by experimental gill net, boat electrofishing, and seine net on 13 and 14 September 1979 in Lower B-G.

Species	Abundance		Biomass	
	#	%	kg	%
Carp	21	31.8	20.860	60.6
White sucker	17	25.8	8.582	24.9
Yellow perch	10	15.2	1.238	3.6
Smallmouth bass	5	7.6	2.644	7.7
Rock bass	3	4.5	0.364	1.1
Sunfish spp.	3	4.5	0.001	0.1
Fallfish	2	3.0	0.320	0.9
Pumpkinseed	2	3.0	0.230	0.7
Common shiner	2	3.0	0.006	0.1
Northern hog sucker	<u>1</u>	1.5	<u>0.156</u>	0.5
Total	66		34.401	

Table 18. Dates during which a creel census was conducted in September 1979 on Upper B-G.

Weekdays		Weekend Days	
Wednesday	5 Sep	Saturday	1 Sep
Thursday	6 Sep	Sunday	2 Sep
Tuesday	11 Sep	Monday	3 Sep
Friday	14 Sep	Saturday	8 Sep
Wednesday	19 Sep	Sunday	9 Sep
Friday	21 Sep	Saturday	15 Sep
Wednesday	26 Sep	Sunday	16 Sep
Thursday	27 Sep	Saturday	22 Sep
		Sunday	23 Sep
		Saturday	29 Sep
		Sunday	30 Sep

Table 19. Creel census data collected in September 1979 on Upper B-G.

	Weekdays			Weekend Days			Total		
	#	%	Catch/hr	#	%	Catch/hr	#	%	Catch/hr
Fishermen counted:									
Resident	1	7.7		10	10.1		11	9.8	
Nonresident	12	92.3		89	89.9		101	90.2	
Total	13			99			112		
Parties counted:									
Resident	1	12.5		5	11.1		6	11.3	
Nonresident	7	87.5		40	88.9		47	88.7	
Total	8			45			53		
Fish caught:									
Rainbow trout	-	-	-	14	82.4	0.08	14	73.7	0.07
Yellow perch	-	-	-	2	11.8	0.01	2	10.5	0.01
Brown trout	-	-	-	1	5.9	0.01	1	5.3	0.01
Smallmouth bass	1	50.0	0.08	-	-	-	1	5.3	0.01
Largemouth bass	1	50.0	0.08	-	-	-	1	5.3	0.01
Total	2			17			19		
Per hour			0.15			0.10			0.10
Hours fished:									
Total	13.25			178.25			191.50		

Table 20. Estimated angler use in September 1979 on Upper B-G.

Estimated Number of Anglers			Estimated Number of Hours Fished		
Weekdays	Weekend Days	Total	Weekdays	Weekend Days	Total
31	99	130	32	178	210

Table 21. Estimated angler success in September 1979 on Upper B-G.

Species	Weekdays	Weekend Days	Total
Rainbow trout	-	14	14
Yellow perch	-	2	2
Smallmouth bass	2	-	2
Largemouth bass	2	-	2
Brown trout	-	<u>1</u>	<u>1</u>
Total	4	17	21

Table 22. Tagged rainbow trout harvested by anglers in September 1979 on Upper B-G.\*

Date Harvested	Tag Number	Number of Days between Tagging and Recapture	Length (mm)		Weight (g)	
			When Tagged	When Harvested	When Tagged	When Harvested
9 Sep	0967	142	284	305	248	268
16 Sep	1247	149	290	326	252	418
16 Sep	0890	149	278	321	188	438
30 Sep	0937	163	304	318	264	506
30 Sep	0940	163	272	312	196	505
30 Sep	0698	163	262	316	176	465

\* Tagged trout were stocked 19 April 1979.

Table 23. Opinions of fishing quality from anglers interviewed during a creel census in September 1979 on Upper B-G (party response).

	Excellent		Good		Fair		Poor		No Opinion	
	#	%	#	%	#	%	#	%	#	%
Resident (n = 6)	-	-	2	33.3	-	-	3	50.0	1	16.7
Nonresident (n = 47)	1	2.1	8	17.0	11	23.4	15	31.9	12	25.5
Total (n = 53)	1	1.9	10	18.9	11	20.8	18	34.0	13	24.5

Table 24. Catch preferences of anglers interviewed during a creel census in September 1979 on Upper B-G (party response).

Species	Resident		Nonresident		Total	
	#	%	#	%	#	%
Anything	4	66.7	23	48.9	27	50.9
Trout	2	33.3	21	44.7	23	43.4
Trout and walleye	-		3	6.4	3	5.7
Total	6		47		53	

Table 25. Summary by month and location of tags returned by anglers in 1979 from tagged rainbow trout (RT) and brown trout (BT) stocked in 1979 in Lower B-G (LBG) and Upper B-G (UBG).

Location Stocked	Location Returned*	May		Jun		Jul		Aug		Sep		May-Sep	
		RT	BT	RT	BT								
LBG	TB-1	1	-	-	-	1	-	-	-	-	-	2	-
	TB-2	-	-	-	-	-	-	-	-	-	-	-	-
	TB-3	-	-	-	-	-	-	-	-	-	-	-	-
	TB-4	1	-	12	-	14	-	2	-	3	1	32	1
	TB-5	-	-	8	-	2	-	1	-	-	-	11	-
	TB-6	-	-	-	-	-	-	-	-	-	-	-	-
	TB-7	-	1	-	-	-	-	-	-	1	-	1	1
	TB-8	-	-	-	-	-	-	-	-	-	-	-	-
	Total	2	1	20	0	17	0	3	0	4	1	46	2
UBG	TB-4	-	-	1	-	1	-	-	-	-	-	2	-
	TB-5	-	-	3	-	-	-	-	-	-	-	3	-
	TB-6	9	2	1	1	1	-	2	-	-	-	13	3
	TB-7	48	6	15	-	3	-	6	-	2	-	74	6
	TB-8	1	2	2	1	-	-	-	-	-	-	3	3
	TB-6, 7, or 8	-	-	-	-	-	-	-	-	6	-	6	-
	Total	58	10	22	2	5	0	8	0	8	0	101	12

\* Location of Tag Box (TB): TB-1, LBG spillway  
 TB-2, LBG boat ramp  
 TB-3, Mine Kill Cove  
 TB-4, Nickerson Park  
 TB-5, Gilboa iron bridge  
 TB-6, UBG north gate  
 TB-7, UBG south gate  
 TB-8, UBG radio shack  
 TB-6, 7, or 8, collected from fishermen during UBG creel census (Sep).

Table 26. Description of water quality stations sampled from April through October 1979 in Schoharie Reservoir, Schoharie Creek, Esopus Creek, and the Shandaken Tunnel outlet.

Station	Description
26	Schoharie Reservoir Located 10 ft from the east shore and 1.1 mi downstream from the entrance of Schoharie Creek into Schoharie Reservoir. The bottom is sandy silt (Roelofs 1944). The depth is 46 ft at elevation 1130 ft. High rock ledges are on either side of the channel. Overhanging vegetation is conifers and hardwoods. 24 July 1975.*
27	Schoharie Reservoir Located 0.1 mi southeast of the Shandaken Tunnel intake. The bottom is sandy silt. The depth is 59 ft at elevation 1130 ft. Shoreline vegetation consists of conifers and hardwoods. 24 July 1975.
28	Schoharie Reservoir Located 0.4 mi from the west shore, 0.9 mi south of the entrance of the Manor Kill into Schoharie Reservoir, and 0.3 mi from the east shore. The depth is 75 ft at elevation 1130 ft. The bottom is sandy silt. Shoreline vegetation is conifers and hardwoods. 24 July 1975.
30	Schoharie Reservoir Located 0.2 mi northwest of the island and 0.5 mi southeast of the east end of Gilboa Dam. The depth is 112 ft at elevation 1130 ft. The bottom is sandy silt. The shoreline vegetation is conifers and hardwoods. 14 August 1975.
1	Schoharie Creek Located along the west shore 0.2 mi upstream from Schoharie Reservoir, 110 ft upstream from the Prattsville iron bridge, and about 10 ft upstream from the USGS gaging station (installed in November 1902). The banks are steep and contain large pines and hardwoods, saplings, brush, and grasses. The bottom is boulders. The elevation is 1140 ft. 4 April 1974.
2	Schoharie Creek Located along the west shore 0.4 mi downstream from Gilboa Dam, 50 ft upstream from the Gilboa iron bridge, and 150 ft downstream from the USGS gaging station (installed in October 1975). The west bank is steep and heavily forested with mixed hardwoods. The east bank is a gradual incline heavily forested with mixed hardwoods, with some open areas of grass. The bottom is boulders. The elevation is 970 ft. 4 April 1974.
21	Esopus Creek Located along the south shore 1.6 mi upstream from the Shandaken Tunnel outlet (STO) at bridge on Route 28. The south bank is steep with shrubs and grasses. The north bank is flat with some hardwoods. The bottom is rubble. The elevation is 1040 ft. 19 June 1975.
20	Shandaken Tunnel Outlet (STO) Located along the north shore of Esopus Creek at Allaben, New York. The bottom and sides are brick. The south bank is flat with shrubs and grasses. The elevation is 980 ft. 19 June 1975.
19	Esopus Creek Located along the north shore 2.4 mi downstream from the STO. The banks are flat with shrubs and grasses. The bottom is rubble. The elevation is 900 ft. 19 June 1975.
31	Esopus Creek Located along the south shore 7.6 mi downstream from the STO at Mount Pleasant, New York. The south bank is steep with boulders. The north bank is flat and has hardwoods and shrubs. The bottom is boulders and gravel. The elevation is 700 ft. 6 January 1976.
37	Esopus Creek Located along the north shore 10.6 mi downstream from the STO at the USGS gaging station at Coldbrook (installed in January 1914). Both banks are steep with conifers and hardwoods. The bottom is rubble and gravel. The elevation is 640 ft. 6 April 1977.

\* Initial sampling date.

Table 27. Time of day water quality samples were collected from April through October 1979 in Schoharie Reservoir, Schoharie Creek, Esopus Creek, and the Shandaken Tunnel outlet.

Station	Date																							
	Apr						May				Jun				Jul									
	11	14	16	27	28	30	24	25	30	31	1	5	10	29	2	17	18	19	23	24	25	26	27	28
26	1300	-	1100	-	-	1345	-	1245	-	1100	-	1215	-	-	1115	-	-	1130	-	1255	-	-	-	1345
27	1245	-	1145	-	-	1410	-	1220	-	1130	-	1245	-	-	1135	-	-	1155	-	1320	-	-	-	1410
28	1215	-	1210	-	-	1445	-	1200	-	1150	-	1310	-	-	1210	-	-	1225	-	1350	-	-	-	1435
30	1130	-	1255	-	-	1540	-	1110	-	1225	-	1330	-	-	1230	-	-	1250	-	1440	-	-	-	1510
1	1110	1035	-	1155	1030	-	1025	1100	1110	-	1255	-	1200	1100	-	1015	1135	-	1525	-	1535	1745	1025	-
2	1050	1020	-	1135	1005	-	1010	1040	1055	-	1305	-	1145	1045	-	1000	1115	-	1505	-	1810	-	1010	-
21	1140	1115	-	1225	1155	-	1120	1135	1140	-	1220	-	1225	1145	-	1045	1210	-	1550	-	1610	1705	1100	-
20	TC*	TC	-	TC	TC	-	TC	TC	TC	-	1215	-	1240	1150	-	1055	1215	-	1605	-	1620	1700	1110	-
19	1155	1125	-	1240	1205	-	1135	1150	1155	-	1210	-	1245	1200	-	1105	1220	-	1615	-	1630	1655	1115	-
31	1215	1140	-	1250	1220	-	1145	1210	1210	-	1200	-	1255	1215	-	1115	1235	-	1630	-	1640	1645	1125	-
37	1235	1150	-	1300	1230	-	1155	1225	1230	-	1150	-	1305	1225	-	1125	1245	-	1640	-	1650	1635	1130	-

Station	Date											
	Aug				Sep			Oct				
	2	3	4	12	13	14	15	16	2	3	6	7
26	-	1020	1040	-	1240	1255	-	1300	-	1230	-	1235
27	-	1100	1105	-	1400	1310	-	1325	-	1245	-	1435
28	-	1130	1125	-	1420	1330	-	1345	-	1305	-	1620
30	-	1215	1150	-	1450	1355	-	1420	-	1340	-	1745
1	1330	1250	-	1120	0950	-	1055	-	1410	-	0930	-
2	1215	1445	-	1100	0935	-	1040	-	1350	-	0915	-
21	1230	1325	-	1150	1020	-	1120	-	1440	-	1000	-
20	1240	1330	-	1200	1025	-	1125	-	1450	-	1015	-
19	1250	1335	-	1210	1030	-	1130	-	1455	-	1020	-
31	1300	1345	-	1220	1040	-	1140	-	1505	-	1035	-
37	1310	1355	-	1230	1045	-	1150	-	1510	-	1045	-

\* TC = Shandaken Tunnel closed.

