

ANNUAL  
WATER QUALITY ASSESSMENT  
OCTOBER 1975 - SEPTEMBER 1976  
PART II  
MAINE - NEW HAMPSHIRE - VERMONT  
U. S. ENVIRONMENTAL PROTECTION AGENCY  
REGION I

COMPILED BY  
SURVEILLANCE BRANCH  
LEXINGTON, MASSACHUSETTS  
APRIL 1977

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## PREFACE

The Annual Water Quality Assessment summarizes the condition of the waters in Region 1 for Water Year 1976. The programs for evaluating the water quality of Region 1 are the individual state Primary Monitoring Networks (P.M.N.) and the National Water Quality Surveillance System (N.W.Q.S.S.). Data from selected stations of these networks has been compared to the present, federally approved, state water quality standards. Non-standards parameters have also been discussed in various basins if they were thought to be particularly informative.

The N.W.Q.S.S. concept is to monitor a wide range of physical, chemical and biological variables in surface waters, stream bottoms, groundwaters and the ocean at locations representative of typical and unique waters in the region. At the present state of development, the system monitors waters of the states which represent one or more of the important water quality problems in each state. Also, the system monitors waters which do not receive point source discharges of pollutants to compare these background condition with polluted waters.

The purpose of state water quality standards is to protect and enhance the quality and productivity of the state's waters to serve a variety of beneficial uses such as public water supply, recreation and protection of aquatic life and industrial agricultural uses. Public Law 92-500 (Federal Water Pollution Control Act Amendments of 1972) has as a goal "water quality which provides for the protection and propagation of fish, shellfish and wildlife and provide for recreation in and on the water be achieved by July 1, 1983".<sup>1</sup>

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1. Section 101 (a) (2), Title 1, Public Law 92-500.

Whether water bodies in the region are complying with the state standards is determined by measuring chemical and biological constituents and properties. Four parameters will be observed in every basin: dissolved oxygen, fecal coliform bacteria, total coliform bacteria and pH. Additional parameters such as metals or nutrients will be discussed if they point out problems which exist in particular areas.

When reading this report, the following factors should be taken into consideration. Natural conditions may cause some parameters to vary from standards or recommendations. This will be noted if it is known or suspected. This Second Annual Assessment is intended to be compared with first and future annual assessments in the hope that trends may be established for each basin's key parameters.

## SECTION I

### 1.0 OVERVIEW

This report is an evaluation of the water quality in Region I covering the period from October 1, 1975 to September 30, 1976 (Water Year, 1976). The quality of water in a particular water body is determined by measuring certain chemical and biological constituents and properties. These measurements are then compared, when possible, to the existing state standard for that particular water body.

### 1.1 MEASURES OF WATER QUALITY

Below is a list and description of the water quality parameters used in this report:

Dissolved Oxygen (DO) refers to the uncombined oxygen in water which is available to aquatic life. Since this oxygen is consumed more rapidly in the decomposition of wastes, the DO gives an instantaneous picture of the condition of a water body. Time of day and temperature of the water are important in interpreting DO levels. Temperature affects the amount of oxygen which water can contain - high temperature, low DO capacity; low temperature, high DO capacity. During daylight hours algae produce more oxygen, through photosynthesis, than they demand for respiration. The respiration demand continues undiminished throughout the night. Therefore, DO levels are generally highest during the afternoon and lowest just before sunrise. Large algal growths, "blooms", may produce more oxygen than the water can absorb or hold (supersaturation) and the oxygen escapes to the atmosphere. Because of this loss to the atmosphere, there is insufficient oxygen available to satisfy the large demand exerted for respiration and water quality standards may be violated.

|

Coliform bacteria found in abundance in the intestinal tract of warm-blooded animals are also present in soils and decaying vegetation. They are not harmful in themselves but their presence indicates that pathogenic bacteria may also be present. Since they can be detected by relatively simple test procedures, total coliforms are used to indicate the probability of bacterial pollution from sewage. More reliable indicators of sewage contamination are fecal coliform which make up about ninety percent of the coliforms discharged in fecal matter.

Nutrients, especially the phosphorus and nitrogen forms play an important role in the quality of a water body. Excessive nutrients promote the growth of algae which can create DO, taste and odor problems as well as choke a water body and adversely affect aesthetics. All are factors which will preclude desirable water uses. Nutrients are found in sewage, industrial wastes and fertilizers. Since conventional biological waste treatment does not remove substantial amounts of nutrients, they are passed on to the water body into which the plant discharges. Additional nutrients may enter waters from non-point sources such as agricultural runoff.

Phosphorus appears in water bodies in combined forms known as ortho and poly phosphates and organic phosphorus. Most of the phosphorus contained in municipal sewage and industrial wastes originates from detergents. EPA, to prevent the development of biological nuisances and to control eutrophication, recommends that the total phosphorus concentration not exceed 100 micrograms per liter (ug/l) in flowing streams, 50 ug/l in streams where they enter lakes or reservoirs, and 25 ug/l in lakes and reservoirs.<sup>1</sup>

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1. U.S. Environmental Protection Agency, Quality Criteria for Water (Washington, D.C.: U.S. Government Printing Office, September, 1976), p 356.

Nitrogen is present in water as organic nitrogen, ammonia, nitrites and nitrates. In fresh sewage or freshly polluted water, most nitrogen present is in the forms of organic nitrogen and ammonia. Under aerobic conditions these forms will oxidize to nitrite and then to nitrate. Thus, the nitrogen forms serve as indicators of recent pollution and the stability of sewage effluents. Ammonia is particularly adverse to water quality because it exerts high oxygen and chemical demands and is toxic to fish.

A rule-of-thumb for indicating normal nutrient conditions in a stream is a nitrogen to phosphorus ratio of 10:1. However, the recommended phosphorus concentrations should also be adhered to.

Turbidity is the measure of the clarity of a water sample. It is expressed in Jackson Standard Units which are related to the scattering and absorption of light in the water sample.

## SECTION II

### 2.0 BACKGROUND

Section 104 (a) (5) of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) requires the Administration to establish national programs for the prevention, reduction and elimination of pollution and as part of such programs shall - "in cooperation with the States and their political subdivisions and other Federal agencies establish, equip and maintain a water quality surveillance system for the purpose of monitoring the quality of the navigable waters and ground waters and the contiguous zone and the oceans and the Administrator shall, to the extent practicable, conduct such surveillance by utilizing the resources of NASA, NOAA, the Geological Survey and the Coast Guard and shall report on such quality.....".

The above provision is the legislative direction to EPA to determine what is happening to the waters of the nation in terms of physical condition, including appearance, chemical quality and of supporting a balanced population of shellfish, fish and wildlife and recreation in and on the water.

Further, the Act in Sections 106 (e) (1) and 305 (b) directs the States through EPA to - "establish and operate appropriate devices, methods, systems and procedures necessary to monitor and to complete and analyze data on (including classification according to eutrophic condition), the quality of navigable waters and to the extent practicable groundwaters....". Utilizing these analyses, the States are to "identify specifically those navigable waters, the quality of which -

- a. is adequate to provide for the protection and propagation

of a balanced population of shellfish, fish, and wildlife and allow recreational activities in and on the water;

- b. can reasonably be expected to attain such a level by 1977 or 1983; and
- c. can reasonably be expected to attain such a level at any later date".

In Region I the cooperative monitoring program between EPA and other agencies at the Federal and State level consists of the National Water Quality Surveillance System (NWQSS) and the individual State programs comprised of Primary Monitoring Network (PMN) sampling, intensive surveys, lake study surveys and biological studies. The findings of the State programs are presented in State Water Quality Assessment reports, pursuant to Section 305 (b) of P.L. 92-500, by the individual States, submitted to EPA in April every year as part of the State Program Grant process.

The objective of the NWQSS is to develop a system of monitoring and reporting on the quality of the hydrosphere and its resident biota at representative locations throughout Region I for input to the water pollution control program. A wide range of physical, chemical and biological parameters are measured at locations chosen to conform to these site characteristics:

- Most critical stream areas in terms of water use and natural resources
- Upstream and downstream of major municipal and industrial land use areas
- High water quality use areas

- Within each State - cover waters in mountain  
piedmont and coastal land areas

The system will record trends in the traditional pollutants; will  
uncover new pollutants; and will track levels of exotic pollutants.

## SECTION III

### 3.0 INDIVIDUAL DRAINAGE BASIN ASSESSMENTS

This section of the report discusses and displays the water quality data for the Water Year 1976. Each drainage area or river basin is presented with the following:

- a. Discussion of monitoring results for WY-76.
- b. Discussion of any special studies which may have been performed in the basin during WY-76.
- c. A listing of municipal waste water treatment plants where operation and maintenance inspections were conducted during WY-76.
- d. River basin or drainage area map with the location of NWQSS and PMN monitoring stations used in this report.
- e. Summary of water quality standards criteria violations October 1, 1975 through September 30, 1976.
- f. Listing of significant dischargers within the basin.
- g. Plots of selected water quality parameters.  
(On the following page is the legend used in the plots)

PLOT LEGEND

Minimum Criteria



Maximum Criteria



Minimum Value



Maximum Value



Arithmetic Mean  
{Geometric Mean for Coliform Bacteria}



Discharge Location



Station Location



### 3.15 LAKE CHAMPLAIN BASIN

The Lake Champlain Basin drains a portion of northeastern New York, all of northwestern Vermont, and a small area in Canada. The lake is 107 miles long (north to south) and has a maximum width of 12 miles. In Vermont the major tributaries to the lake are Otter Creek and the Mettawee, Poultney, Winooski, Lamoille and Missisquoi Rivers.

The majority of the significant discharges on the Vermont side of the basin are from municipal treatment facilities. These discharges and runoff from surrounding agricultural land are primarily responsible for the high nutrient levels seen in this basin.

Natural conditions are responsible for the pH violations seen in this basin. Agricultural runoff as well as natural conditions are believed responsible for the high percentage of turbidity violations found on the Lamoille River and Otter Creek.

A three week water quality study of Otter Creek in the Rutland - Middlebury area was conducted by Region 1's Surveillance and Analysis Division during the summer of 1976. In conjunction with the above study, time of travel and other hydrologic studies were run during the Spring and Fall of 1976.

The purpose of these studies was to gather data for modeling, to determine if the segments studied are water quality limited. A report on the collected data was prepared and distributed by the S & A Division in January, 1977.

The following Annual O & M inspections were completed by the Region 1 Operation and Maintenance Section on municipal facilities in the Lake Champlain Basin:

<u>Location</u>	<u>Date</u>	<u>Location</u>	<u>Date</u>
Hinnesburg, VT	10/75	Benson, VT	2/76
So. Burlington, VT	10/75	Wallingford, VT	2/76
Shelburne FD #1, VT	10/75	Montpelier, VT	4/76
Essex Junction, VT	10/75	Waterbury, VT	4/76
Colchester, VT	10/75	Winooski, VT	4/76
Johnson, VT	10/75	Morrisville, VT	4/76
Rutland, VT	2/76	Berlin, VT	4/76
West Rutland, VT	2/76	Northfield, VT	4/76
Fair Haven, VT	2/76	Northfield, VT	6/76
Castletown, VT	2/76	Warren, VT	6/76