Table 28. Procedures used by IA for water quality determinations in 1979.

Parameter		Volume Analyzed (ml)	Where Measured	Unit
Turbidity	Nephelometric method <sup>1,2</sup>	25	Lab	Nephelometric Turbidity Unit (NTU)
Secchi disc transparency	8-inch Secchi disc	-	Field	cm
Depth of euphotic zone	Submarine photometer <sup>1</sup>	-	Field	m
Air temperature	Hand-held thermometer, digital thermometer	-	Field	C
Water temperature:				
Lentic	Thermistor thermometer	-	Field	C
Lotic	Hand-held thermometer, digital thermometer	-	Field	C
Dissolved oxygen	Azide modification of Winkler titration <sup>1</sup>	200	Field, Lab	ppm O <sub>2</sub>
Profiles	Oxygen electrode	-	Field	ppm O <sub>2</sub>

<sup>1</sup>APHA 1976.

<sup>2</sup>EPA 1974.

Table 29. Rainfall (inches) recorded at 0800 for the previous 24-hr period from April through October 1979 at Lower B-G (LBG), Schoharie Reservoir (SR), Tannersville Sewage Treatment Plant (TST), and Ashokan Reservoir (AR); and average values among four locations in the Esopus Creek watershed (EC).

Date	Rainfall (inches)				
	LBG	SR	TST*	AR	EC**
10 Apr	0.68	0.71	0.98	0.80	0.49
14 Apr	0.65	0.50	0.73	0.61	0.57
27 Apr	0.07	0.17	1.61	1.16	1.22
28 Apr	0.81	0.60	1.28	1.09	0.82
24 May	0.77	0.87	1.12	1.23	0.86
25 May	2.23	2.12	2.31	2.00	1.64
30 May	0.57	0.46	0.08	0.15	0.20
3 Jun	0.68	0.68	0.04	0.00	0.00
10 Jun	0.06	0.78	0.00	0.01	0.02
29 Jun	1.14	0.45	0.09	0.10	0.14
17 Jul	0.79	0.65	0.00	0.02	0.31
18 Jul	0.48	0.52	0.03	0.00	0.17
22 Jul	1.17	0.68	0.50	0.81	0.75
27 Jul	0.63	0.27	1.51	0.37	0.80
2 Aug	0.15	0.50	0.03	0.21	0.50
3 Aug	0.73	0.77	0.03	0.01	0.04
12 Aug	0.29	0.42	0.51	0.54	0.74
13 Aug	0.51	0.62	0.64	0.83	0.78
15 Sep	0.55	0.70	1.85	0.37	1.74
2 Oct	0.86	1.00	1.61	1.70	1.47
6 Oct	1.04	1.42	1.90	2.31	2.57

\* The Tannersville Sewage Treatment Plant is located in the Schoharie Creek watershed about 22 mi upstream from Schoharie Reservoir.

\*\* Average value from Highmount, Slide Mountain, Phoenicia, and Coldbrook.

Table 30. Summary of daily discharge data (cfs) measured from January through December 1979 in the Shandaken Tunnel at Allaben, New York, by the New York City Department of Water Resources.

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Mean and Range
1	0	0	0	0	0	557	360	354	393	416	0	0	
2	0	0	0	0	0	557	360	490	385	299	0	0	
3	0	0	0	0	0	80	360	763	384	235	0	0	
4	0	0	0	0	0	73	360	774	382	125	0	0	
5	0	0	0	0	0	93	359	442	382	118	0	0	
6	0	0	0	0	0	93	774	360	0	125	0	0	
7	0	0	0	0	0	93	309	356	473	124	0	0	
8	0	0	0	0	0	122	309	253	602	122	0	0	
9	0	0	0	0	0	125	309	353	401	121	0	0	
10	0	0	0	0	0	125	309	350	334	3	0	0	
11	0	0	0	0	0	54	306	348	334	0	0	0	
12	0	0	0	0	0	124	303	348	413	0	0	0	
13	0	0	0	0	0	128	303	348	425	0	0	0	
14	0	0	0	0	0	248	302	345	427	0	0	0	
15	0	0	0	0	0	371	300	370	429	0	0	0	
16	0	0	0	0	0	373	300	402	430	0	0	0	
17	0	0	0	0	0	373	297	436	433	0	0	0	
18	0	0	0	0	0	373	295	438	430	0	0	0	
19	0	0	0	0	0	373	295	436	429	0	0	0	
20	0	0	0	0	0	371	295	436	429	0	0	0	
21	0	0	0	0	0	370	295	435	429	0	0	0	
22	0	0	0	0	0	370	295	433	430	0	0	0	
23	0	0	0	0	0	370	295	402	435	0	0	0	
24	0	0	0	0	0	368	295	401	418	0	0	0	
25	0	0	0	0	0	365	294	393	413	0	0	0	
26	0	0	0	0	0	364	294	387	413	0	0	0	
27	0	0	0	0	0	364	295	384	413	0	0	0	
28	0	0	0	0	0	364	295	380	413	0	0	0	
29	0	-	0	0	0	362	295	401	413	0	0	0	
30	0	-	0	0	0	360	357	402	413	0	0	0	
31	0	-	0	-	365	-	357	402	-	0	-	0	
Mean	0	0	0	0	12	279	328	417	404	54	0	0	125
Minimum	0	0	0	0	0	80	294	345	0	0	0	0	0
Maximum	0	0	0	0	365	557	774	774	602	416	0	0	774

Table 31. Summary of turbidity data (nephelometric turbidity units) taken from April through October 1979 in Schoharie Reservoir.

Station # Date	Depth (m)																	
	Surface	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
<u>26</u>																		
11 Apr	7.2	7.1	6.8	8.7	6.5	7.0	7.2	7.5	-	-	-	-	-	-	-	-	-	-
16 Apr	6.6	7.0	6.6	7.1	6.9	6.7	6.7	6.8	-	-	-	-	-	-	-	-	-	-
30 Apr	7.4	5.9	3.9	4.2	6.5	9.2	9.2	9.8	-	-	-	-	-	-	-	-	-	-
25 May	9.2	13	15	16	15	18	22	19	-	-	-	-	-	-	-	-	-	-
31 May	4.7	4.5	6.5	8.2	6.7	6.9	6.2	5.8	-	-	-	-	-	-	-	-	-	-
5 Jun	4.5	3.3	4.9	4.4	4.9	4.9	5.0	5.4	-	-	-	-	-	-	-	-	-	-
2 Jul	3.4	3.1	5.5	5.8	7.3	10	12	-	-	-	-	-	-	-	-	-	-	-
19 Jul	3.1	5.4	6.2	6.7	7.6	9.3	10	-	-	-	-	-	-	-	-	-	-	-
24 Jul	2.7	3.5	3.9	8.0	8.5	9.5	9.8(11) <sup>*</sup>	-	-	-	-	-	-	-	-	-	-	-
28 Jul	1.7	1.9	2.8	3.8	5.0	5.6	5.4(11) <sup>*</sup>	-	-	-	-	-	-	-	-	-	-	-
3 Aug	2.7	3.7	3.7	5.3	5.0	8.3	9.9(11) <sup>*</sup>	-	-	-	-	-	-	-	-	-	-	-
4 Aug	2.5	3.2	4.2	6.5	6.4	7.7	-	-	-	-	-	-	-	-	-	-	-	-
13 Aug	3.4	4.0	4.5	4.9	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
14 Aug	3.5	4.0	4.3	5.4	8.4	-	-	-	-	-	-	-	-	-	-	-	-	-
16 Sep	16	16	11	9.8	9.8	-	-	-	-	-	-	-	-	-	-	-	-	-
3 Oct	5.8	6.4	4.0	4.0	3.8	4.0	-	-	-	-	-	-	-	-	-	-	-	-
7 Oct	9.2	11	9.3	9.5	9.3	9.5	11	10	-	-	-	-	-	-	-	-	-	-
<u>27</u>																		
11 Apr	12	13	12 <sup>*</sup>	12	13	17	17	17	18	26	-	-	-	-	-	-	-	-
16 Apr	11	12	12	13	13	13	13	13	13	21	-	-	-	-	-	-	-	-
30 Apr	7.8	9.2	10	9.2	9.5	9.7	11	12	12	12	-	-	-	-	-	-	-	-
25 May	1.8	4.4	10	11	10	8.3	3.0	4.2	5.4	6.2	-	-	-	-	-	-	-	-
31 May	6.5	7.2	8.4	8.8	7.8	5.8	4.1	4.6	5.7	9.4	-	-	-	-	-	-	-	-
5 Jun	5.2	4.6	4.0	5.2	5.6	4.3	3.8	3.6	4.2	5.5	-	-	-	-	-	-	-	-
2 Jul	2.2	3.4	3.7	3.6	2.8	2.8	4.5	7.5	7.7	-	-	-	-	-	-	-	-	-
19 Jul	1.8	2.5	2.8	2.8	2.9	4.1	4.0	5.5	-	-	-	-	-	-	-	-	-	-
24 Jul	1.7	1.9	2.2	3.0	6.7	4.3	3.5	3.4	-	-	-	-	-	-	-	-	-	-
28 Jul	1.6	1.6	2.8	4.1	5.5	3.4	6.3	6.9	-	-	-	-	-	-	-	-	-	-
3 Aug	1.4	1.6	2.1	5.1	3.5	2.4	2.4	3.3(13) <sup>*</sup>	-	-	-	-	-	-	-	-	-	-
4 Aug	1.7	2.3	3.2	3.2	3.0	3.4	6.7	9.5(13) <sup>*</sup>	-	-	-	-	-	-	-	-	-	-
13 Aug	2.7	3.1	3.0	3.2	4.4	9.1	-	-	-	-	-	-	-	-	-	-	-	-
14 Aug	2.9	2.9	3.0	3.2	4.8	6.2	9.5	-	-	-	-	-	-	-	-	-	-	-
16 Sep	18	20	20	20	20	18	20	-	-	-	-	-	-	-	-	-	-	-
3 Oct	6.5	8.5	7.9	7.0	6.5	7.2	8.5	-	-	-	-	-	-	-	-	-	-	-
7 Oct	8.6	17	15	21	25	33	25	15	15	-	-	-	-	-	-	-	-	-
<u>28</u>																		
11 Apr	19	19	20	21	21	21	21	20	21	22	23	23	-	-	-	-	-	-
16 Apr	11	10	10	12	14	16	16	17	17	18	19	22	-	-	-	-	-	-
30 Apr	8.2	8.7	9.6	9.9	8.7	9.1	9.5	11	12	13	13	13	-	-	-	-	-	-
25 May	1.6	2.1	2.8	3.2	1.6	2.1	2.8	3.5	4.7	4.7	6.0	7.0	-	-	-	-	-	-
31 May	6.8	6.8	7.8	8.8	7.2	3.6	3.9	4.3	4.6	5.9	6.4	-	-	-	-	-	-	-
5 Jun	3.8	3.7	3.8	4.5	4.3	3.7	2.5	2.9	4.1	4.2	4.8	4.8	-	-	-	-	-	-
2 Jul	2.0	1.5	1.7	2.1	2.0	1.6	2.2	2.7	3.2	3.5	4.5	-	-	-	-	-	-	-
19 Jul	1.5	1.6	1.6	1.8	1.5	2.0	2.0	2.5	2.7	7.6	-	-	-	-	-	-	-	-
24 Jul	1.3	1.5	1.8	2.8	1.8	1.5	1.6	1.6	2.9	3.5	-	-	-	-	-	-	-	-
28 Jul	1.3	1.3	1.8	3.3	1.9	2.5	2.5	2.4	3.5	4.4	-	-	-	-	-	-	-	-
3 Aug	1.7	2.0	2.0	3.2	3.2	2.3	2.3	2.7	3.3	4.3	4.4(19) <sup>*</sup>	-	-	-	-	-	-	-
4 Aug	1.5	1.7	1.8	2.7	2.4	2.4	5.0	4.3	4.8	5.5	5.6(19) <sup>*</sup>	-	-	-	-	-	-	-
13 Aug	1.6	1.9	2.0	4.0	3.0	2.6	3.8	3.5	-	-	-	-	-	-	-	-	-	-
14 Aug	2.0	2.0	2.0	2.5	3.2	3.0	3.1	4.8	-	-	-	-	-	-	-	-	-	-
16 Sep	17	18	18	18	19	18	20	24	28	-	-	-	-	-	-	-	-	-
3 Oct	7.0	7.5	7.7	6.5	6.7	10	13	11	11	15	-	-	-	-	-	-	-	-
7 Oct	6.8	6.3	7.3	15	20	29	32	37	43	52	56	-	-	-	-	-	-	-

\* Depth in parantheses.