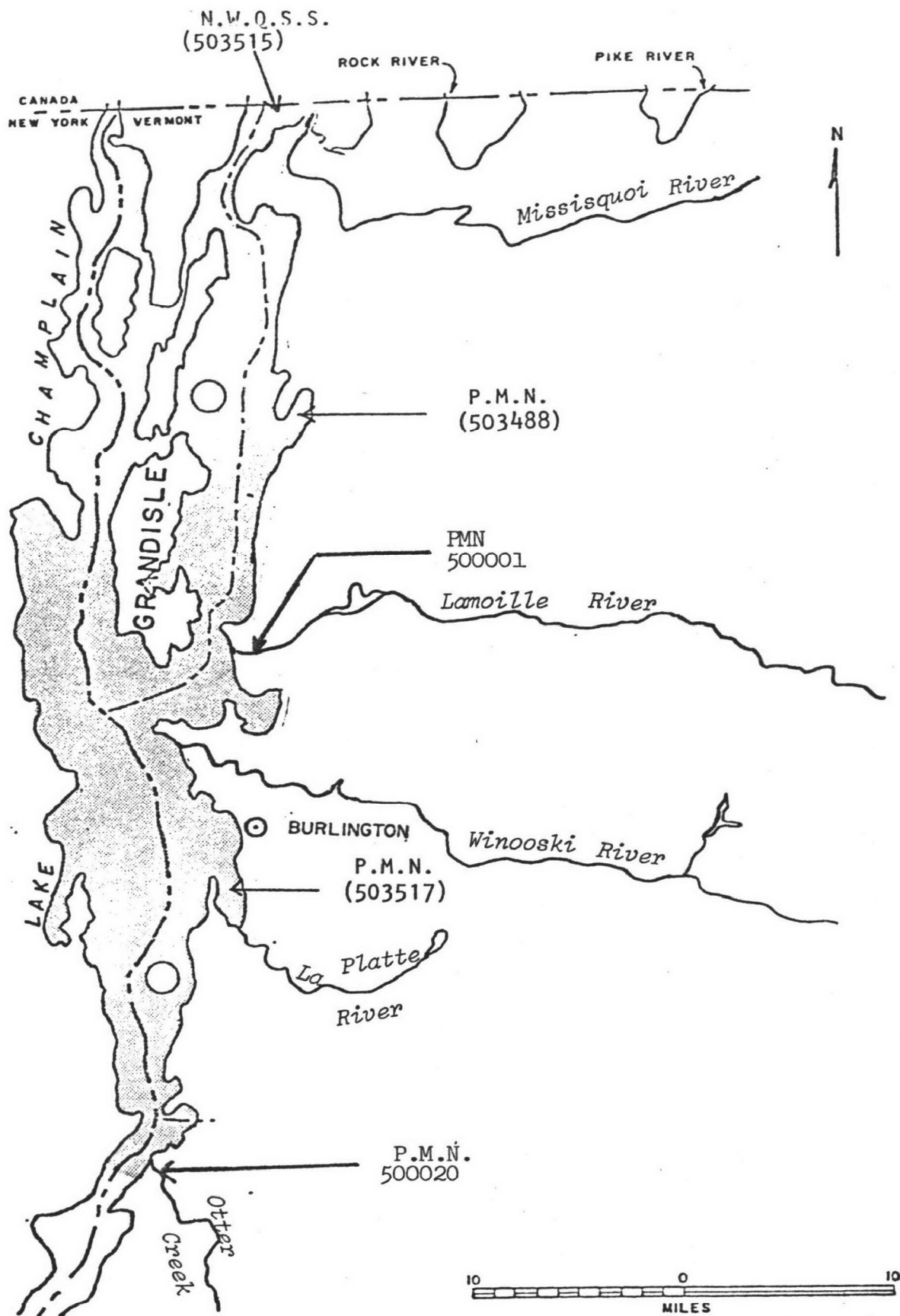
LAKE CHAMPLAIN BASIN {EXCEPT WINOOSKI}

{VERMONT}

in

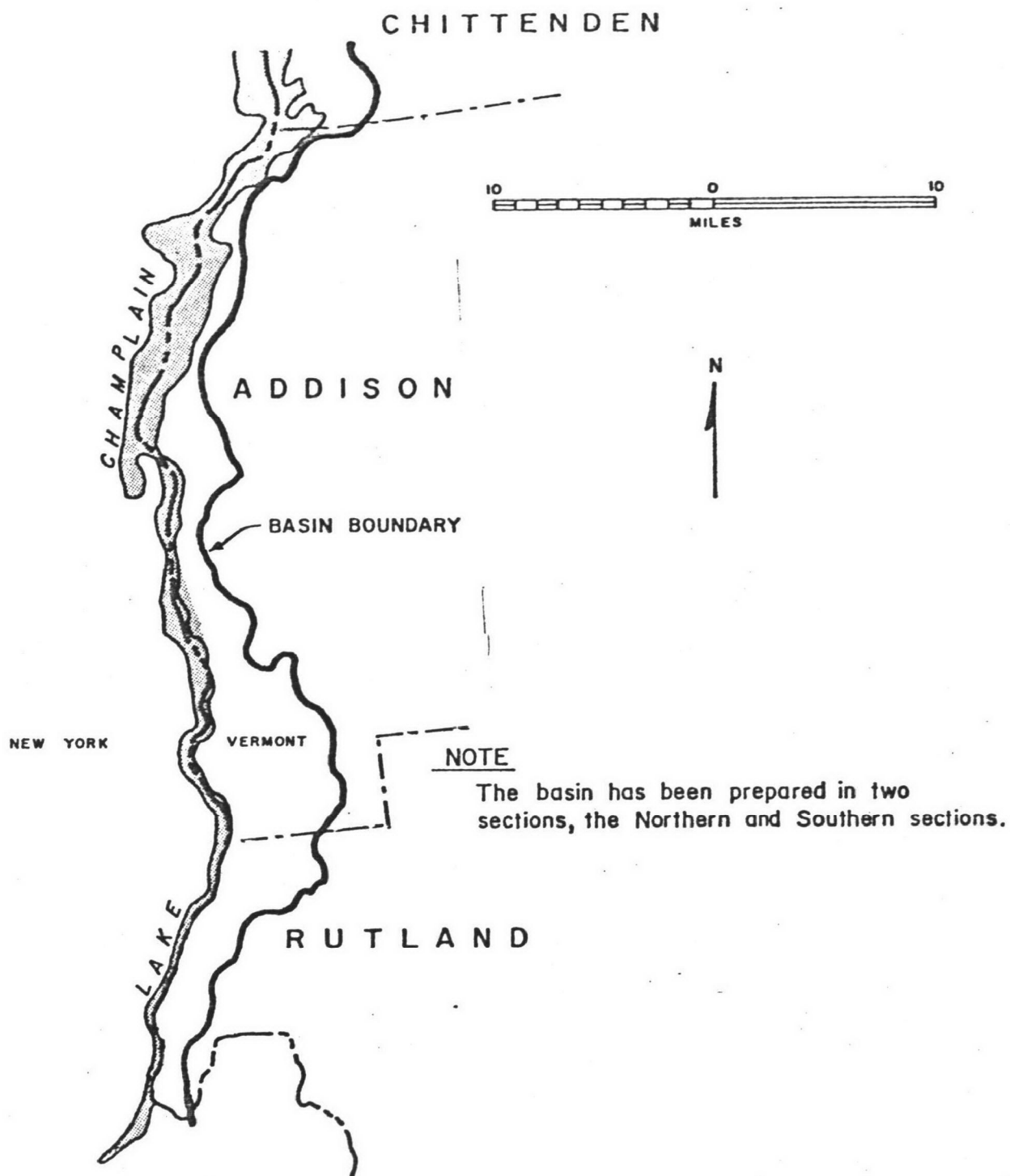
DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Lake Champlain at Missisquoi Bay, VT	N.W.Q.S.S. 503515
2.	Lake Champlain at St. Albans Bay, VT	PMN 503488
3.	Lamoille River Chimney Corner, VT	PMN 500001
4.	Lamoille River at Shelburne Bay, VT	PMN 503517
5.	Otter Creek at Ferrisburg	PMN 500020



NORTHERN SECTION  
LAKE CHAMPLAIN BASIN

VERMONT



SOUTHERN SECTION  
LAKE CHAMPLAIN BASIN CLASSIFICATION

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 503515

LAKE CHAMPLAIN (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	18	1.	5.56	NONE	25.00	10.89
DISS. OXYGEN MG/L	18	0.	0.0	5.00	NONE	10.54
PH SU	18	0.	0.0	6.50	8.00	7.41
COLIFORM TOT MFIM/100ML	4	0.	0.0	NONE	500.00	0.86
COLIFORM FEC MF/100ML	5	0.	0.0	NONE	200.00	0.01

STATION 503488

LAKE CHAMPLAIN (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	17	0.	0.0	NONE	25.00	5.36
DISS. OXYGEN MG/L	16	0.	0.0	5.00	NONE	10.02
PH SU	17	3.	17.65	6.50	8.00	7.80
COLIFORM TOT MFIM/100ML	3	0.	0.0	NONE	500.00	8.71
COLIFORM FEC MF/100ML	3	0.	0.0	NONE	200.00	0.08

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500001

LAMOILLE R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	2.	28.57	NONE	10.00	9.71
DISS. OXYGEN MG/L	7	0.	0.0	6.00	NONE	10.70
PH SU	7	0.	0.0	6.50	8.00	7.41
COLIFORM TOT MFIM/100ML	5	2.	40.00	NONE	500.00	298.73
COLIFORM FEC MF/100ML	5	1.	20.00	NONE	200.00	102.79

STATION 503517

LAKE CHAMPLAIN (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	14	0.	0.0	NONE	25.00	5.00
DISS. OXYGEN MG/L	14	0.	0.0	5.00	NONE	10.50
PH SU	14	8.	57.14	6.50	8.00	7.97
COLIFORM TOT MFIM/100ML	1	0.	0.0	NONE	500.00	4.00
COLIFORM FEC MF/100ML	1	0.	0.0	NONE	200.00	1.00

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500020

OTTER CREEK (VT)

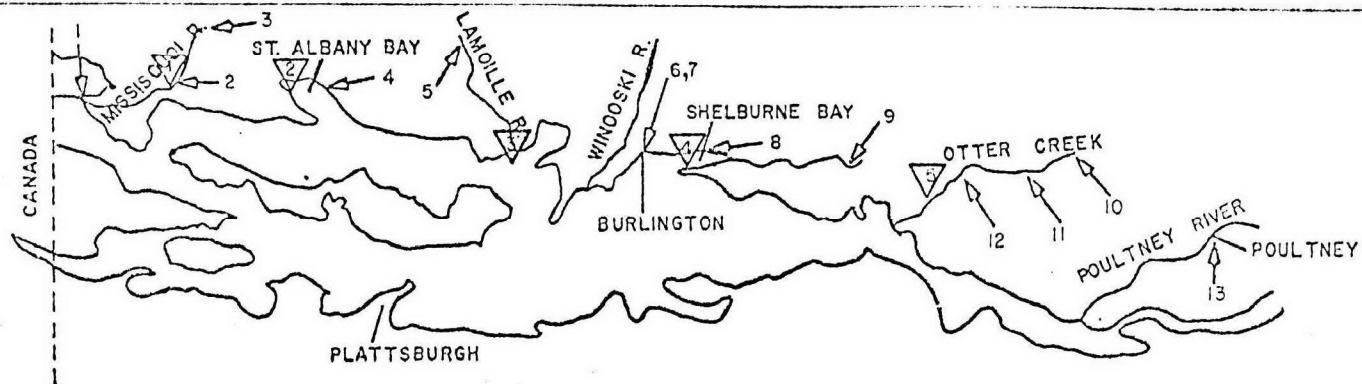
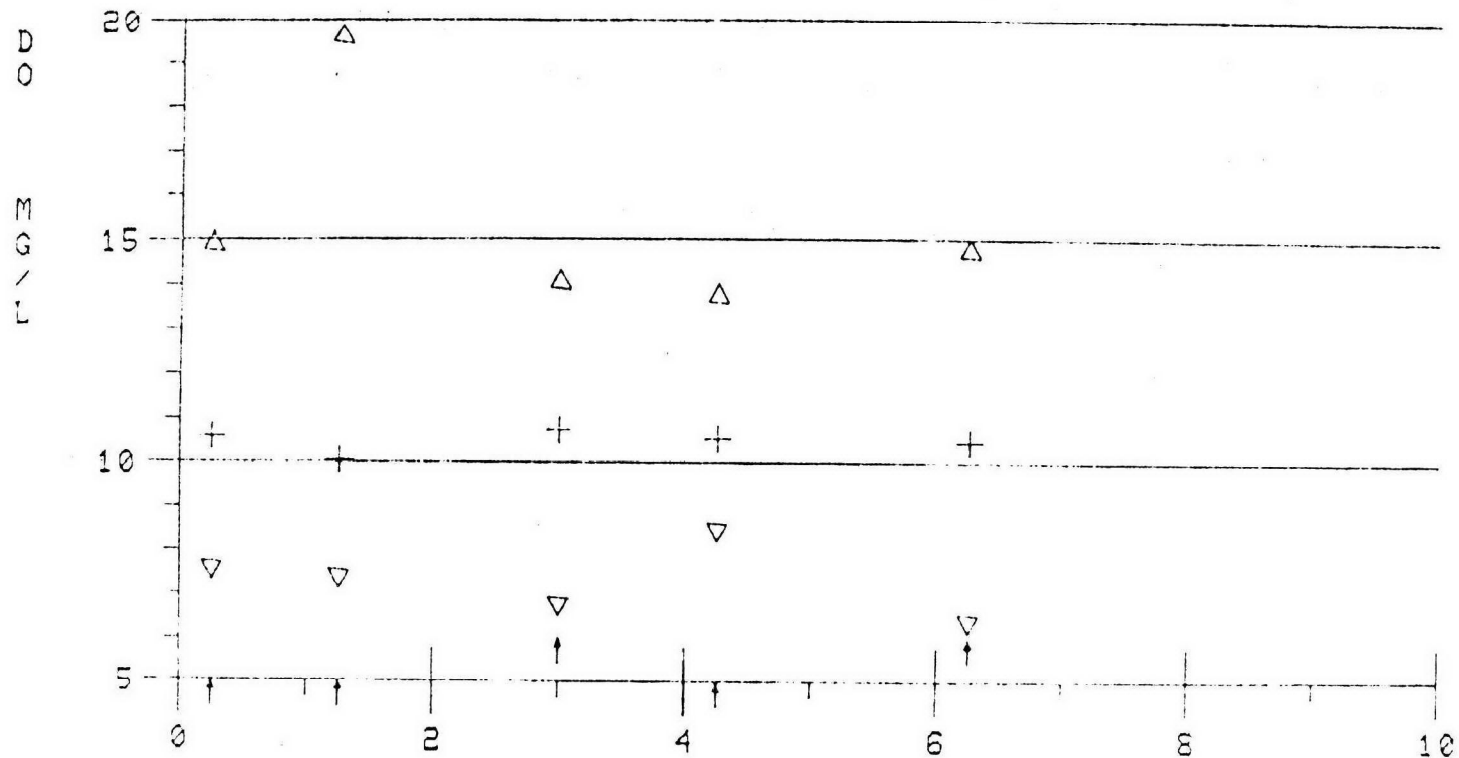
PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSM JTU	6	4.	66.67	NONE	10.00	18.50
DISS. OXYGEN MG/L	6	0.	0.0	6.00	NONE	10.45
PH SU	6	0.	0.0	6.50	8.00	7.63
COLIFORM TOT MFIM/100ML	6	6.	100.00	NONE	500.00	2486.30
COLIFORM FEC MF/100ML	6	2.	33.33	NONE	200.00	266.12

\* GEOMETRIC MEAN FOR COLIFORMS

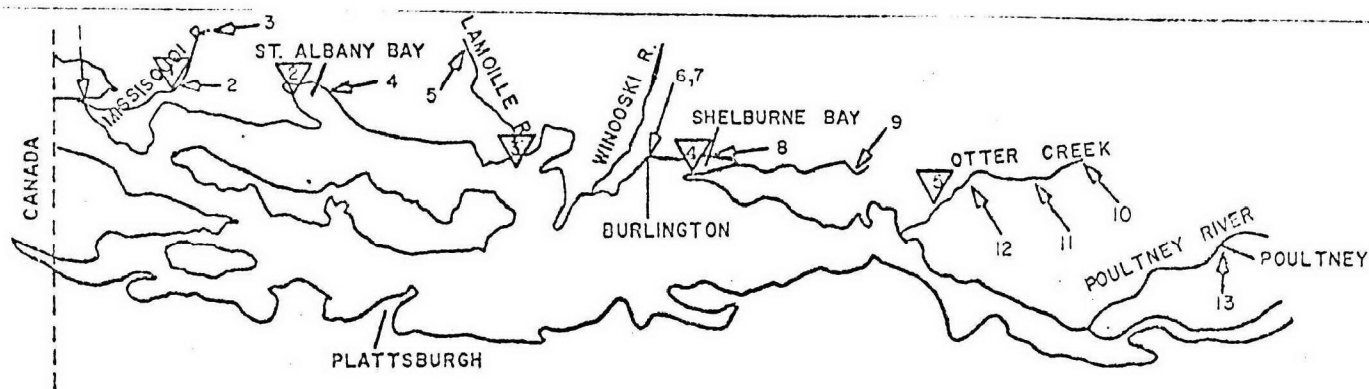
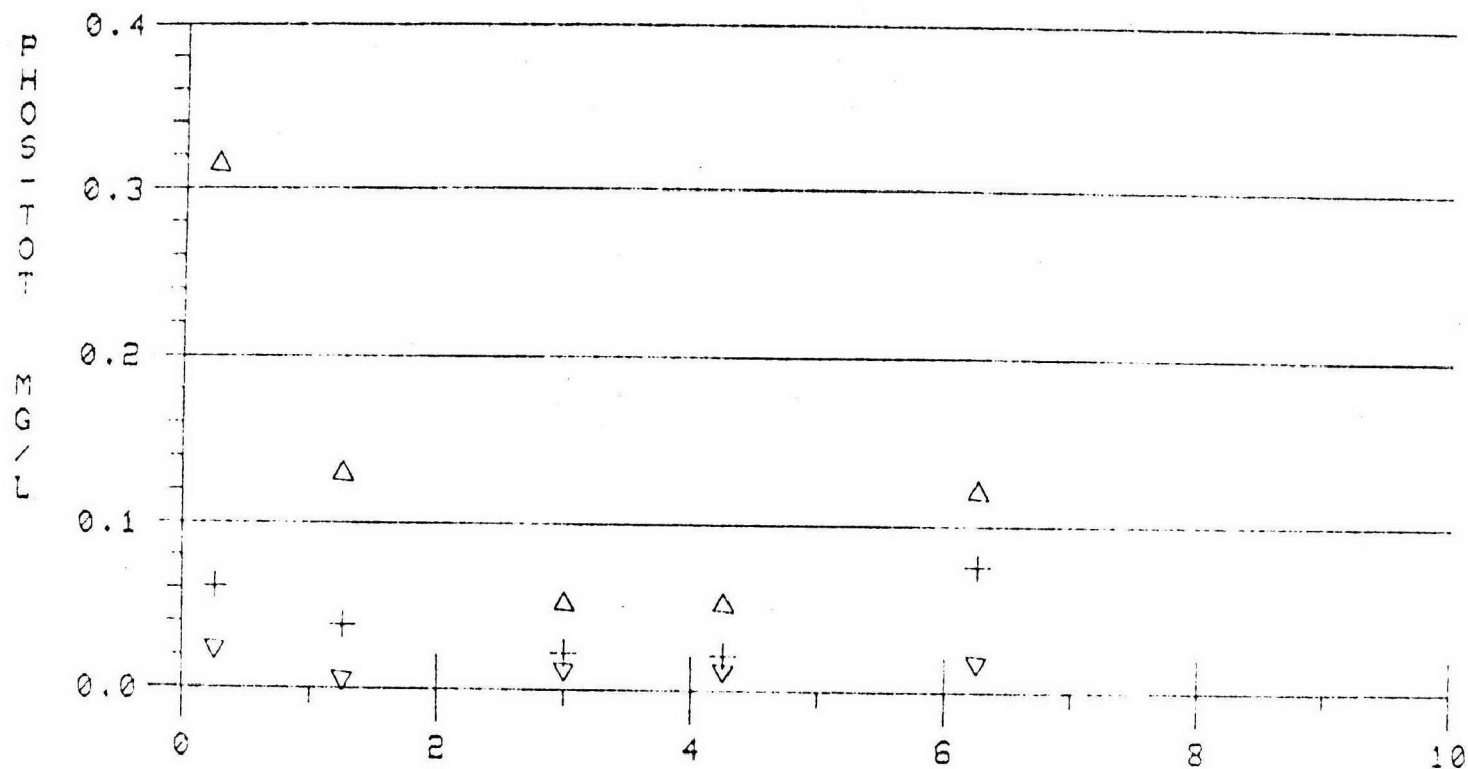
# SIGNIFICANT DISCHARGERS

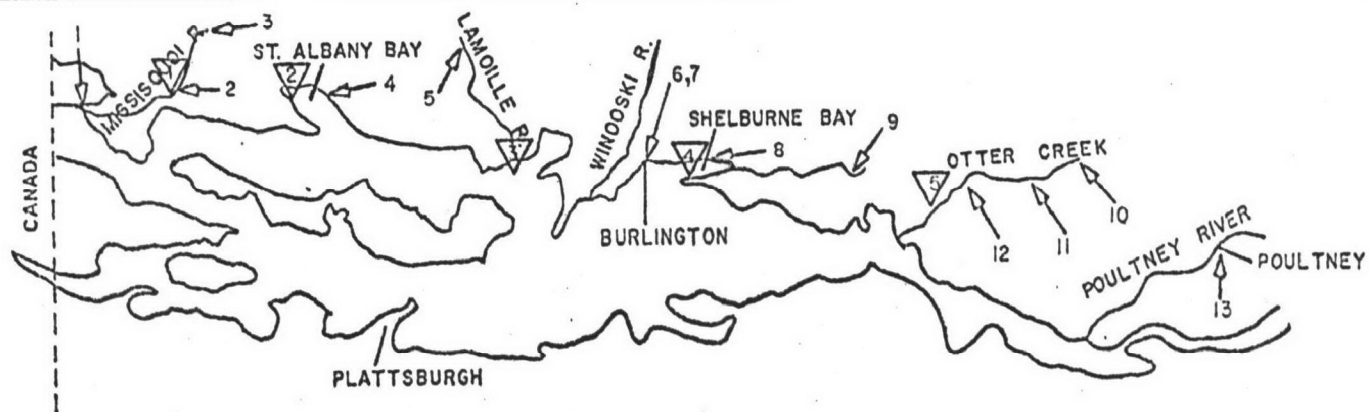
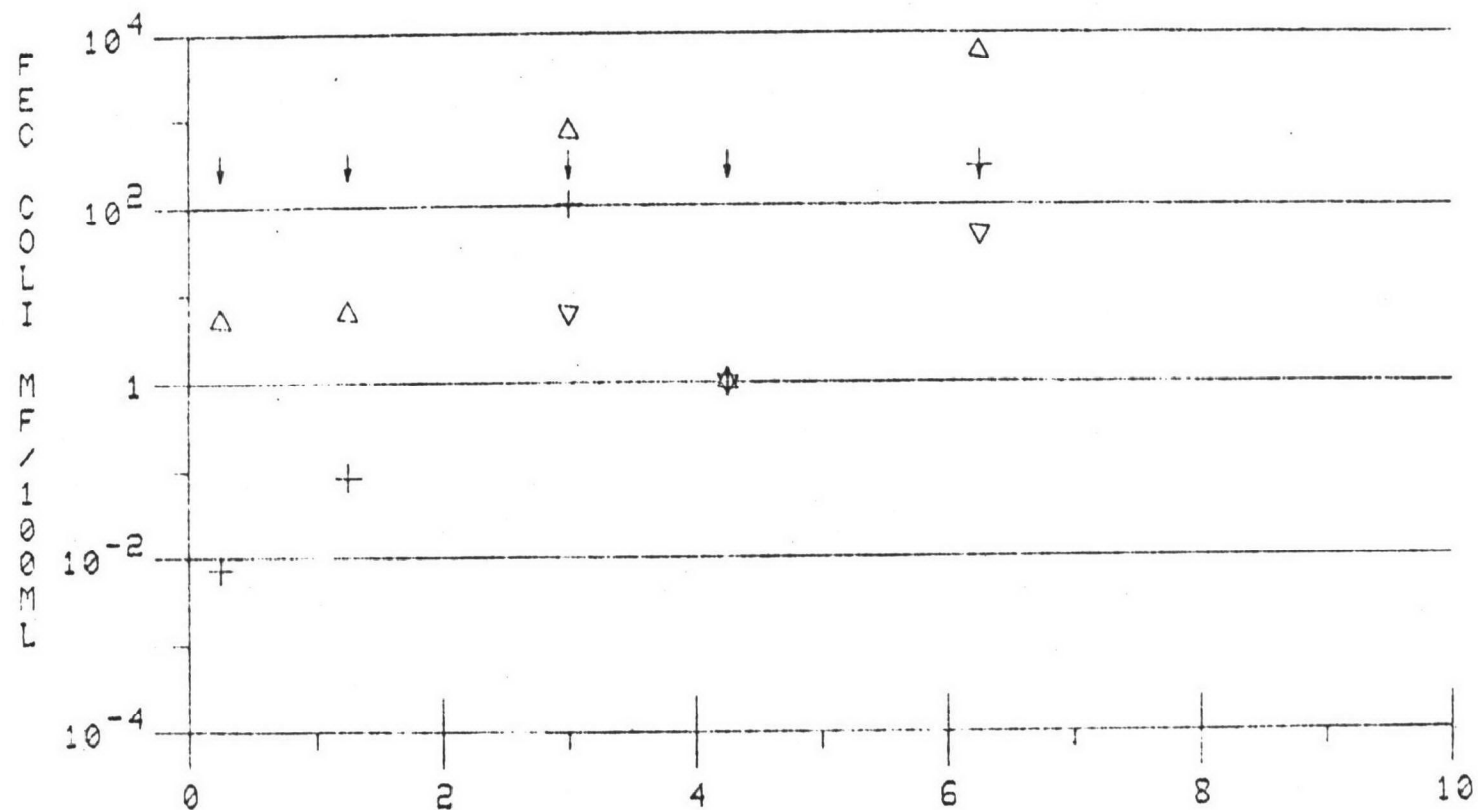
## LAKE CHAMPLAIN BASIN

<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. Swanton Village STP	Swanton	Missisquoi R.	0100501
2. Standard Packing	Sheldon Springs	Missisquoi R.	0000969
3. Richford STP	Richford	Missisquoi R.	0100790
4. St. Albans STP	St. Albans	Lake Champlain	0100323
5. Morrisville MTP	Morrisville	Lamoille R.	0100480
6. Burlington Main STP	Burlington	Lake Champlain	0100153
7. S.Burlington STP	S.Burlington	Lake Champlain	0100358
8. Shelburne STP	Shelburne	Lake Champlain	0100331
9. Hinesburg WTF	Hinesburg	LaPlatte R.	0101028
10. Rutland WPCP	Rutland	Otter Creek	0100871
11. Middlebury MTP	Middlebury	Otter Creek	0100188
12. Vergennes STP	Vergennes	Otter Creek	0100404
13. Poultney MTP	Poultney	Poultney R.	0100269



# REGION I WQ ASSESSMENT PART - LAKE CHAMPLAIN (JT)





### 3.16 WINOOSKI RIVER BASIN

The Winooski River has a total drainage area of 1065 miles, the largest in the Lake Champlain Basin. It flows from Lower Cabot, 90 miles, before it empties into Lake Champlain at Burlington.