\*\* Samples taken only at surface and mid-depth because of hazardous weather conditions.

Table 31 - (Continued).

Station & Date	Depth (m)																	
	Surface	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
<u>30</u>																		
11 Apr	24	25	25	25	25	25	25	25	25	25	25	26	26	26	26	25	27	27
16 Apr	12	12	13	14	13	15	15	15	16	16	15	17	17	18	18	19	21	27
30 Apr	8.8	10	10	10	9.1	9.2	9.2	9.9	11	12	12	13	13	13	13	14	14	14
25 May	1.3	9.1	7.0	3.6	3.8	2.7	3.3	4.4	5.4	5.5	6.0	6.4	7.6	7.4	7.8	8.2	8.4	11
31 May	7.3	8.4	8.6	8.7	8.9	4.8	4.5	4.6	5.5	5.5	5.6	6.1	6.4	6.4	7.4	8.0	8.5	12
5 Jun	3.2	3.8	4.6	5.1	3.9	3.8	3.2	3.1	3.2	3.5	4.2	4.5	4.6	4.7	5.2	5.0	5.6	5.6
2 Jul	1.4	2.4	2.1	2.0	2.0	1.8	1.8	2.0	2.0	2.0	1.9	2.3	2.3	2.3	2.7	3.1	3.1	-
19 Jul	1.8	2.4	4.0	2.5	2.0	2.2	2.0	2.0	2.0	2.4	2.0	2.2	2.2	2.5	2.9	3.1	-	-
24 Jul	1.8	2.0	2.5	3.1	2.5	2.3	2.3	2.0	1.7	2.0	2.3	2.2	2.5	2.5	3.3	4.5	-	-
28 Jul	1.6	1.9	2.7	2.3	2.3	2.5	2.0	2.2	1.8	1.8	2.4	2.3	2.3	2.3	2.8	3.8	-	-
3 Aug	1.7	2.5	2.7	2.6	2.7	2.5	2.5	2.6	2.3	2.3	2.5	2.6	2.5	2.8	3.3	3.9	-	-
4 Aug	1.7	2.4	2.4	3.4	3.2	2.7	2.5	2.2	2.4	2.5	2.4	2.7	2.4	2.6	3.2	4.0	-	-
13 Aug	2.0	2.2	2.0	2.5	2.5	3.0	2.7	2.5	2.5	2.5	2.1	2.3	2.5	3.2	-	-	-	-
14 Aug	2.0	2.0	2.2	2.3	3.3	3.4	3.0	3.4	2.5	3.0	2.8	2.5	3.0	3.6	-	-	-	-
16 Sep	17	20	20	20	20	21	26	27	11	8.0	7.6	7.0	7.5	8.1	8.4	-	-	-
3 Oct**	7.6	-	-	-	-	-	-	-	8.4(15)-	-	-	-	-	-	-	-	-	-
7 Oct	6.3	6.7	6.0	8.5	18	38	34	44	54	54	19	8.9	7.2	7.1	7.7	7.0	7.2	7.2

Table 32. Summary of Secchi disc transparency data (cm) taken from April through October 1979 in Schoharie Reservoir.

Date	Station			
	26	27	28	30
11 Apr	105	70	42	42
16 Apr	102	71	93	75
30 Apr	75	75	75	75
25 May	74	239	310	235
31 May	124	99	105	101
5 Jun	142	121	150	163
7 Jul	117	250	380	380
19 Jul	170	337	445	306
24 Jul	225	475	515	350
28 Jul	350	361	362	372
3 Aug	225	315	360	286
4 Aug	325	400	400	349
13 Aug	148	249	364	407
14 Aug	155	248	409	310
16 Sep	50	48	50	47
3 Oct	157	140	130	130
7 Oct	63	75	107	123

Table 33. Summary of depth of euphotic zone data (m) taken from April through October 1979 in Schoharie Reservoir.

Date	Station			
	26	27	28	30
11 Apr	3.3	2.2	1.1	1.2
16 Apr	3.2	1.2	2.1	1.9
30 Apr	2.6	2.4	2.3	2.3
25 May	1.5	3.6	5.7	3.5
31 May	2.3	3.7	3.2	3.0
5 Jun	4.0	3.6	3.8	4.1
2 Jul	3.7	5.8	7.0	7.0
19 Jul	3.8	7.0	7.5	6.5
24 Jul	5.2	6.3	6.3	6.9
28 Jul	5.8	6.0	6.8	6.5
3 Aug	5.3	6.2	6.7	6.3
4 Aug	4.8	6.3	7.0	6.5
13 Aug	3.8	4.5	6.7	7.0
14 Aug	3.4	5.0	6.7	7.3
16 Sep	1.4	1.3	1.3	1.2
3 Oct	2.7	2.7	2.8	2.8
7 Oct	1.6	2.1	2.3	3.2

Table 34. Summary of air temperature data (C) taken from April through October 1979 at Schoharie Reservoir.

Date	Station			
	26	27	28	30
11 Apr	11	10	10	7
16 Apr	6	8	6	8
30 Apr	22	22	23	20
25 May	14	15	15	15
31 May	22	21	22	20
5 Jun	30	29	29	33
2 Jul	21	22	20	27
19 Jul	23	22	24	19
24 Jul	31	33	29	32
28 Jul	28	28	26	27
3 Aug	32	28	30	33
4 Aug	30	30	31	33
13 Aug	22	21	22	23
14 Aug	22	20	21	22
16 Sep	21	21	21	21
3 Oct	20	19	19	18
7 Oct	12	12	12	9

Table 35. Summary of water temperature data (C) taken from April through October 1979 in Schoharie Reservoir.

Station & Date	Depth (m)																	
	Surface	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
<u>26</u>																		
11 Apr	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	-	-	-	-	-	-	-	-	-	-
16 Apr	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	-	-	-	-	-	-	-	-	-	-
30 Apr	13.8	9.8	8.0	8.0	7.5	6.0	5.0	5.0	-	-	-	-	-	-	-	-	-	-
25 May	12.9	12.3	11.0	10.9	10.8	10.8	10.8	10.2	-	-	-	-	-	-	-	-	-	-
31 May	13.6	11.5	10.9	9.2	8.2	8.0	6.6	6.2	-	-	-	-	-	-	-	-	-	-
5 Jun	20.1	14.5	13.0	11.2	10.0	8.0	6.8	6.2	-	-	-	-	-	-	-	-	-	-
2 Jul	19.0	19.0	18.5	17.8	15.5	12.9	10.0	-	-	-	-	-	-	-	-	-	-	-
19 Jul	23.7	21.8	21.0	20.0	18.6	17.4	13.2	-	-	-	-	-	-	-	-	-	-	-
24 Jul	25.0	23.0	22.1	19.8	18.0	17.5	15.4(11)*	-	-	-	-	-	-	-	-	-	-	-
28 Jul	25.0	24.0	22.2	21.0	19.5	18.0	16.0(11)*	-	-	-	-	-	-	-	-	-	-	-
3 Aug	25.1	24.0	23.8	22.5	18.4	15.1	14.2(11)*	-	-	-	-	-	-	-	-	-	-	-
4 Aug	26.0	25.3	23.6	21.2	19.8	18.0	-	-	-	-	-	-	-	-	-	-	-	-
13 Aug	22.0	21.7	20.9	19.8	19.4	-	-	-	-	-	-	-	-	-	-	-	-	-
14 Aug	22.0	21.0	19.9	19.2	18.2	-	-	-	-	-	-	-	-	-	-	-	-	-
16 Sep	21.0	17.8	16.8	16.0	16.0	-	-	-	-	-	-	-	-	-	-	-	-	-
3 Oct	16.2	15.5	14.9	13.9	13.9	13.9	-	-	-	-	-	-	-	-	-	-	-	-
7 Oct	14.3	14.2	13.5	12.1	11.4	11.2	11.2	11.2	-	-	-	-	-	-	-	-	-	-
<u>27</u>																		
11 Apr	3.1	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	-	-	-	-	-	-	-	-
16 Apr	4.1	4.0	3.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	-	-	-	-	-	-	-	-
30 Apr	12.8	10.2	8.9	6.2	5.8	5.5	5.2	5.0	4.8	4.8	-	-	-	-	-	-	-	-
25 May	15.2	15.0	12.8	10.9	9.3	8.2	7.2	6.0	5.3	5.1	-	-	-	-	-	-	-	-
31 May	14.1	12.8	10.8	10.2	9.6	8.5	6.0	5.6	5.1	5.0	-	-	-	-	-	-	-	-
5 Jun	19.8	15.2	13.0	11.1	10.5	10.0	7.9	6.8	5.8	5.2	-	-	-	-	-	-	-	-
2 Jul	19.5	19.3	19.2	18.6	16.2	12.2	9.5	7.9	7.5	-	-	-	-	-	-	-	-	-
19 Jul	23.8	22.8	21.2	18.8	16.2	15.7	13.2	10.1	-	-	-	-	-	-	-	-	-	-
24 Jul	25.6	23.1	22.4	20.0	18.0	16.9	14.0	11.5	-	-	-	-	-	-	-	-	-	-
28 Jul	25.0	24.0	22.5	21.0	19.1	18.2	16.5	11.0	-	-	-	-	-	-	-	-	-	-
3 Aug	25.8	24.8	24.7	22.5	19.2	17.9	14.5	14.3(13)*	-	-	-	-	-	-	-	-	-	-
4 Aug	25.9	25.3	24.4	21.7	20.3	18.7	16.2	15.3(13)*	-	-	-	-	-	-	-	-	-	-
13 Aug	22.2	22.0	22.0	22.0	22.0	20.0	-	-	-	-	-	-	-	-	-	-	-	-
14 Aug	21.7	21.6	21.6	21.2	19.3	17.8	15.5	-	-	-	-	-	-	-	-	-	-	-
16 Sep	18.8	17.8	17.8	17.8	17.0	16.5	16.0	-	-	-	-	-	-	-	-	-	-	-
3 Oct	16.3	16.0	15.6	15.2	15.0	14.4	14.2	-	-	-	-	-	-	-	-	-	-	-
7 Oct	14.8	14.8	14.2	14.1	14.0	13.5	13.1	12.9	11.9	11.9(17)*	-	-	-	-	-	-	-	-
<u>28</u>																		
11 Apr	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.1	-	-	-	-	-	-
16 Apr	4.3	4.1	4.0	4.0	3.9	3.9	3.8	3.8	3.8	3.8	3.8	3.8	-	-	-	-	-	-
30 Apr	13.6	10.0	9.1	8.5	7.0	5.5	5.2	5.0	4.5	4.5	4.1	4.1	-	-	-	-	-	-
25 May	15.3	15.1	12.8	10.0	8.4	8.0	6.9	6.3	6.0	5.2	5.1	4.8	-	-	-	-	-	-
31 May	14.9	12.6	11.0	10.5	10.0	8.6	6.9	6.0	5.3	5.1	5.0	-	-	-	-	-	-	-
5 Jun	20.3	16.6	12.8	11.1	10.5	9.6	8.0	7.0	6.1	5.2	5.1	5.0	-	-	-	-	-	-
2 Jul	20.1	19.9	19.5	18.0	15.0	12.8	9.9	7.6	6.0	5.8	5.2	-	-	-	-	-	-	-
19 Jul	24.5	23.2	21.3	19.0	17.8	15.3	12.0	8.0	6.0	6.0	-	-	-	-	-	-	-	-
24 Jul	25.0	23.6	22.8	19.7	18.2	17.0	14.0	9.2	6.2	5.5	5.5(19)*	-	-	-	-	-	-	-
28 Jul	25.0	24.2	23.0	21.0	18.2	17.5	15.0	8.5	6.0	5.5	-	-	-	-	-	-	-	-
3 Aug	26.2	24.9	24.7	22.1	19.7	18.1	15.3	9.7	6.2	5.5	5.5(19)*	-	-	-	-	-	-	-
4 Aug	26.2	25.5	24.8	22.1	19.2	17.8	15.9	8.7	5.9	5.5	5.4(19)*	-	-	-	-	-	-	-
13 Aug	22.1	22.0	22.0	22.0	20.9	18.0	14.1	7.2	7.2(15)*	-	-	-	-	-	-	-	-	-
14 Aug	22.0	21.9	21.8	21.8	21.0	18.9	12.6	6.7	-	-	-	-	-	-	-	-	-	-
16 Sep	19.9	18.0	17.8	17.8	17.5	17.0	16.0	14.7	10.4	-	-	-	-	-	-	-	-	-
3 Oct	16.1	16.0	15.5	15.0	14.9	14.6	14.0	13.0	12.4	7.8	-	-	-	-	-	-	-	-
7 Oct	15.0	14.9	14.8	14.3	14.0	13.9	13.5	13.0	12.7	12.5	12.0	12.0	-	-	-	-	-	-

\* Depth in parentheses.  
 \*\* Partial sampling only because of hazardous weather conditions.