Numerous violations of state standards for pH and turbidity are reported on the Winooski River. These violations, like many of those in the rest of the Lake Champlain Basin, are due to natural condition. Total and fecal coliform violations were reported at plot station numbers 1 (2 of 5 both total and fecal) and 2 (4 of 5 total and 10 of 5 fecal). These violations are probably due to municipal discharges in Barre, Berlin, and Montpelier. Municipal dischargers in Essex Junction, Burlington, Winooski and Colchester are believed responsible for the total (3 of 6) and fecal (4 of 6) coliform violations seen at plot station number 3.

Operations and maintenance inspections conducted in the Winooski River Basin have been listed in the Lake Champlain Basin section.

WINOOSKI RIVER  
{LAKE CHAMPLAIN BASIN}  
{VERMONT}

in  
DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Winooski River Jct. Rte. 2 and 302, VT	PMN 500012
2.	Winooski River Barre St. Montpelier, VT	PMN 500011
3.	Winooski River at Oxbow Loop, Colchester, VT	PMN 500010

72°50'

72°40'

72°30'



VICINITY MAP

SCALE IN MILES  
50 0 20

44°30'

44°20'

44°10'

PMN

500011

PMN

500012

WINOOSKI RIVER  
BASIN MAPSCALE IN MILES  
2 0 2 4 6 8 10

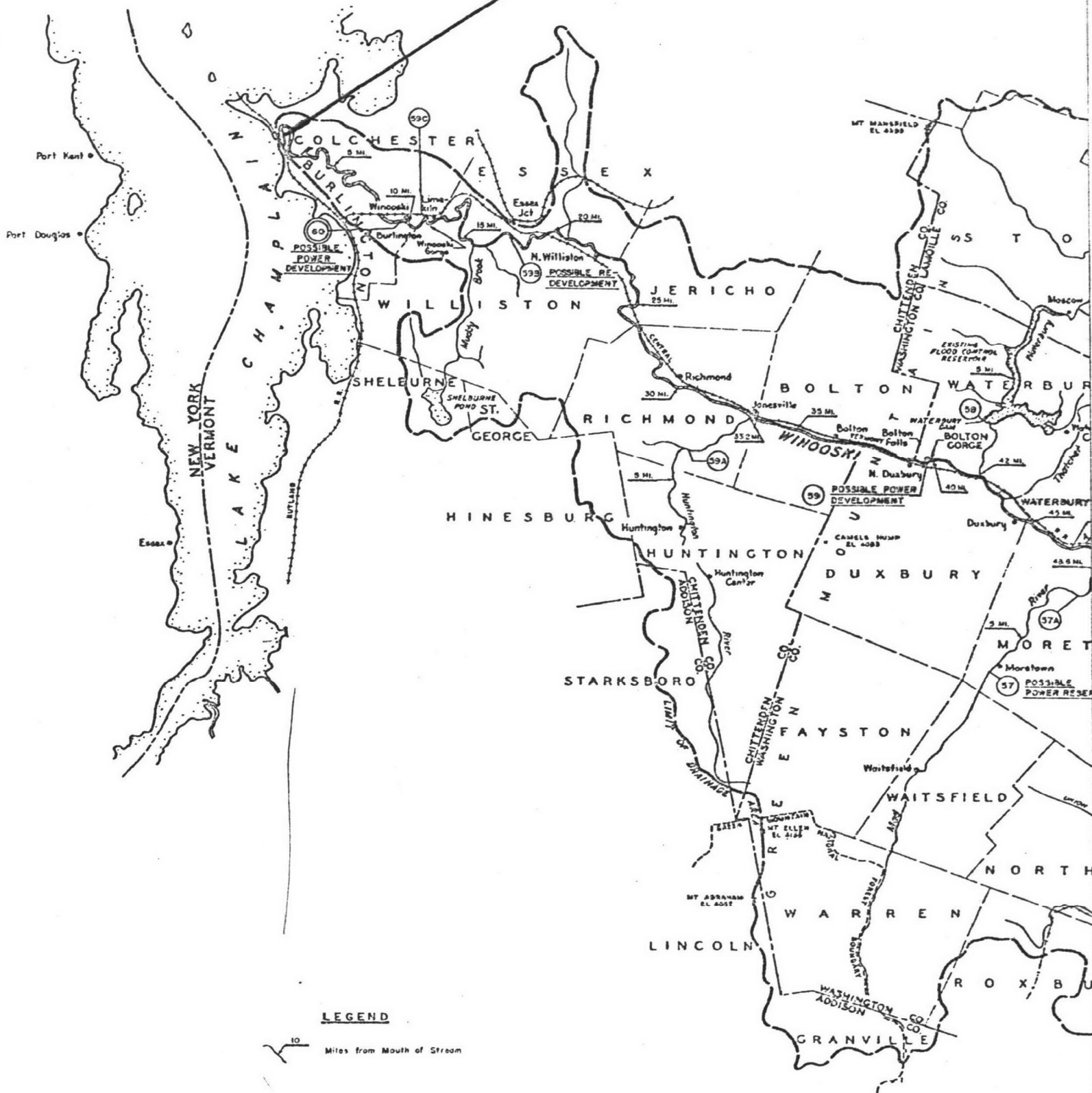
73°-20'

73°-10'

73°-00'

72°-50'

PMN  
500010



**LEGEND**

10 Miles from Mouth of Stream

73°-10'

73°-00'

72°-50'

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500012

WINOOSKI R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	5	4.	80.00	NONE	10.00	19.60
DISS. OXYGEN MG/L	5	0.	0.0	6.00	NONE	11.62
PH SU	5	2.	40.00	6.50	8.00	8.16
COLIFORM TOT MFIM/100ML	5	2.	40.00	NONE	500.00	552.18
COLIFORM FEC MF/100ML	5	2.	40.00	NONE	200.00	11.34

STATION 500011

WINOOSKI R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	6	5.	83.33	NONE	10.00	24.17
DISS. OXYGEN MG/L	6	1.	16.67	6.00	NONE	10.11
PH SU	6	2.	33.33	6.50	8.00	8.04
COLIFORM TOT MFIM/100ML	5	4.	80.00	NONE	500.00	1071.95
COLIFORM FEC MF/100ML	5	1.	20.00	NONE	200.00	247.22

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500010

WINOOSKI R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	5.	71.43	NONE	10.00	40.00
DISS. OXYGEN MG/L	7	0.	0.0	6.00	NONE	11.46
PH SU	7	0.	0.0	6.50	8.00	7.52
COLIFORM TOT MFIM/100ML	6	3.	50.00	NONE	500.00	718.86
COLIFORM FEC MF/100ML	6	4.	66.67	NONE	200.00	185.49

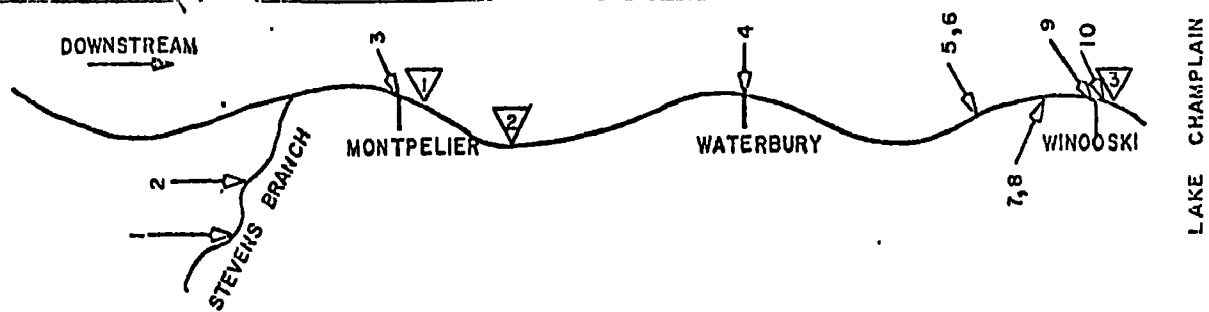
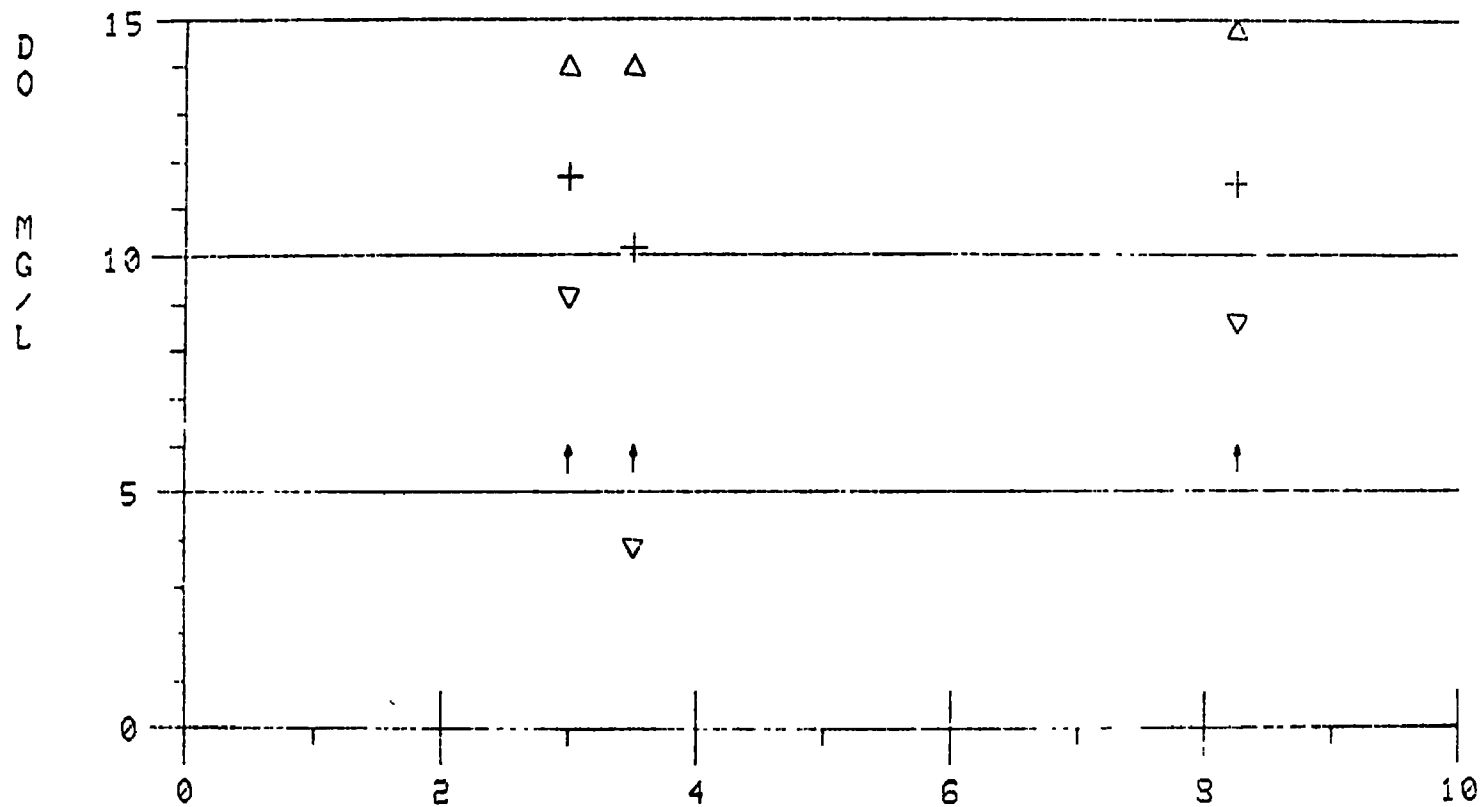
\* GEOMETRIC MEAN FOR COLIFORMS

SIGNIFICANT DISCHARGERS  
WINOOSKI RIVER (LAKE CHAMPLAIN BASIN)

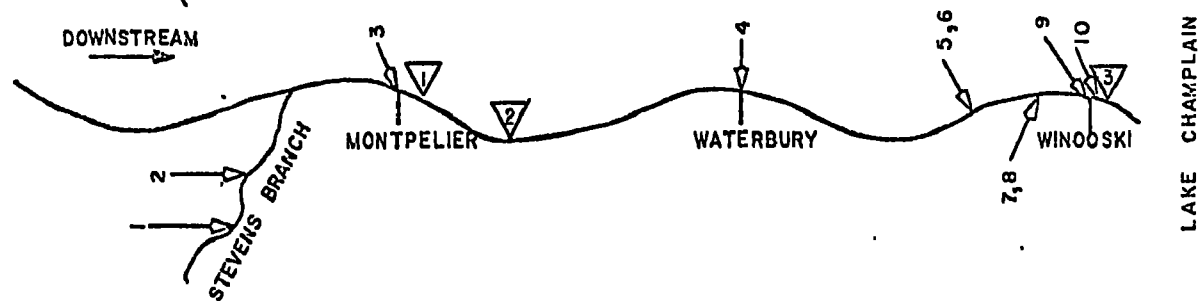
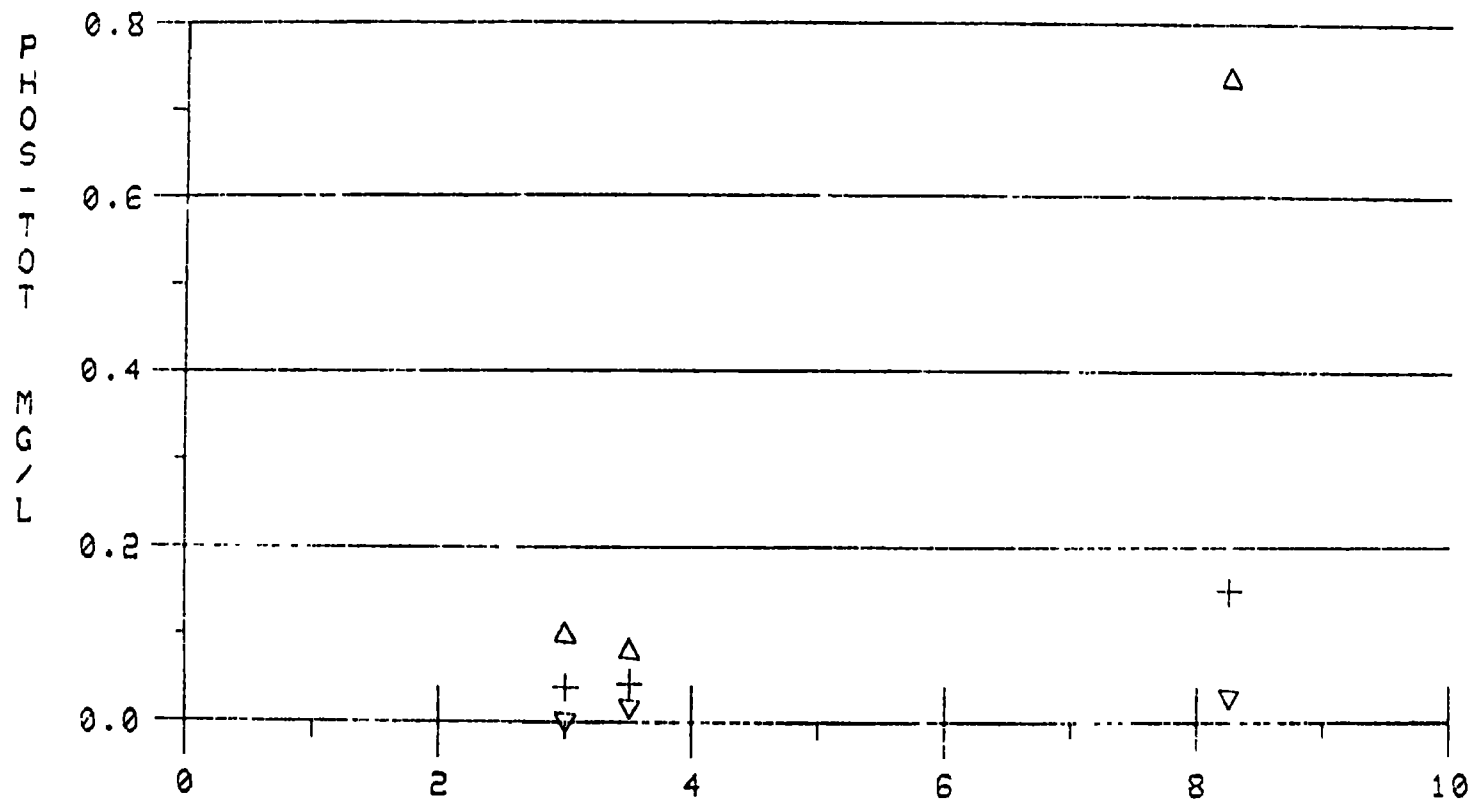
<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. Barre City STP	Barre	Stevens Branch	0100889
2. Berlin STP	Berlin	Winooski River Stevens Branch	0100030
3. Montpelier MTP	Montpelier	Winooski River	0100196
4. Waterbury MTP	Waterbury	Winooski River	0100463
5. IBM Components Division	Essex Junction	Winooski River	0000400
Essex Junction MTP	Essex Junction	Winooski River	0100111
7. Burlington Riverside STP	Burlington	Winooski River	0100307
8. Burlington North End STP	Burlington	Winooski River	0100226
9. Winooski WPCF	Winooski	Winooski River	0100510
10. Colchester STP	Colchester	Winooski River	0100960

# REGION I WQ ASSESSMENT

ORT - WINOOSKI R. (VT)



# REGION I WQ ASSESSMENT DRT - WINOOSKI R. (VT)



### 3.17 LAKE MEMPHREMAGOG DRAINAGE AREA

Lake Memphremagog is located on the border between Vermont and Canada. It has a surface area of 36.4 square miles, a mean depth of 51 feet, and a drainage area of 650.5 square miles. Within the United States the surface area is 9.7 square miles with a mean depth of 21 feet and a drainage area of 477.1 square miles. Its major tributaries in the United States are the Black, Barton and Clyde Rivers, all of which are Class B waters.

The two stations in this drainage area used in this report are located at the Canadian - United States borders and in South Bay near Newport, Vermont. Both stations report turbidity and pH violations, while the station at the United States - Canadian border reported DO violations (2 out of 24 samples) in July and August at a depth of 26 feet.

The only major discharger in the drainage area is the Newport, Vermont municipal treatment plant.

LAKE MEMPHREMAGOG BASIN

(VERMONT)

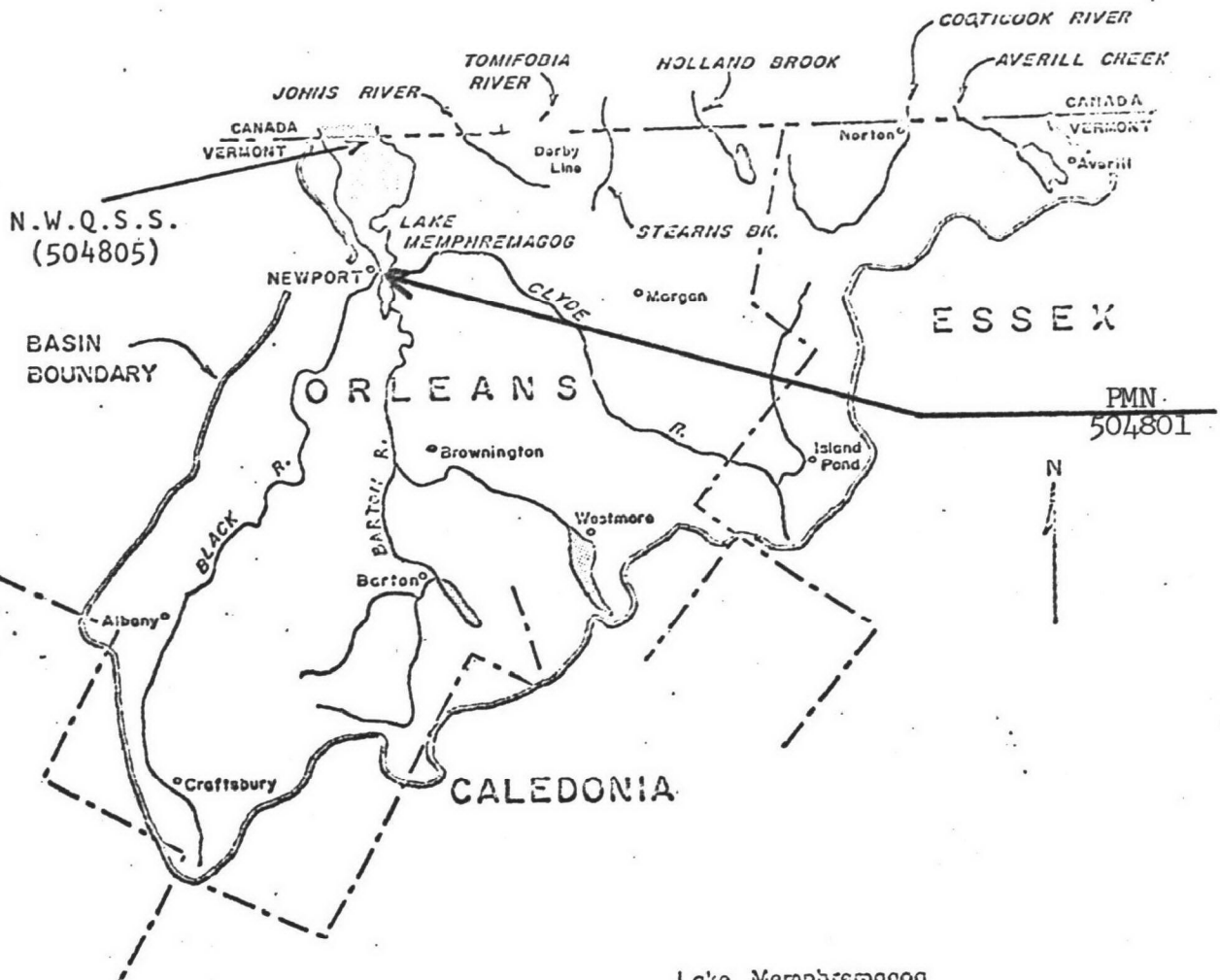
in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Lake Memphremagog at International Border	N.W.Q.S.S. 504805
2.	Mouth of Southbay, Newport, Vermont	PMN 504801



----- COUNTY BOUNDARY



- Lake Memphremagog
- Averill Creek
- Coaticook River
- Holland Brook
- Johns River
- Stearns Brook
- Tomifobia River

## LAKE MEMPHREMAGOG

VERMONT

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 504801

LAKE MEMPHREMAGOG (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	8	4.	50.00	NONE	10.00	11.88
DISS. OXYGEN MG/L	11	0.	0.0	6.00	NONE	9.71
PH SU	10	2.	20.00	6.50	8.00	7.87
COLIFORM TOT MFIM/100ML	3	0.	0.0	NONE	500.00	241.01
COLIFORM FEC MF/100ML	3	0.	0.0	NONE	200.00	106.79

STATION 504805

LAKE MEMPHREMAGOG (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	18	3.	16.67	NONE	10.00	7.83
DISS. OXYGEN MG/L	24	2.	8.33	6.00	NONE	9.06
PH SU	20	5.	25.00	6.50	8.00	7.73
COLIFORM TOT MFIM/100ML	3	0.	0.0	NONE	500.00	18.96
COLIFORM FEC MF/100ML	3	0.	0.0	NONE	200.00	7.31