Table 35 - (Continued).

Station & Date	Depth (m)																	
	Surface	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
<u>30</u>																		
11 Apr	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
16 Apr	4.2	4.1	4.0	3.9	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
30 Apr	13.0	9.1	9.0	9.0	9.0	8.0	7.0	5.9	5.2	4.8	4.1	4.1	4.0	4.0	4.0	4.0	4.0	4.0
25 May	15.3	14.2	12.4	10.9	9.7	7.7	6.8	6.2	5.8	5.1	5.0	4.9	4.7	4.6	4.6	4.5	4.5	4.5
31 May	14.8	13.5	12.2	11.5	10.2	9.1	7.8	6.2	5.7	5.1	5.0	5.0	4.7	4.6	4.5	4.2	4.2	4.2
5 Jun	20.1	17.2	14.1	10.2	9.8	8.8	6.5	6.0	5.9	5.1	5.0	4.9	4.9	4.8	4.8	4.8	4.8	4.8
2 Jul	21.0	20.5	19.1	17.9	15.6	12.5	10.0	7.9	6.0	5.8	5.5	5.0	5.0	5.0	4.9	4.8	4.8	-
19 Jul	25.0	23.3	23.0	19.0	18.0	16.8	12.0	7.0	6.0	5.2	5.0	5.0	5.0	5.0	5.0	5.0	-	-
24 Jul	26.0	24.0	23.0	19.5	17.2	17.0	13.8	7.8	5.8	5.0	5.0	5.0	5.0	4.8	4.8	4.8	-	-
28 Jul	25.0	24.0	23.5	22.0	17.3	17.1	15.0	10.5	6.5	5.5	5.0	5.0	4.8	4.5	4.5	4.5	-	-
3 Aug	26.7	25.2	24.9	21.5	19.8	17.9	16.7	7.9	5.6	5.2	5.0	5.0	4.9	4.9	4.7	4.6	-	-
4 Aug	26.2	25.5	25.1	23.8	19.8	17.5	15.1	8.0	6.0	5.3	5.1	5.0	4.9	4.8	4.8	4.8	-	-
13 Aug	22.1	22.0	22.0	21.0	19.9	18.0	12.8	6.3	5.3	5.0	5.0	4.9	4.9	4.5	-	-	-	-
14 Aug	22.0	22.0	22.0	22.0	21.3	18.9	12.9	7.1	6.0	5.0	5.0	4.9	4.9	4.9	-	-	-	-
16 Sep	19.0	17.8	17.8	17.8	17.6	17.6	17.2	14.5	6.2	5.1	5.0	5.0	4.8	4.8	4.8	-	-	-
3 Oct**	17.0	-	-	-	-	-	-	-	15.0(15)	-	-	-	-	5.0	4.9	4.9	-	-
7 Oct	15.0	15.0	15.0	14.7	14.2	13.8	13.2	13.1	12.8	12.2	12.0	10.9	6.5	6.0	6.0	5.9	5.8	5.8

Table 36. Summary of dissolved oxygen data (ppm) taken from April through October 1979 in Schoharie Reservoir.

Station & Date	Depth (m)																	
	Surface	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
<u>26</u>																		
11 Apr	14.6	14.6	14.6	14.5	14.5	14.5	14.4	14.4	-	-	-	-	-	-	-	-	-	-
16 Apr	12.9	12.8	12.8	12.8	12.8	12.8	12.8	12.8	-	-	-	-	-	-	-	-	-	-
30 Apr	10.8	11.9	12.1	12.2	12.2	11.8	11.1	11.0	-	-	-	-	-	-	-	-	-	-
25 May	10.0	10.1	10.1	10.3	10.2	10.3	10.2	10.2	-	-	-	-	-	-	-	-	-	-
31 May	9.7	9.9	9.7	8.9	8.4	7.3	7.0	7.2	-	-	-	-	-	-	-	-	-	-
5 Jun	8.5	8.4	8.8	8.6	8.1	5.9	6.1	6.1	-	-	-	-	-	-	-	-	-	-
2 Jul	8.2	8.2	8.0	8.0	7.4	5.6	2.6	-	-	-	-	-	-	-	-	-	-	-
19 Jul	8.0	7.3	7.2	7.8	5.9	4.2	0.1	-	-	-	-	-	-	-	-	-	-	-
24 Jul	8.9	8.8	9.0	7.4	5.4	5.0	2.1(11)*	-	-	-	-	-	-	-	-	-	-	-
28 Jul	8.8	8.8	9.0	8.7	7.8	6.0	2.2(11)-	-	-	-	-	-	-	-	-	-	-	-
3 Aug	8.3	8.2	7.6	7.7	2.2	1.5	1.1(11)-	-	-	-	-	-	-	-	-	-	-	-
4 Aug	8.5	8.1	7.9	5.3	4.6	1.1	-	-	-	-	-	-	-	-	-	-	-	-
13 Aug	6.4	6.4	6.7	7.2	7.2	-	-	-	-	-	-	-	-	-	-	-	-	-
14 Aug	6.2	6.2	6.7	6.7	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-
16 Sep	8.4	8.3	9.2	9.7	9.8	-	-	-	-	-	-	-	-	-	-	-	-	-
3 Oct	8.0	7.8	8.3	9.0	8.9	8.8	-	-	-	-	-	-	-	-	-	-	-	-
7 Oct**	8.5	-	-	-	9.9(7)	9.9(7)	-	9.8	9.8	-	-	-	-	-	-	-	-	-
<u>27</u>																		
11 Apr	13.5	13.5	13.5	13.4	13.4	13.4	13.3	13.2	13.1	13.1	-	-	-	-	-	-	-	-
16 Apr	12.3	12.3	12.4	12.4	12.6	12.6	12.7	12.7	12.6	12.4	-	-	-	-	-	-	-	-
30 Apr	10.8	11.0	11.2	11.8	11.9	11.8	11.8	11.8	11.8	11.7	-	-	-	-	-	-	-	-
25 May	9.6	9.6	9.7	9.8	9.7	9.6	9.6	9.9	9.9	9.8	-	-	-	-	-	-	-	-
31 May	9.6	9.6	9.6	9.4	9.2	8.9	9.0	8.8	8.8	8.8	-	-	-	-	-	-	-	-
5 Jun	10.1	10.1	9.0	9.0	9.0	9.0	8.4	8.4	8.9	8.8	-	-	-	-	-	-	-	-
2 Jul	9.2	9.2	9.0	8.8	7.0	7.2	7.6	7.0	6.0	-	-	-	-	-	-	-	-	-
19 Jul	8.2	8.0	7.9	6.8	6.0	5.2	5.2	4.6	-	-	-	-	-	-	-	-	-	-
24 Jul	8.8	8.8	8.5	7.2	7.0	5.6	5.4	4.5	-	-	-	-	-	-	-	-	-	-
28 Jul	8.7	8.6	8.1	7.2	7.8	6.6	5.7	4.2	-	-	-	-	-	-	-	-	-	-
3 Aug	8.6	8.6	8.5	6.7	5.4	6.4	5.6	5.4(13)-	-	-	-	-	-	-	-	-	-	-
4 Aug	8.6	8.6	8.0	6.4	6.5	6.3	4.3	3.8(13)-	-	-	-	-	-	-	-	-	-	-
13 Aug	6.4	6.4	6.4	6.3	6.3	6.3	-	-	-	-	-	-	-	-	-	-	-	-
14 Aug	6.0	5.8	5.9	5.6	4.3	3.8	3.0	-	-	-	-	-	-	-	-	-	-	-
16 Sep	8.4	8.2	8.2	8.2	8.0	8.8	9.0	-	-	-	-	-	-	-	-	-	-	-
3 Oct	8.2	7.7	7.6	8.1	8.2	8.4	8.4	-	-	-	-	-	-	-	-	-	-	-
7 Oct**	8.5	-	-	-	-	8.9(9)	-	-	9.5	-	-	-	-	-	-	-	-	-
<u>28</u>																		
11 Apr	12.7	12.6	12.6	12.5	12.4	12.4	12.4	12.4	12.3	12.2	12.2	12.2	-	-	-	-	-	-
16 Apr	12.2	12.2	12.1	12.0	12.0	12.0	11.9	11.9	11.9	11.8	11.8	11.8	-	-	-	-	-	-
30 Apr	10.8	11.0	11.2	11.3	11.5	12.0	12.0	12.0	12.0	11.9	11.9	12.0	-	-	-	-	-	-
25 May	9.4	9.2	9.2	9.6	9.9	10.0	10.2	10.1	10.0	10.4	10.3	9.9	-	-	-	-	-	-
31 May	9.9	9.8	9.5	9.6	9.6	9.6	9.8	10.2	10.0	10.0	10.0	-	-	-	-	-	-	-
5 Jun	10.2	10.4	9.0	8.9	8.9	9.0	9.0	9.0	9.0	9.0	8.9	8.7	-	-	-	-	-	-
2 Jul	9.2	9.2	9.0	8.5	7.8	7.3	8.2	8.4	8.4	8.2	8.4	-	-	-	-	-	-	-
19 Jul	7.6	8.0	8.2	7.2	6.4	5.5	6.0	6.4	7.9	7.8	-	-	-	-	-	-	-	-
24 Jul	9.0	9.0	8.8	8.0	7.8	6.6	5.9	7.9	8.4	7.3	7.3(19)-	-	-	-	-	-	-	-
28 Jul	8.8	8.8	8.4	7.5	7.5	6.9	5.4	7.6	7.8	6.4	-	-	-	-	-	-	-	-
3 Aug	8.7	8.7	8.6	6.9	6.6	6.8	5.8	7.5	6.8	6.8	6.8(19)-	-	-	-	-	-	-	-
4 Aug	8.8	8.8	8.4	6.8	6.9	6.3	5.1	6.4	6.6	6.6	6.6(19)-	-	-	-	-	-	-	-
13 Aug	6.4	6.4	6.3	6.0	5.6	4.4	4.0	5.8	5.8(15)-	-	-	-	-	-	-	-	-	-
14 Aug	6.0	6.0	6.0	5.4	4.9	4.4	3.8	4.4	-	-	-	-	-	-	-	-	-	-
16 Sep	8.2	8.0	8.0	8.0	7.8	7.6	8.4	7.7	5.2	-	-	-	-	-	-	-	-	-
3 Oct	7.6	7.4	7.2	6.8	6.8	7.0	7.0	7.6	6.0	2.2	-	-	-	-	-	-	-	-
7 Oct**	8.6	-	-	-	-	-	8.8(11)-	-	-	-	9.0	-	-	-	-	-	-	-

\* Depth in parantheses.

\*\* Surface, mid-depth, and bottom values only (Winkler titration) because of instrument malfunction.

\*\*\* Partial sampling only because of hazardous weather conditions.



Table 37. Summary of turbidity data (nephelometric turbidity units) taken from April through October 1979 in Schoharie Creek.

Date	Station	
	1	2
11 Apr	5.2	27
14 Apr	55	24
27 Apr	19	6.8
28 Apr	13	10
24 May	26	5.6
25 May	18	6.3
30 May	4.8	6.7
1 Jun*	2.6	5.6
10 Jun	3.0	2.5
29 Jun	11	1.2
17 Jul	5.0	1.0
18 Jul	10	1.8
23 Jul	3.5	1.1
25 Jul**	2.4	0.94
26 Jul**	2.8	DNR***
27 Jul	11	0.95
2 Aug	3.5	1.3
3 Aug	2.3	0.90
12 Aug	2.3	1.2
13 Aug	3.9	1.2
15 Sep	11	0.99
2 Oct	5.2	1.0
6 Oct	30	6.5

\* Stations sampled because of initial 1979 opening of Shandaken Tunnel on 31 May.