\* GEOMETRIC MEAN FOR COLIFORMS

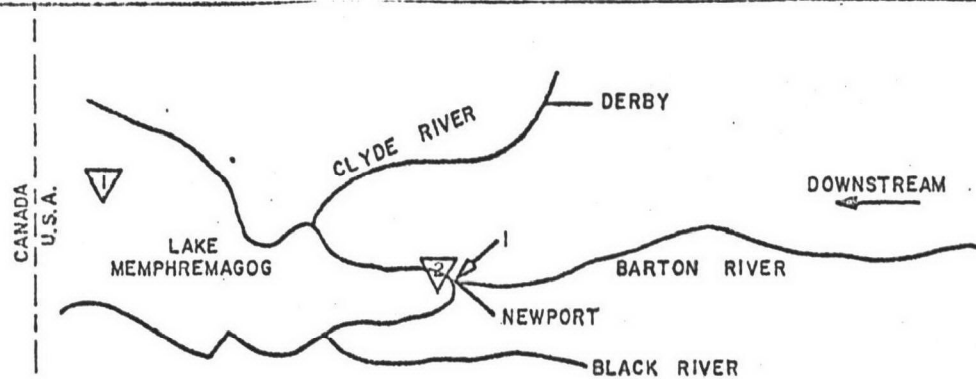
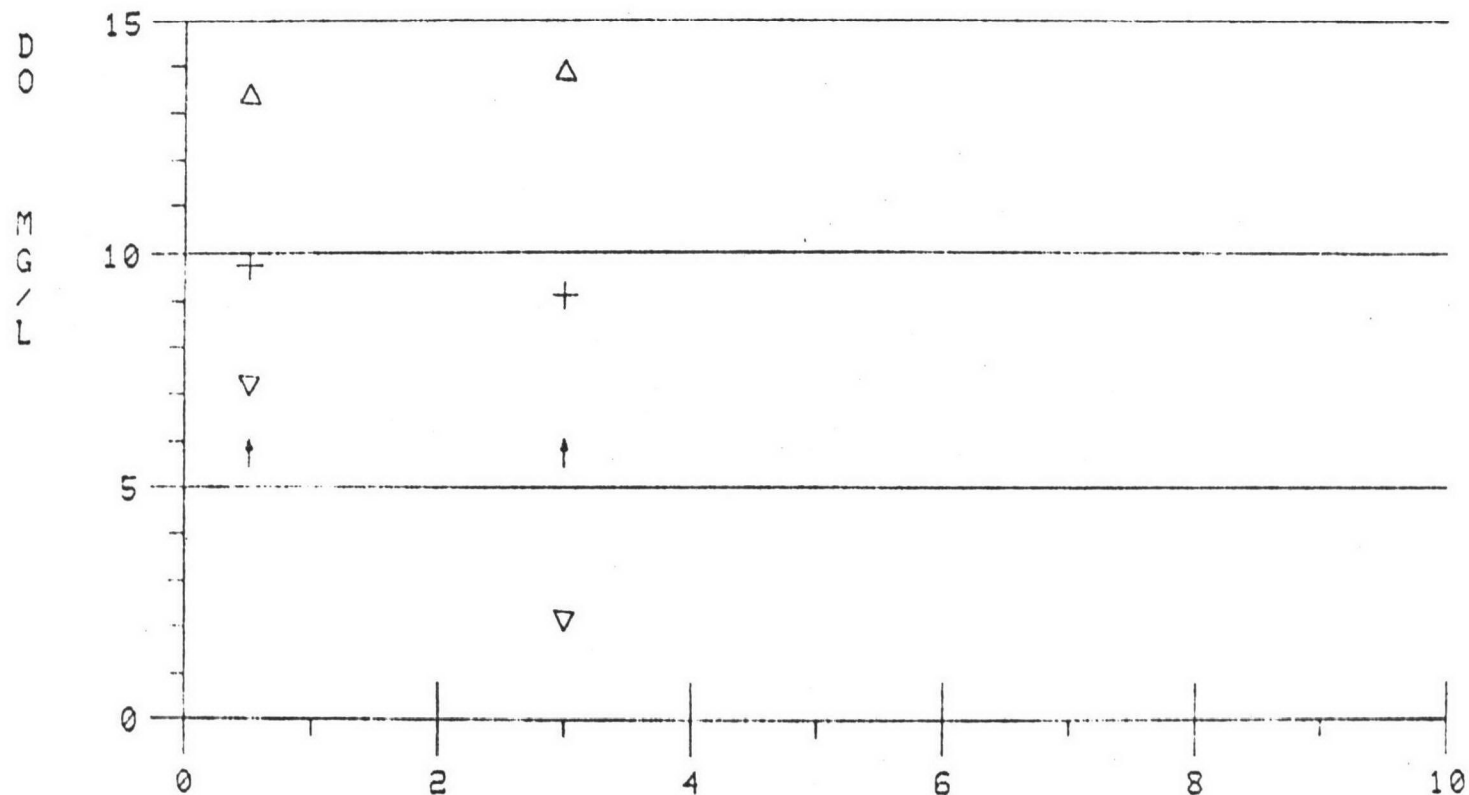
SIGNIFICANT DISCHARGERS

LAKE MEMPHREMAGOG BASIN

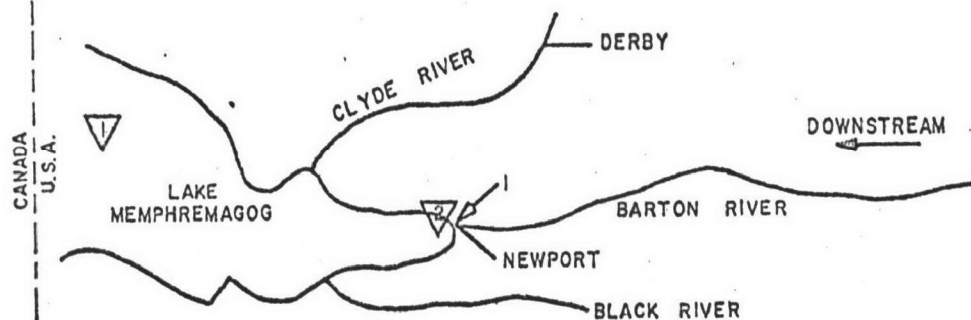
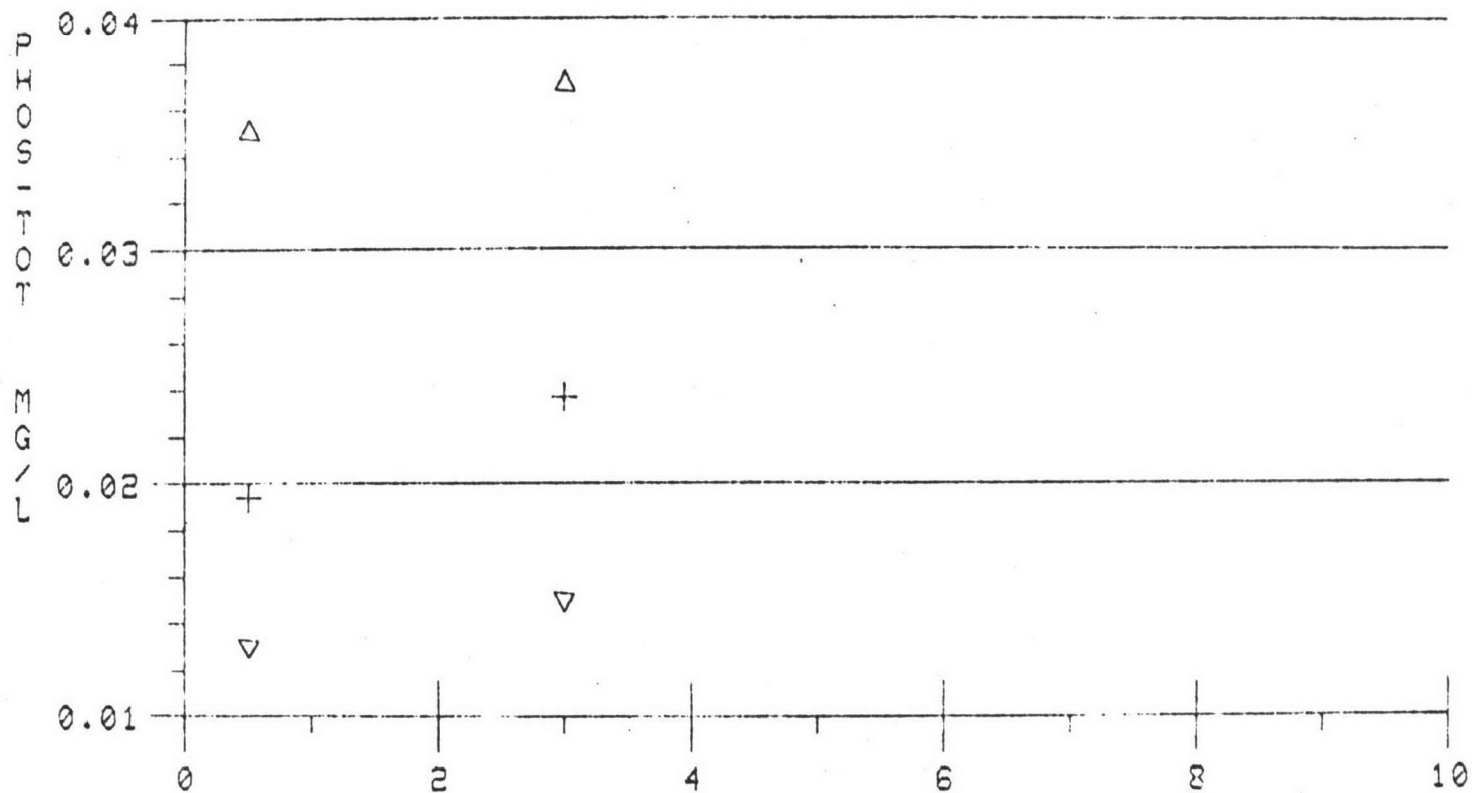
1. Newport MTP	Newport	Clyde River	0100200
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# REGION I WQ ASSESSMENT

ORT - LAKE MEMPHREMAGOG (VT)



# REGION I WQ ASSESSMENT I RT - LAKE MEMPHREMAGOG (VT)



### 3.18 CONNECTICUT RIVER BASIN (VERMONT)

The Connecticut River forms the Vermont - New Hampshire border with the entire width of the river basin being under the jurisdiction of the state of New Hampshire. There are, however, numerous tributaries flowing to the mainstream from Vermont. Stations located at or near the mouths of ten of the tributaries have been observed in this assessment.

Turbidity standards violations were reported at all stations except those on the West, Williams and Ottauquechee Rivers. These problems can be attributed at either rural runoff or natural conditions. Agricultural runoff is believed responsible for the high total phosphorus levels reported on the Saxton (avg. .031 mg/l), Williams (avg. .020 mg/l), Black (avg. .039 mg/l), Ottauquechee (avg. .031 mg/l), White (avg. .033 mg/l), and Passumpsic (avg. .028 mg/l) Rivers. Municipal and/or industrial dischargers on the Wells, White, Black and Passumpsic Rivers are thought responsible for the large number of fecal coliform violations reported on these rivers. The Waites, Saxton and Ompompanoosuc Rivers also have high percentages of fecal coliform violations. These are possibly due to agricultural runoff; however, further investigation into the cause of these violations is needed.

The following Annual O & M Inspections were completed by the Region 1 Operation and Maintenance Section on municipal facilities in the Vermont portion of the Connecticut River Basin:

<u>Location</u>	<u>Date</u>	<u>Location</u>	<u>Date</u>
Brattleboro, VT	1/76	Hartford, VT	1/76
Bellows Falls, VT	1/76	Randolph, VT	4/76
Woodstock, VT	1/76		

# CONNECTICUT RIVER STATIONS

{VERMONT}

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Passumpsic River near Rte. 5 above Dam, VT	PMN 500005
2.	Wells River, Wells River, VT	PMN 500008
3.	Waits River, Bradford, VT	PMN 500007
4.	Ompompanoosuc River near Pompanoosuc, VT	PMN 500004
5.	White River, White River Jct., VT	PMN 500009
6.	Ottauquechee River at North Hartland, VT	PMN 500019
7.	Black River at Rte. 5 Bridge, VT	PMN 500013
8.	Williams River, Rockingham, VT	PMN 500033
9.	Saxtons River, Bellows Falls, VT	PMN 500023
10.	West River at Brattleboro, VT	PMN 500025



P.M.N.  
500005

SCALE IN MILES

P.M.N.  
500008

P.M.N.  
500007

P.M.N.  
500004

P.M.N.  
500009

P.M.N.  
500019

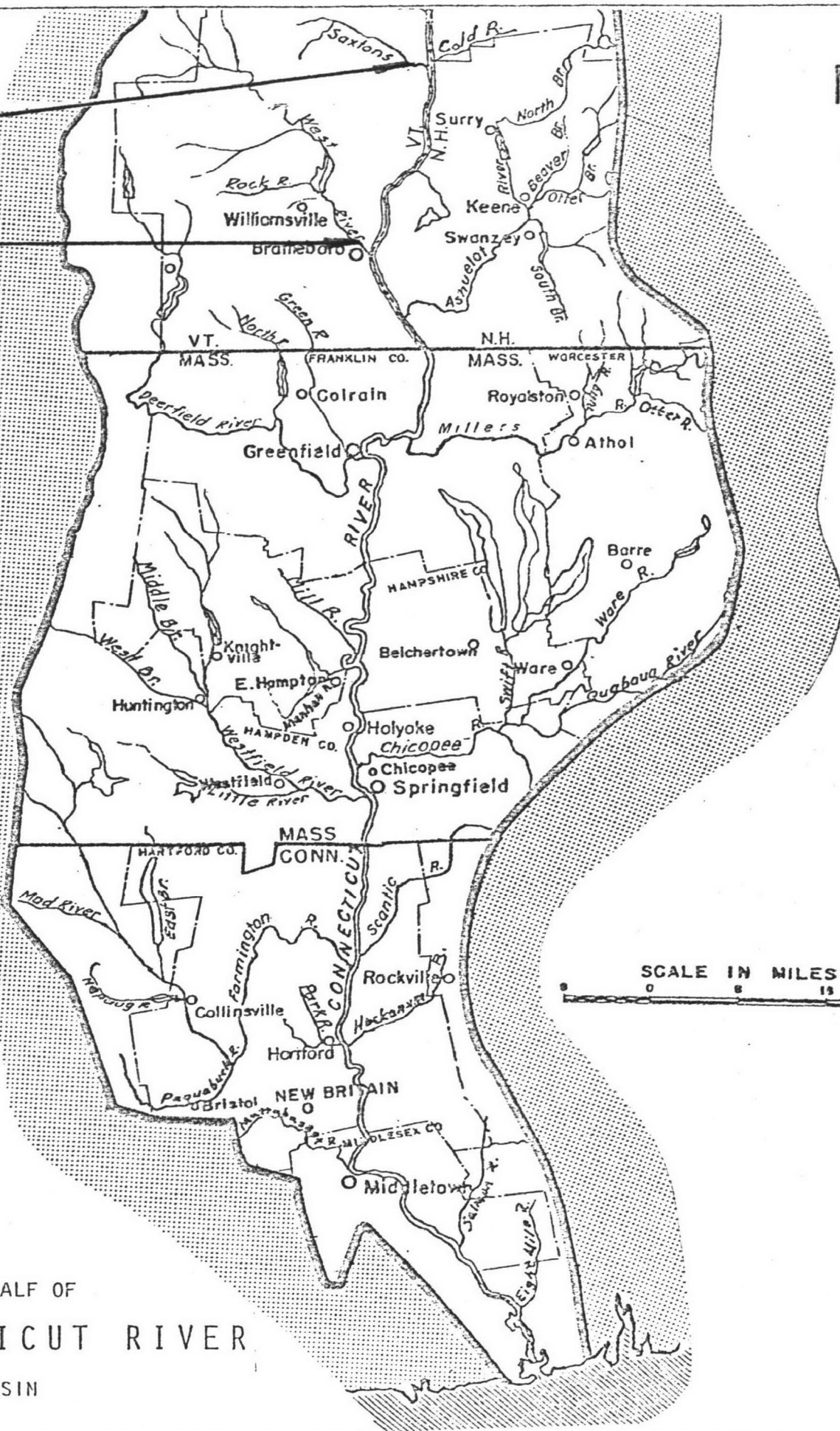
P.M.N.  
500013

P.M.N.  
500033

UPPER HALF OF  
CONNECTICUT RIVER  
BASIN

4.N.  
500023

P.M.N.  
500025



LOWER HALF OF  
CONNECTICUT RIVER  
BASIN

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500005

PASSUMPSIC R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	8	5.	62.50	NONE	10.00	14.13
DISS. OXYGEN MG/L	8	0.	0.0	6.00	NONE	11.19
PH SU	8	1.	12.50	6.50	8.00	7.73
COLIFORM TOT MFIM/100ML	6	5.	83.33	NONE	500.00	3015.46
COLIFORM FEC MF/100ML	6	6.	100.00	NONE	200.00	686.10

STATION 500008

WELLS R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	8	1.	12.50	NONE	10.00	8.50
DISS. OXYGEN MG/L	8	0.	0.0	6.00	NONE	11.68
PH SU	8	1.	12.50	6.50	8.00	7.64
COLIFORM TOT MFIM/100ML	7	5.	71.43	NONE	500.00	1498.17
COLIFORM FEC MF/100ML	7	5.	71.43	NONE	200.00	587.32

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500007

WAITS R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	8	1.	12.50	NONE	10.00	9.25
DISS. OXYGEN MG/L	8	0.	0.0	6.00	NONE	11.47
PH SU	8	2.	25.00	6.50	8.00	7.84
COLIFORM TOT MFIM/100ML	6	4.	66.67	NONE	500.00	1347.04
COLIFORM FEC MF/100ML	6	4.	66.67	NONE	200.00	461.09

STATION 500004

OMPOMPANOOSUC R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	2.	28.57	NONE	10.00	11.43
DISS. OXYGEN MG/L	6	0.	0.0	6.00	NONE	11.81
PH SU	7	1.	14.29	6.50	8.00	7.76
COLIFORM TOT MFIM/100ML	5	2.	40.00	NONE	500.00	265.73
COLIFORM FEC MF/100ML	5	2.	40.00	NONE	200.00	121.98

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500009

WHITE R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	2.	28.57	NONE	10.00	14.14
DISS. OXYGEN MG/L	6	0.	0.0	6.00	NONE	11.72
PH SU	7	1.	14.29	6.50	8.00	7.64
COLIFORM TOT MFIM/100ML	6	6.	100.00	NONE	500.00	7376.89
COLIFORM FEC MF/100ML	6	6.	100.00	NONE	200.00	1156.43

STATION 500019

OTTAUQUECHEE R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	2.	28.57	NONE	10.00	12.86
DISS. OXYGEN MG/L	6	0.	0.0	6.00	NONE	12.01
PH SU	7	0.	0.0	6.50	8.00	7.47
COLIFORM TOT MFIM/100ML	5	0.	0.0	NONE	500.00	124.45
COLIFORM FEC MF/100ML	5	0.	0.0	NONE	200.00	42.49

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500013

BLACK R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	3.	42.86	NONE	10.00	15.29
DISS. OXYGEN MG/L	6	0.	0.0	6.00	NONE	12.07
PH SU	6	0.	0.0	6.50	8.00	7.31
COLIFORM TOT MFIM/100ML	6	6.	100.00	NONE	500.00	2044.75
COLIFORM FEC MF/100ML	6	4.	66.67	NONE	200.00	503.47

STATION 500033

WILLIAMS R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	3.	42.86	NONE	10.00	13.71
DISS. OXYGEN MG/L	6	0.	0.0	6.00	NONE	11.90
PH SU	6	0.	0.0	6.50	8.00	7.22
COLIFORM TOT MFIM/100ML	6	1.	16.67	NONE	500.00	261.74
COLIFORM FEC MF/100ML	6	1.	16.67	NONE	200.00	53.43

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 500023

SAXTON R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	4.	57.14	NONE	10.00	52.29
DISS. OXYGEN MG/L	6	0.	0.0	6.00	NONE	11.32
PH SU	6	1.	16.67	6.50	8.00	7.40
COLIFORM TOT MFIM/100ML	6	6.	100.00	NONE	500.00	*****
COLIFORM FEC MF/100ML	6	6.	100.00	NONE	200.00	5212.39

STATION 500025

WEST R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	6	0.	0.0	NONE	10.00	6.83
DISS. OXYGEN MG/L	5	0.	0.0	6.00	NONE	11.38
PH SU	5	1.	20.00	6.50	8.00	6.71
COLIFORM TOT MFIM/100ML	6	1.	16.67	NONE	500.00	108.48
COLIFORM FEC MF/100ML	6	0.	0.0	NONE	200.00	18.84

\* GEOMETRIC MEAN FOR COLIFORMS

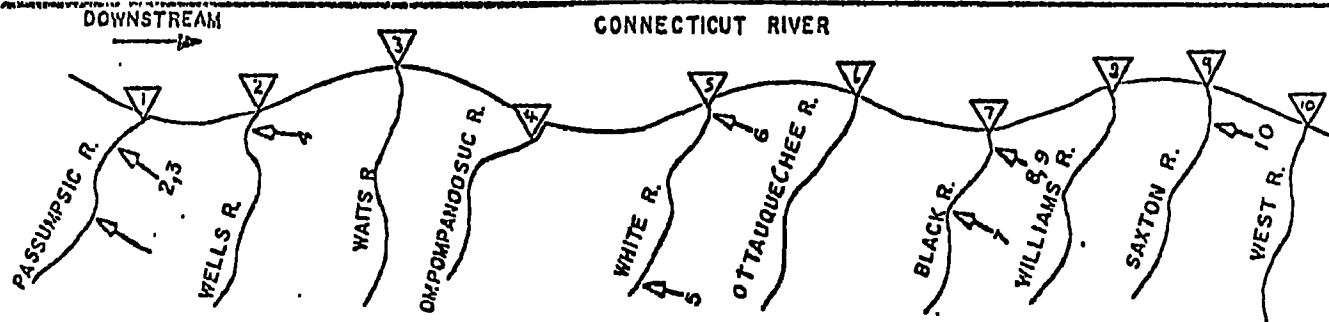
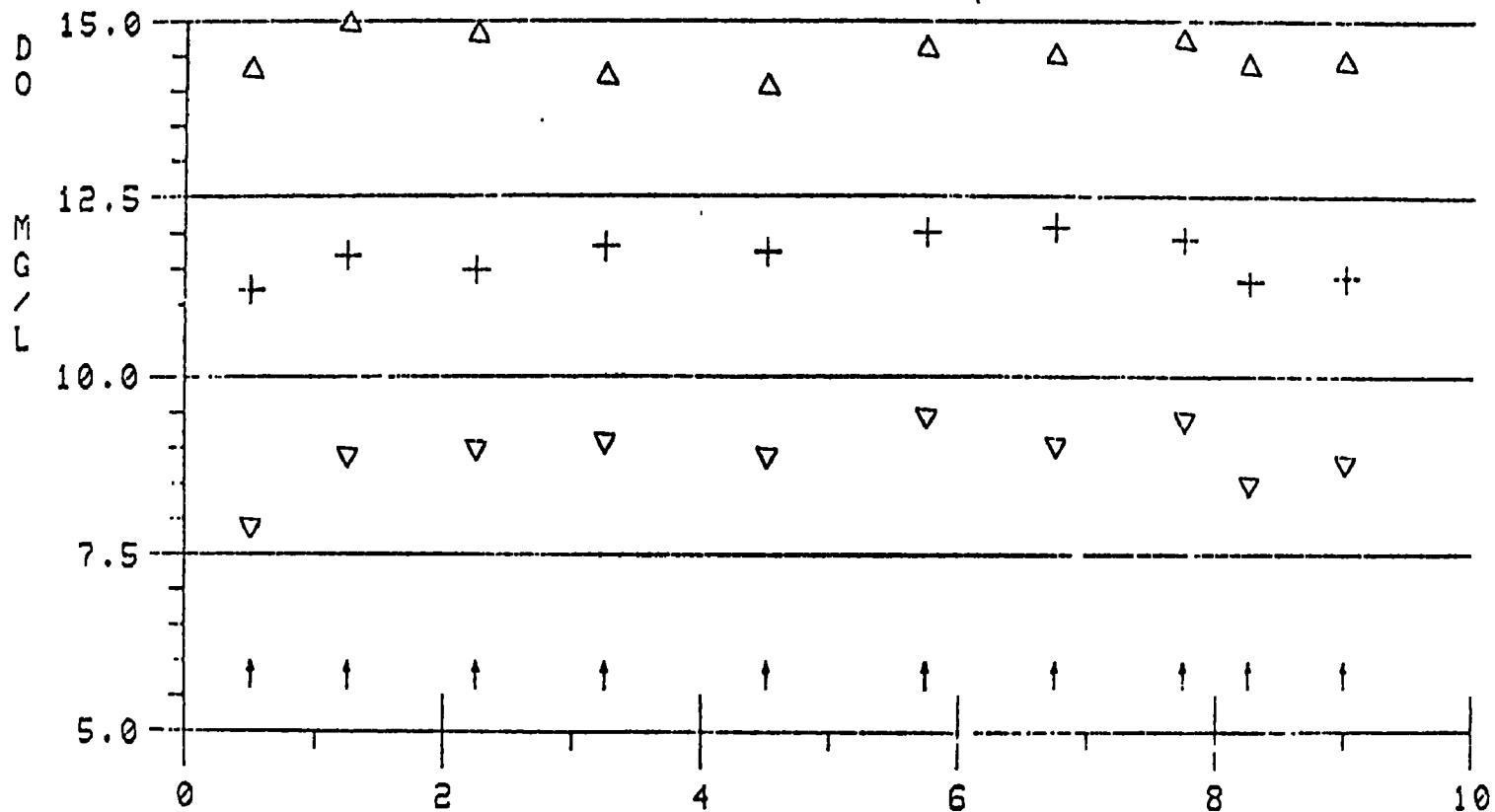
# SIGNIFICANT DISCHARGERS