\*\* Stations sampled because of hot and dry weather conditions.

\*\*\* DNR = data not recorded.

Table 38. Summary of air temperature data (C) taken from April through October 1979 at Schoharie Creek.

Date	Station	
	1	2
11 Apr	8	12
14 Apr	8	7
27 Apr	15	14
28 Apr	15	17
24 May	15	16
25 May	12	13
30 May	15	19
1 Jun*	25	25
10 Jun	23	23
29 Jun	23	23
17 Jul	25	23
18 Jul	19	19
23 Jul	27	27
25 Jul**	27	21
26 Jul**	24	DNR***
27 Jul	23	21
2 Aug	27	30
3 Aug	30	30
12 Aug	16	14
13 Aug	16	16
15 Sep	15	17
2 Oct	17	22
6 Oct	14	16

\* Stations sampled because of initial 1979 opening of Shandaken Tunnel on 31 May.

\*\* Stations sampled because of hot and dry weather conditions.

\*\*\* DNR = data not recorded.

Table 39. Summary of water temperature data (C) taken from April through October 1979 in Schoharie Creek.

Date	Station	
	1	2
11 Apr	4	4
14 Apr	5	4
27 Apr	12	10
28 Apr	10	7
24 May	17	16
25 May	11	14
30 May	12	14
1 Jun*	15	16
10 Jun	19	21
29 Jun	18	21
17 Jul	24	23
18 Jul	21	23
23 Jul	23	24
25 Jul**	27	28
26 Jul**	25	DNR***
27 Jul	21	24
2 Aug	25	24
3 Aug	26	28
12 Aug	17	20
13 Aug	16	18
15 Sep	15	19
2 Oct	14	19
6 Oct	12	15

\* Stations sampled because of initial 1979 opening of Shandaken Tunnel on 31 May.

\*\* Stations sampled because of hot and dry weather conditions.

\*\*\* DNR = data not recorded.

Table 40. Summary of turbidity data (nephelometric turbidity units) taken from April through October 1979 in Esopus Creek and the Shandaken Tunnel outlet.

Date	Station				
	21	20	19	31	37
11 Apr	4.6	TC*	1.8	4.8	3.2
14 Apr	6.2	TC	4.5	12	6.3
27 Apr	2.6	TC	2.8	17	21
28 Apr	2.4	TC	2.8	13	8.7
24 May	7.4	TC	7.5	12	13
25 May	4.5	TC	5.6	13	11
30 May	1.5	TC	1.5	3.5	2.8
1 Jun**	1.1	5.8	5.0	4.4	3.8
10 Jun	1.0	4.0	2.2	2.8	2.3
29 Jun	0.62	2.7	2.1	2.1	2.0
17 Jul	0.80	2.4	2.1	2.1	3.5
18 Jul	0.58	5.6	4.0	4.0	10
23 Jul	0.72	4.6	3.3	2.4	2.4
25 Jul***	0.88	4.7	4.0	3.2	2.9
26 Jul***	0.84	5.3	3.3	2.4	2.2
27 Jul	1.2	3.8	2.5	2.8	3.3
2 Aug	0.90	4.5	3.5	2.8	2.3
3 Aug	0.89	4.5	4.0	4.2	3.2
12 Aug	1.3	8.2	5.4	4.8	5.4
13 Aug	1.1	7.5	4.8	4.1	3.9
15 Sep	5.6	17	15	17	13
2 Oct	5.4	11	6.5	7.5	5.7
6 Oct	8.9	7.5	8.6	19	17

\* TC = Shandaken Tunnel closed.

\*\* Stations sampled because of initial 1979 opening of Shandaken Tunnel on 31 May.

\*\*\* Stations sampled because of hot and dry weather conditions.

Table 41. Summary of air temperature data (C) taken from April through October 1979 at Esopus Creek and the Shandaken Tunnel outlet.

Date	Station				
	21	20	19	31	37
11 Apr	5	TC*	5	4	5
14 Apr	6	TC	6	5	5
27 Apr	15	TC	15	14	15
28 Apr	14	TC	15	17	16
24 May	16	TC	14	14	14
25 May	13	TC	14	14	13
30 May	15	TC	16	19	16
1 Jun**	27	26	25	25	23
10 Jun	21	21	21	20	20
29 Jun	23	24	24	23	22
17 Jul	26	26	25	25	25
18 Jul	18	17	16	16	17
23 Jul	25	25	24	25	25
25 Jul***	24	26	26	24	23
26 Jul***	23	22	23	24	22
27 Jul	21	24	21	23	23
2 Aug	29	27	27	27	26
3 Aug	30	29	30	31	29
12 Aug	14	14	14	14	14
13 Aug	16	16	16	18	17
15 Sep	15	15	15	15	15
2 Oct	17	18	18	18	18
6 Oct	17	16	15	14	15

\* TC = Shandaken Tunnel closed.

\*\* Stations sampled because of initial 1979 opening of Shandaken Tunnel on 31 May.

\*\*\* Stations sampled because of hot and dry weather conditions.

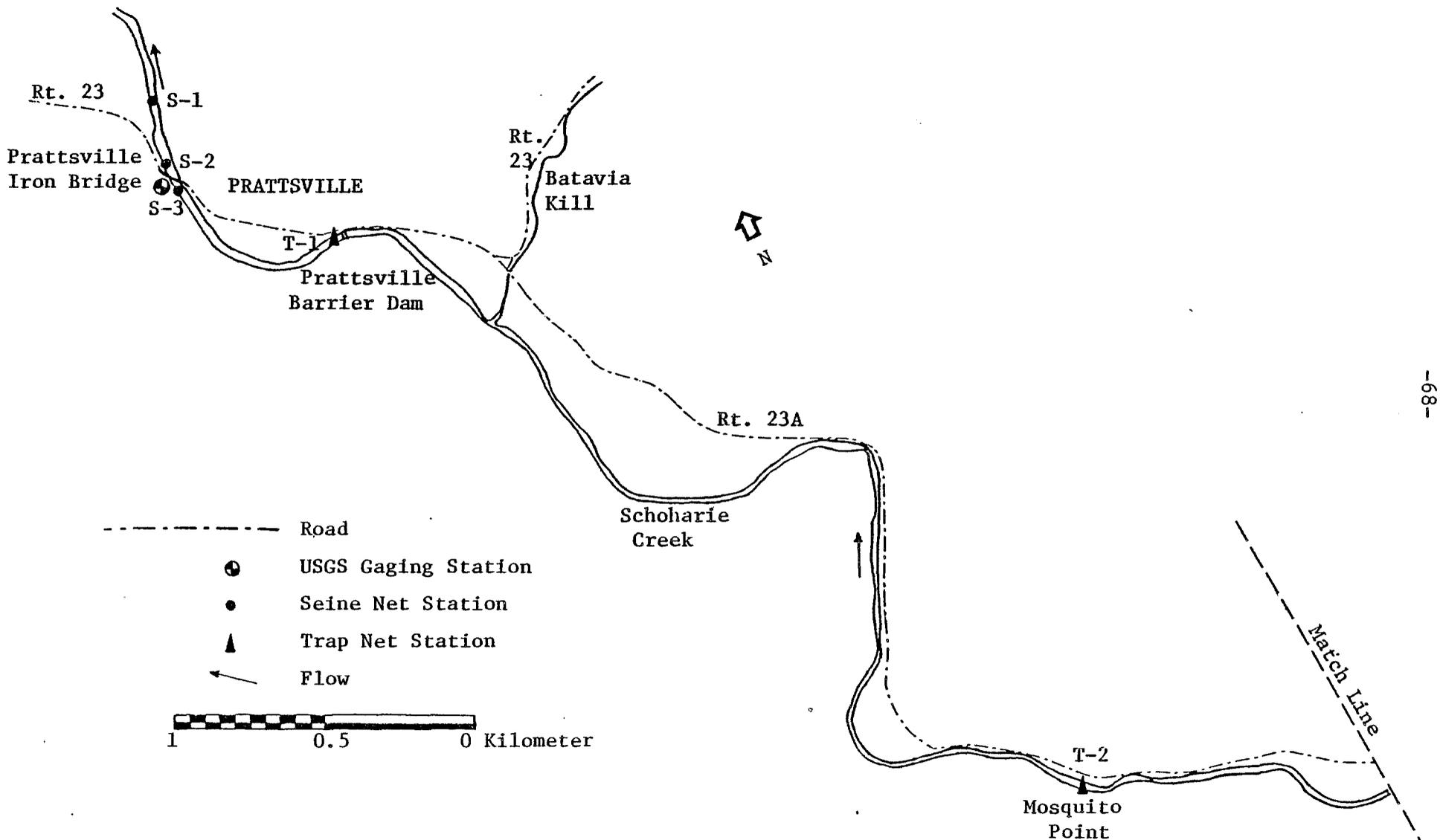
Table 42. Summary of water temperature data (C) taken from April through October 1979 in Esopus Creek and the Shandaken Tunnel outlet.

Date	Station				
	21	20	19	31	37
11 Apr	7	TC*	8	6	6
14 Apr	4	TC	4	4	4
27 Apr	11	TC	11	10	11
28 Apr	11	TC	10	10	10
24 May	11	TC	11	11	12
25 May	10	TC	10	10	11
30 May	12	TC	11	12	13
1 Jun**	14	8	11	12	12
10 Jun	15	11	11	13	13
29 Jun	20	12	14	15	15
17 Jul	22	13	15	17	18
18 Jul	19	12	13	13	17
23 Jul	23	13	16	18	20
25 Jul***	25	12	15	18	21
26 Jul***	23	12	14	16	18
27 Jul	20	12	14	16	18
2 Aug	23	15	17	19	20
3 Aug	26	13	18	19	22
12 Aug	16	17	16	16	17
13 Aug	17	17	17	17	17
15 Sep	15	19	18	17	16
2 Oct	14	15	16	16	16
6 Oct	12	14	12	12	12

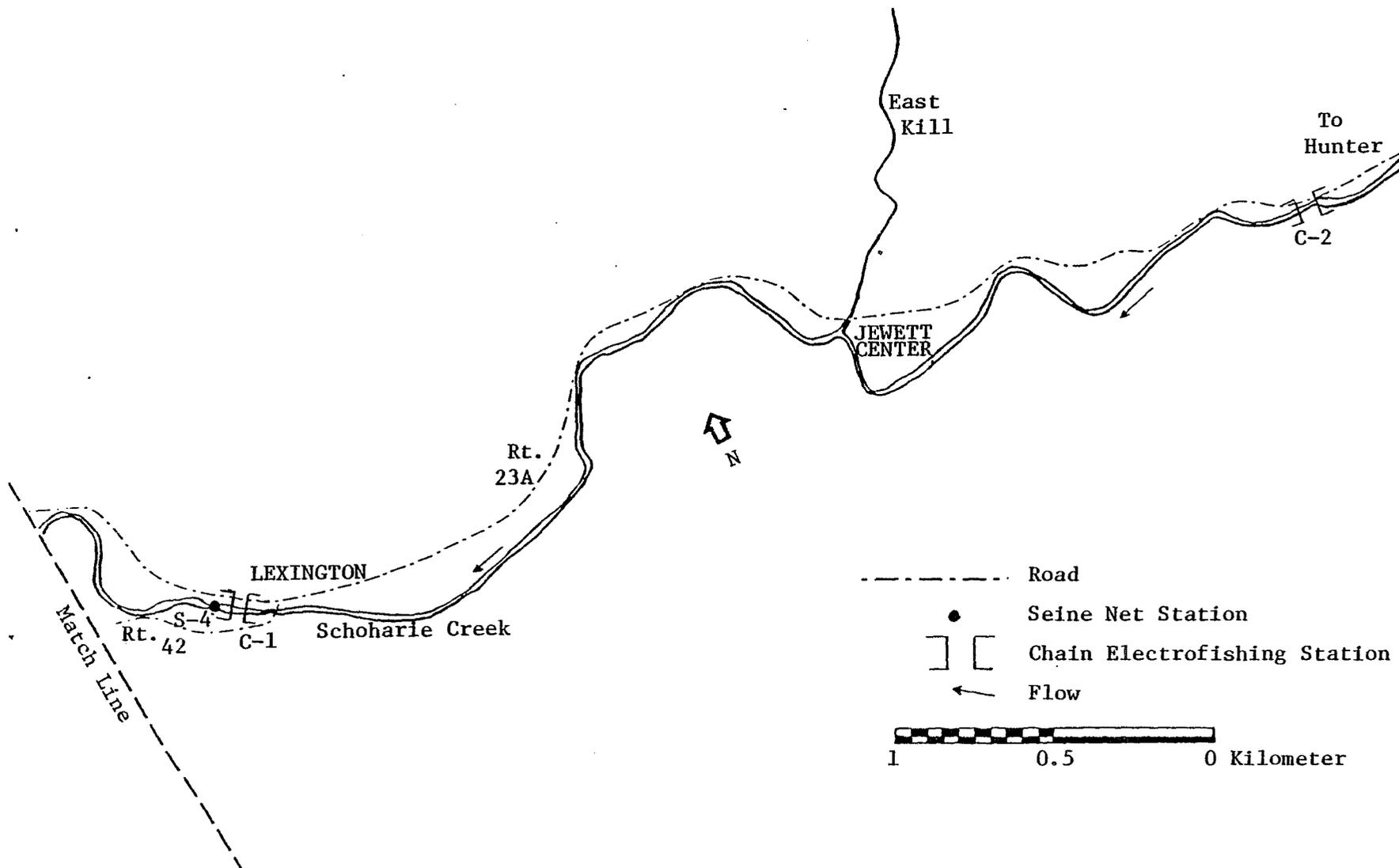
\* TC = Shandaken Tunnel closed.

\*\* Stations sampled because of initial 1979 opening of Shandaken Tunnel on 31 May.

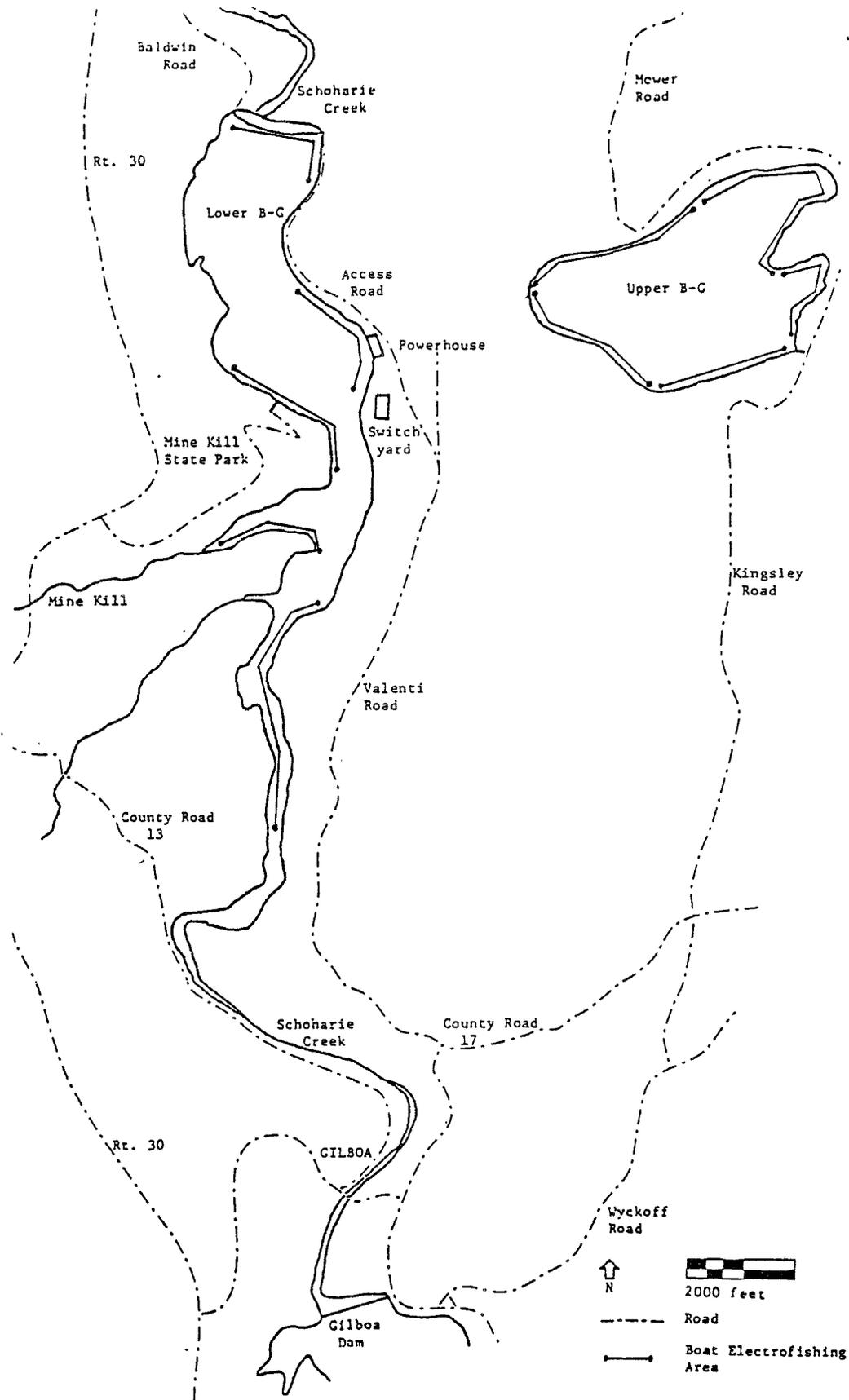
\*\*\* Stations sampled because of hot and dry weather conditions.



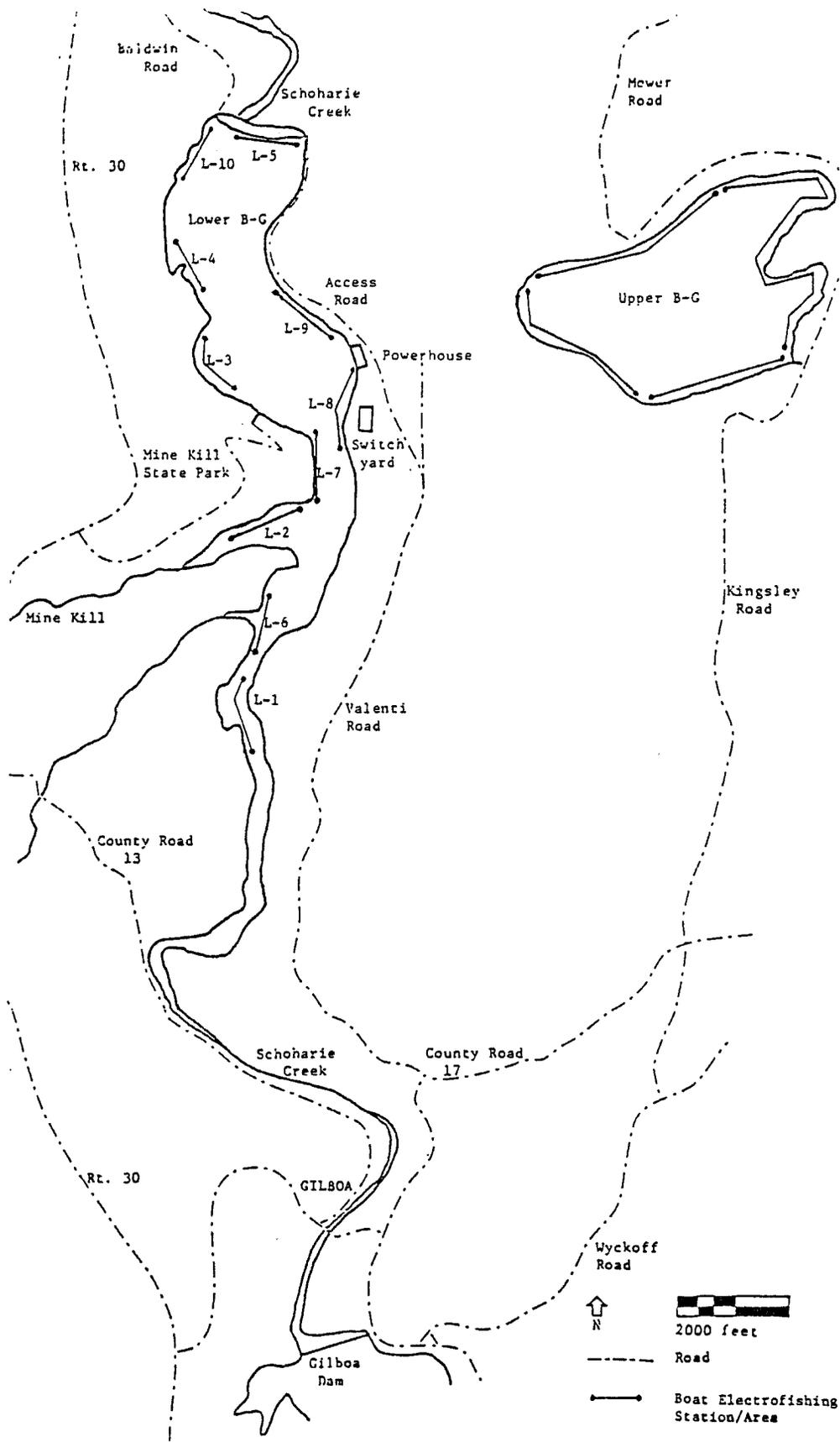
Map 1. Seine net, trap net, and chain electrofishing stations sampled in August and September 1979 in Schoharie Creek between Schoharie Reservoir and Hunter, New York.



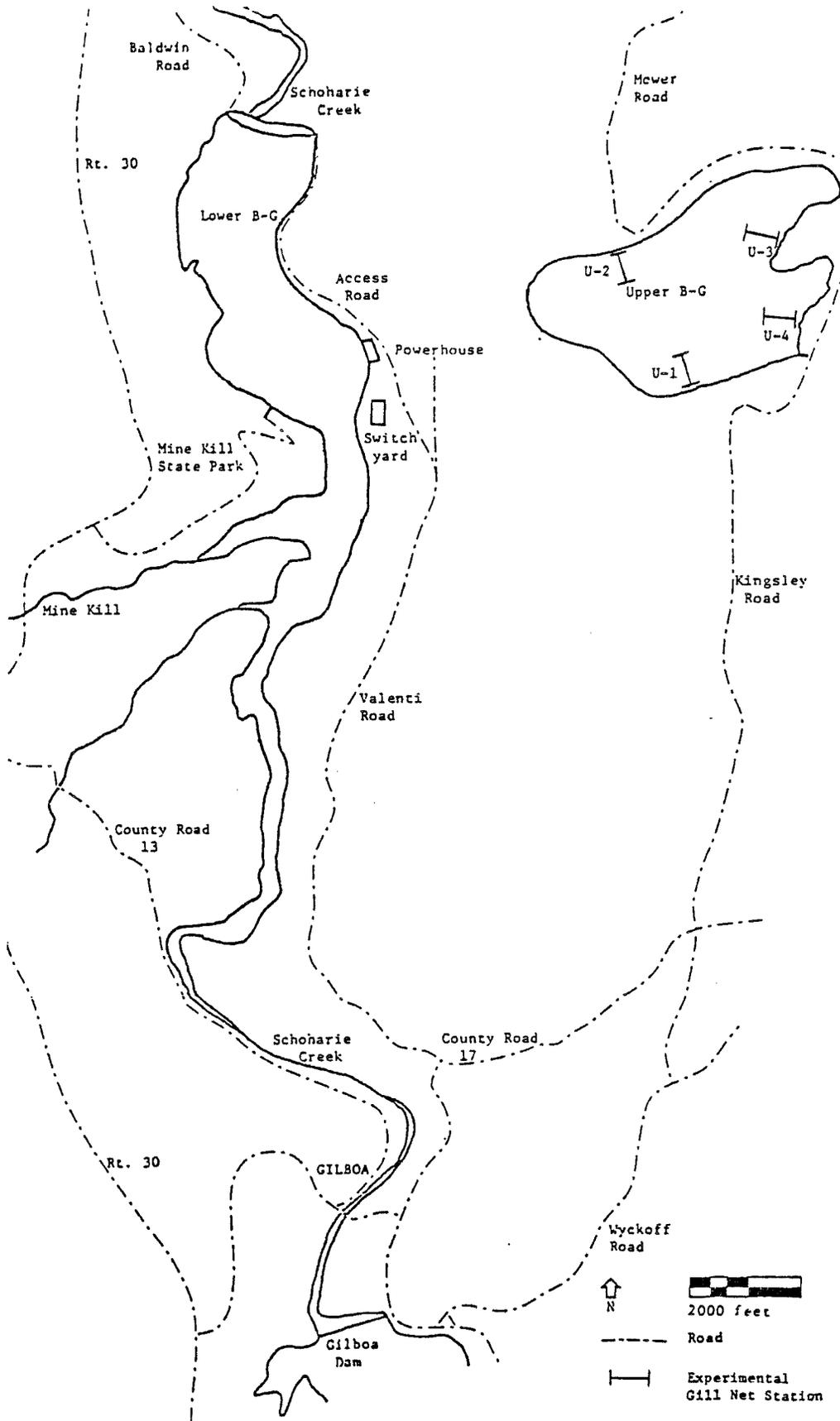
Map 1 - (Continued).



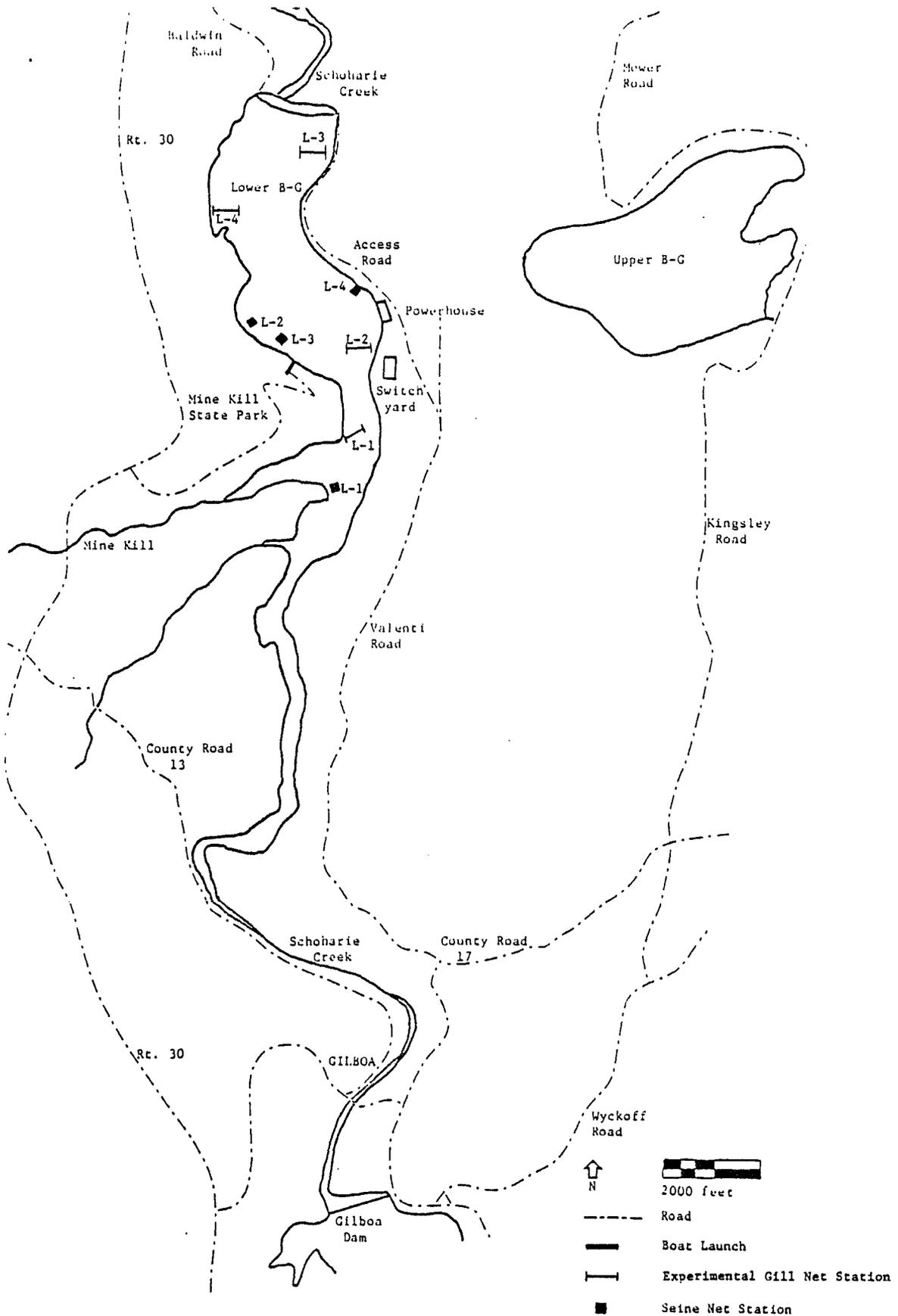
Map 2. Areas sampled by boat electrofishing on 4 June 1979 in Lower B-G and on 31 May 1979 in Upper B-G.



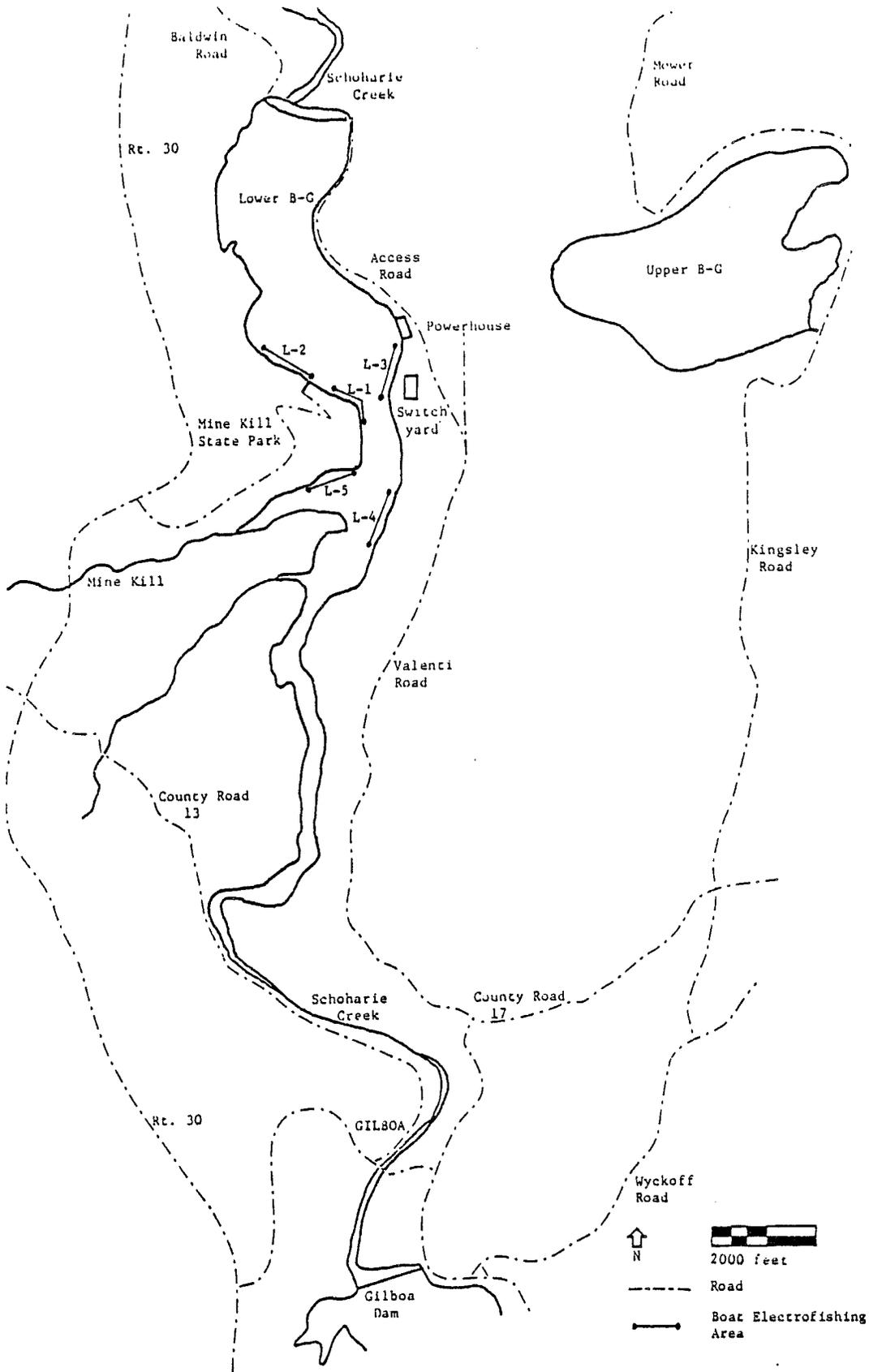
Map 3. Stations sampled by boat electrofishing on 5 November 1979 in Lower B-G and areas sampled on 30 October 1979 in Upper B-G.



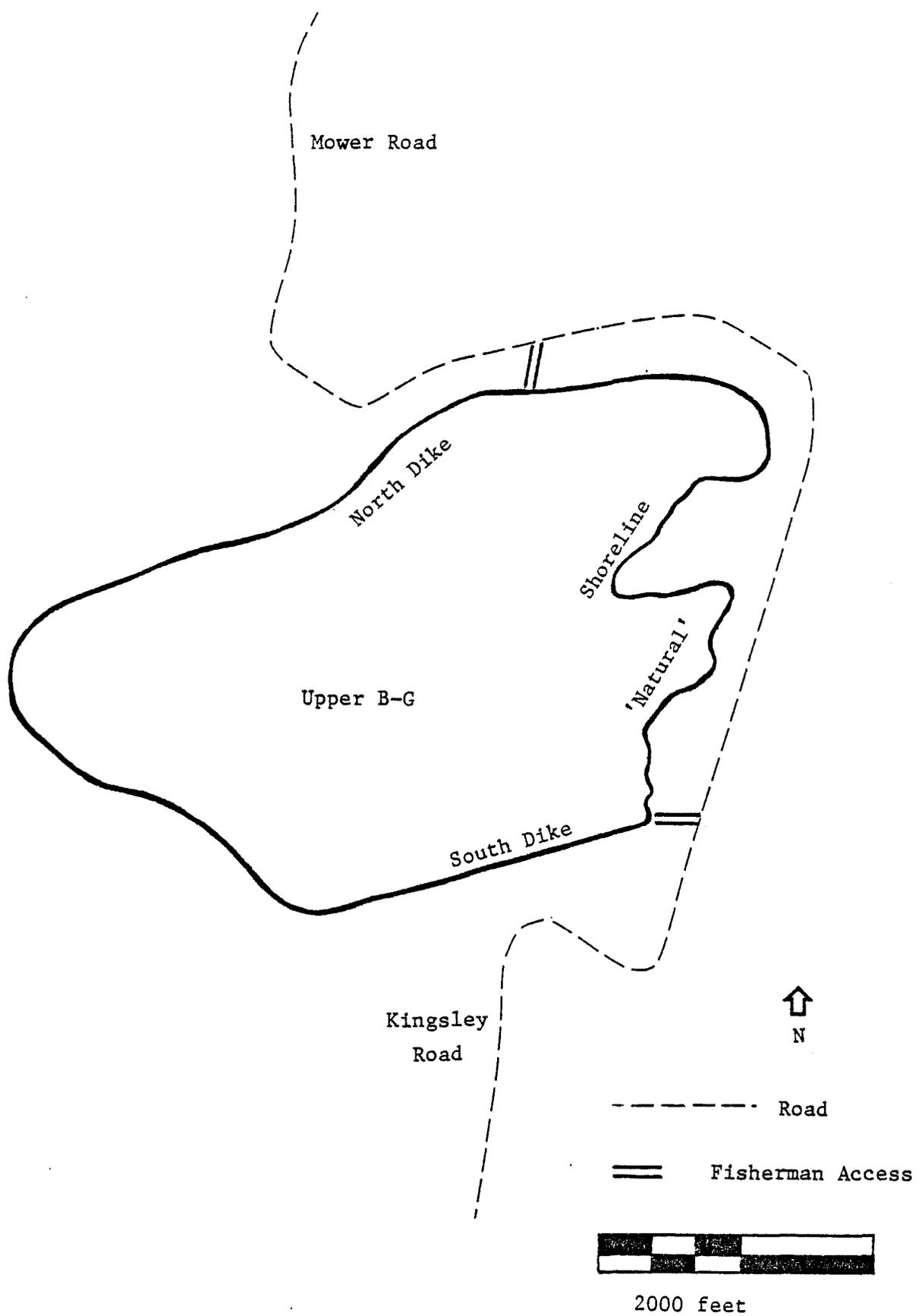
Map 4. Stations sampled by experimental gill net on 30 October 1979 in Upper B-G.



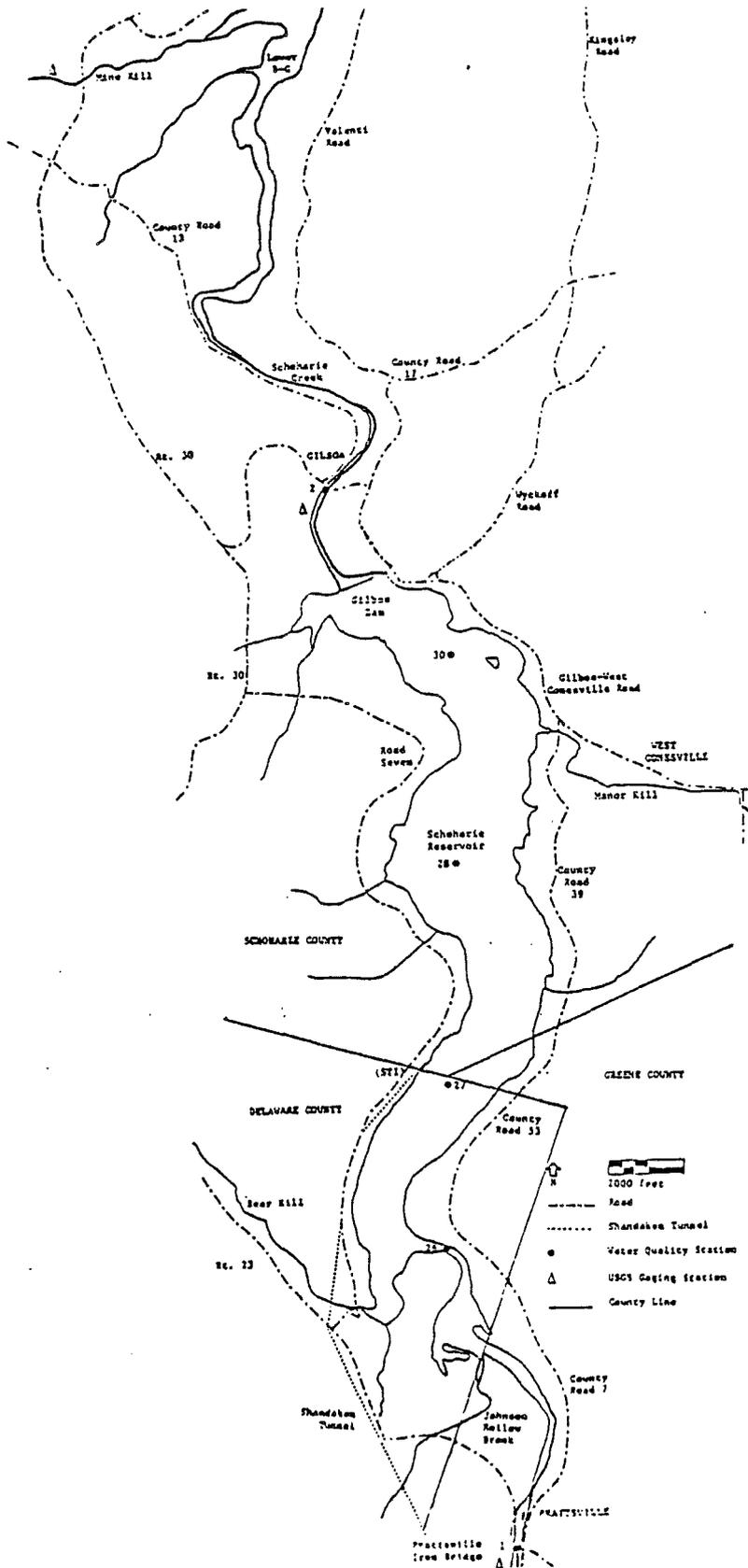
Map 5. Experimental gill net stations L-1 through L-4 and seine net stations L-1 through L-4 sampled on 13 and 14 September 1979 in Lower B-G.



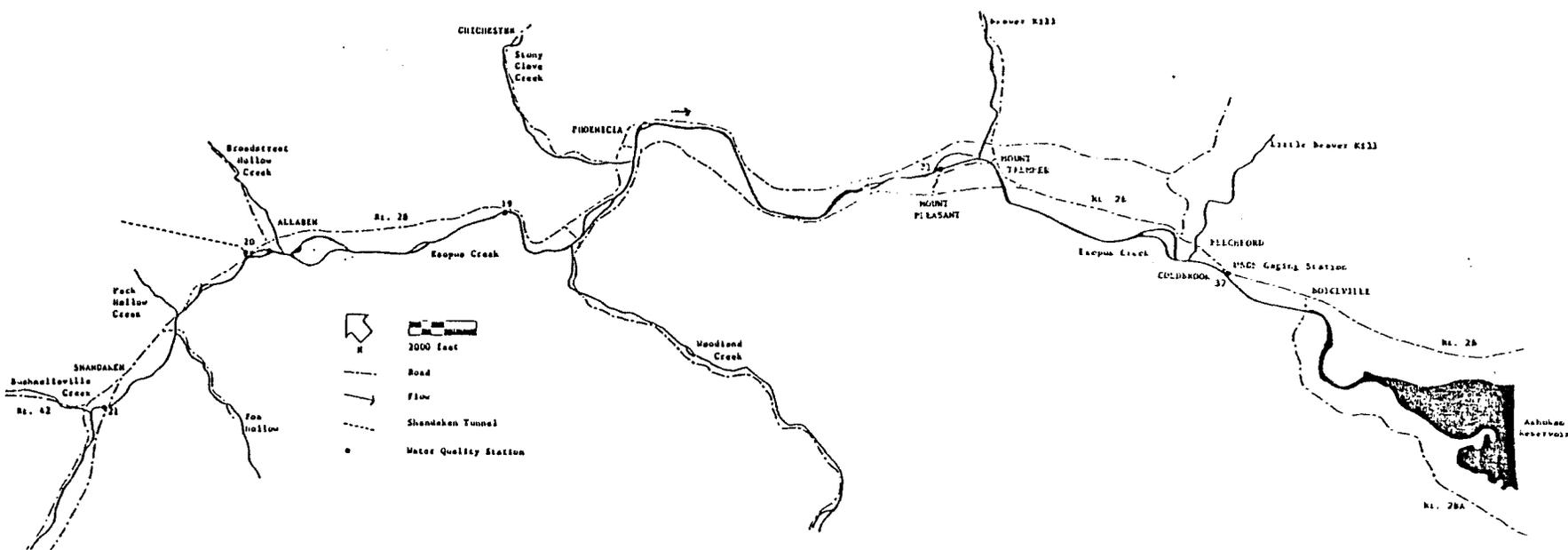
Map 6. Boat electrofishing areas L-1 through L-5 sampled on 13 September 1979 in Lower B-G.



Map 7. Fisherman access points located on Upper B-G.



Map 8. Water quality stations sampled from April through October 1979 in Schoharie Reservoir (26-28, 30) and Schoharie Creek (1, 2).



Map 9. Water quality stations sampled from April through October 1979 in Esopus Creek (21, 19, 31, 37) and the Shandaken Tunnel outlet (20).

UPPER B-G CREEL CENSUS

Date \_\_\_\_\_ No. in Party \_\_\_\_\_  
 Location \_\_\_\_\_ Time Start \_\_\_\_\_  
 Residence \_\_\_\_\_ Time Checked \_\_\_\_\_  
 Distance Traveled (mi) \_\_\_\_\_ Time Finish \_\_\_\_\_  
 Bait Used \_\_\_\_\_ Hours Fished \_\_\_\_\_  
 No. of Poles Used \_\_\_\_\_ Total Effort (# ang x hrs) \_\_\_\_\_

Fish Creeled:

	Rainbow Trout			Brown Trout			Walleye			Other			
	L	W	Mark	L	W	Mark	L	W	Mark	Species	L	W	Mark
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

How does party rate the fishing? \_\_\_Exc \_\_\_Good \_\_\_Fair \_\_\_Poor \_\_\_No Opinion

What is party fishing for? \_\_\_\_\_  
 \_\_\_\_\_

Fig. 1. Form used to record creel census data in September 1979 on Upper B-G.

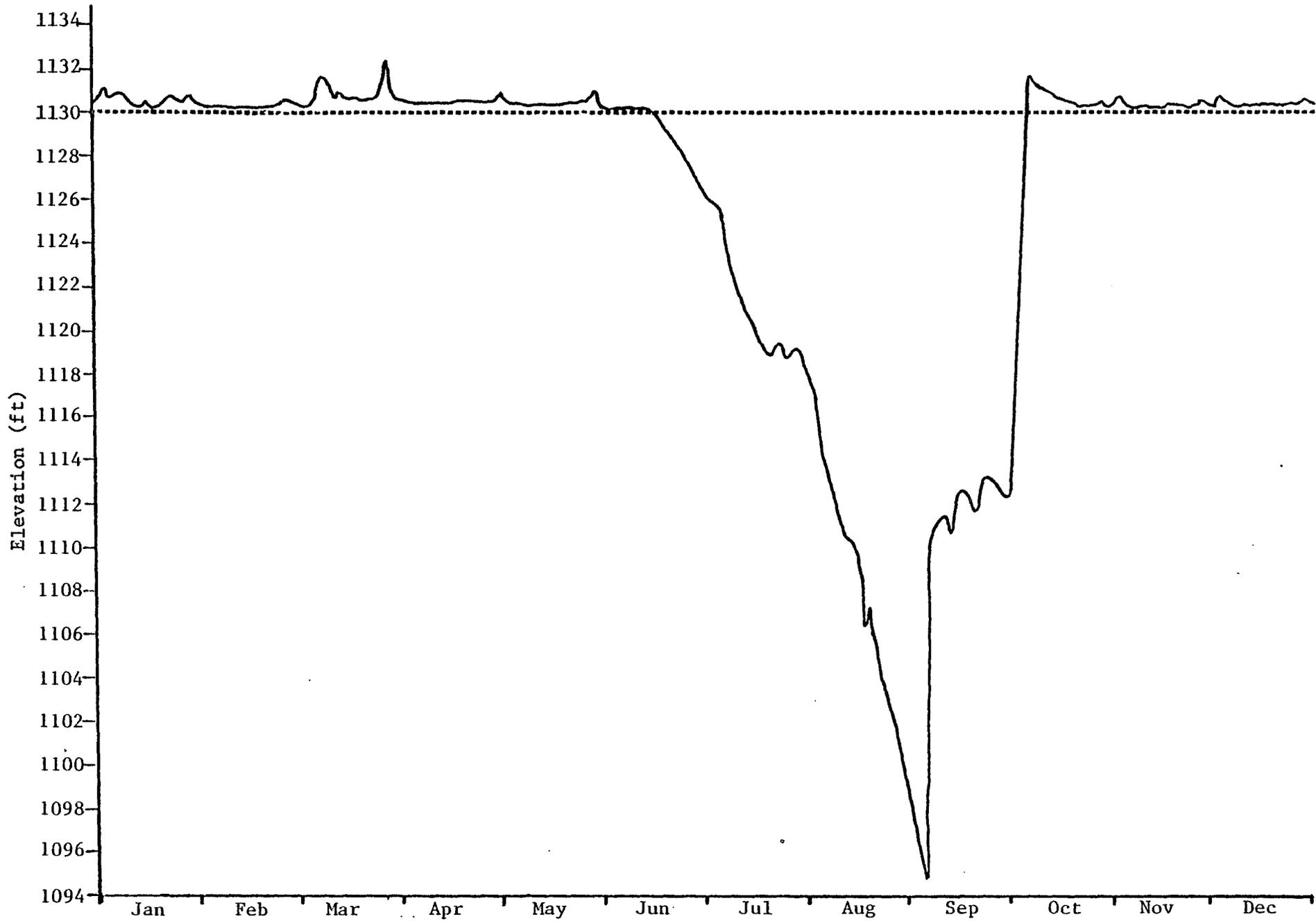


Fig. 2. Summary of elevation data (ft) recorded from January through December 1979 in Schoharie Reservoir by the New York City Department of Water Resources.

**MAIN**

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April 29, 1980

1987-118-940G/215

SUBJECT: Prattsville Pumped Storage Project  
1979 Annual IA Aquatic and Water  
Quality Report

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