## CONNECTICUT RIVER BASIN (VERMONT)

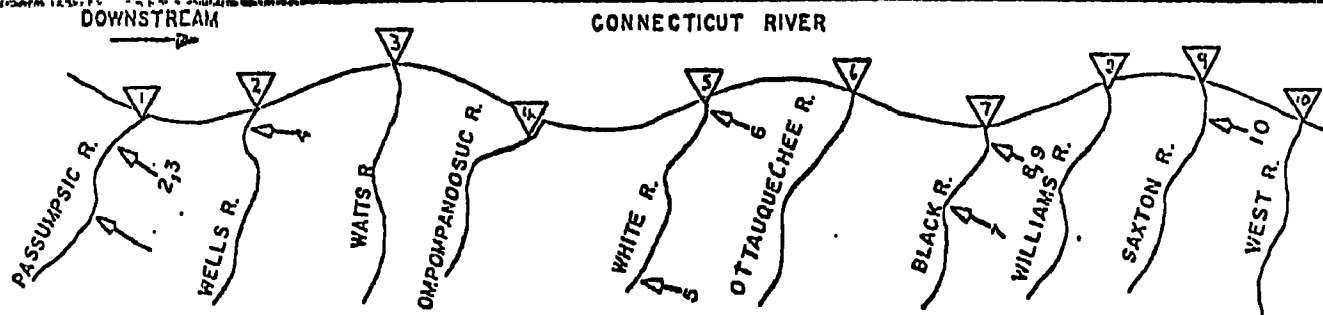
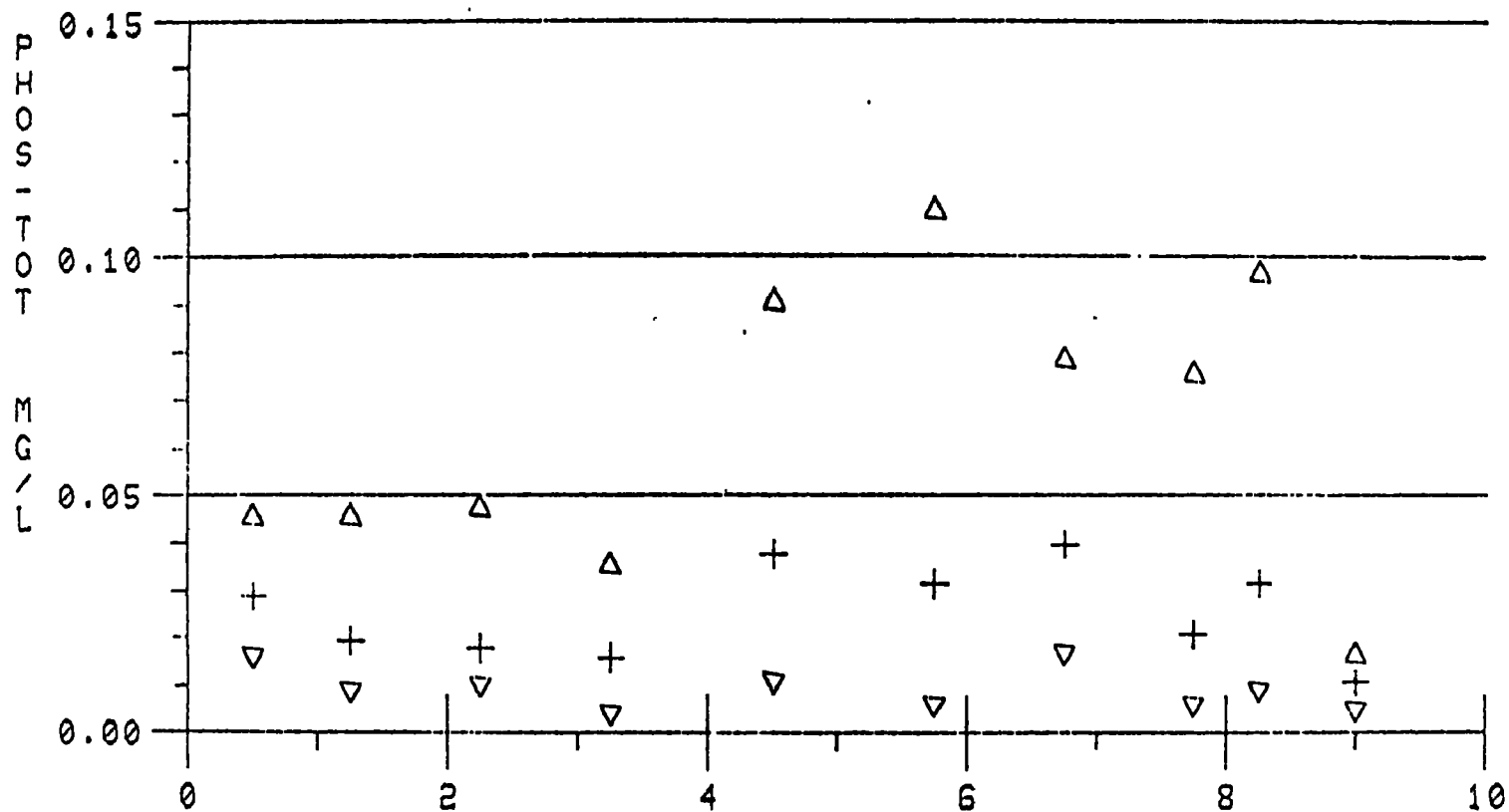
<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. Lyndon MTP	Lyndon	Passumpsic River	0100595
2. St. Johnsbury STP	St. Johnsbury	Passumpsic River	0100579
3. EHV-Weidmann Industries	St. Johnsbury	Passumpsic River	0000019
4. Corning Fibers, Inc.	Wells River	Wells River	No Permit
5. Forest Poultry Corp.	So. Royalton	White River	0000183
6. Hartford-White River Junction STP	White River Junction	White River	0101010
7. Ludlow WTP	Ludlow	Black River	0100145
8. Springfield MTP	Springfield	Black River	0100374
9. Springfield Electro- plate	Springfield	Black River	0000272
*10. Northern States Paper Co.	Westminster	Saxtons River	0020125

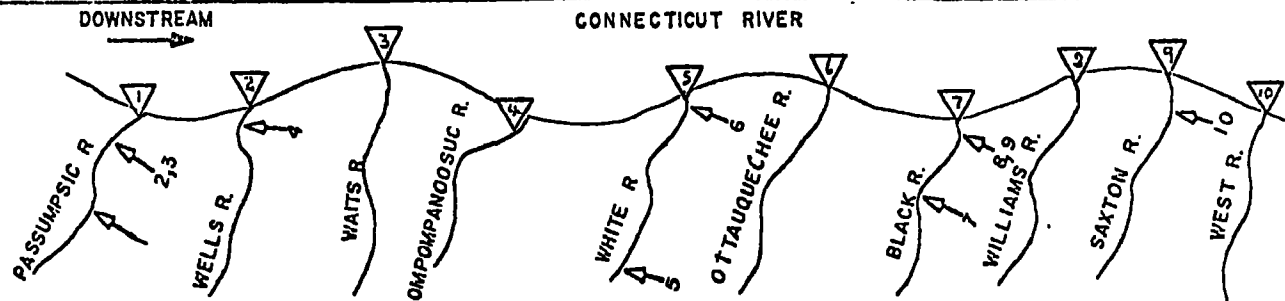
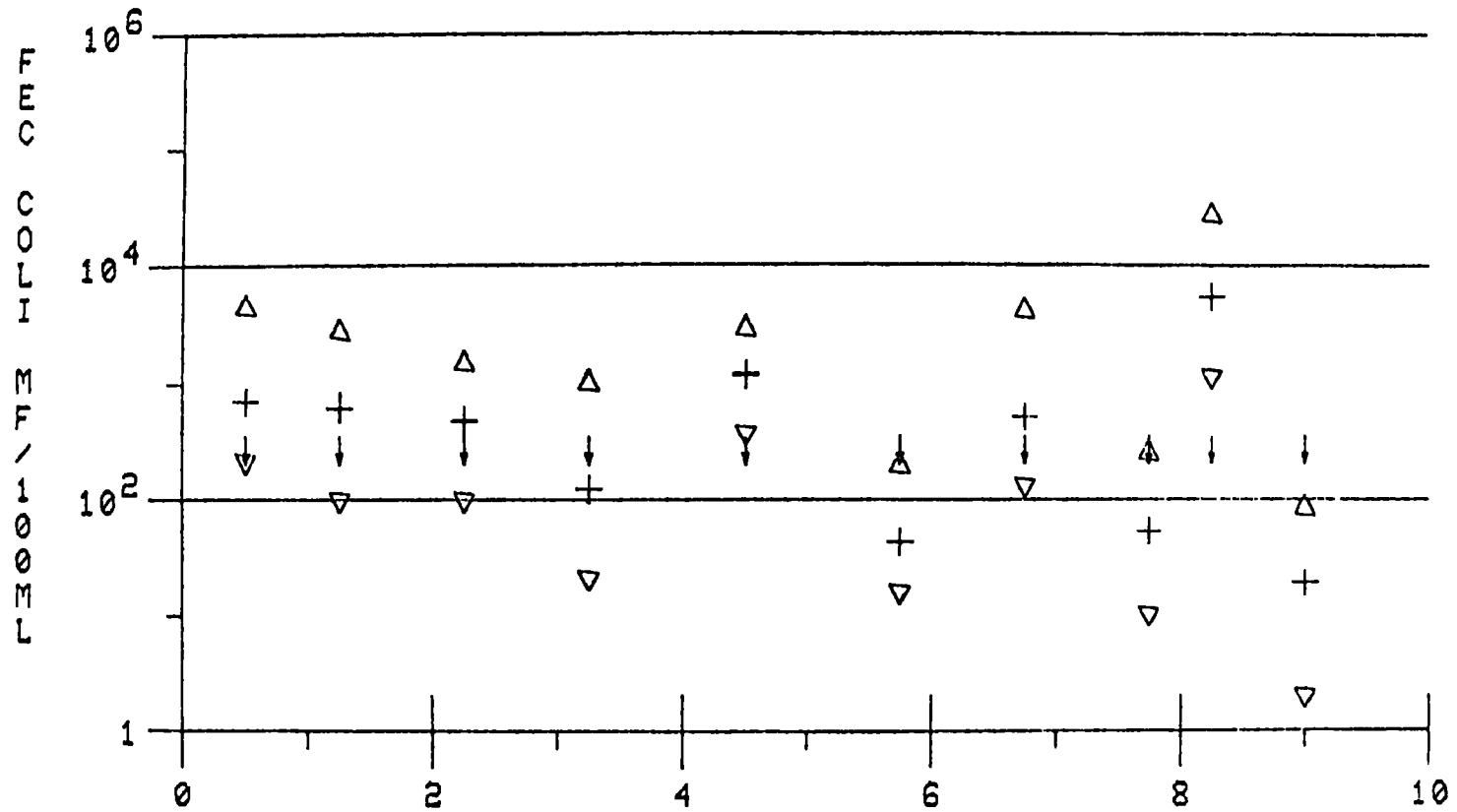
\* Ceased operation

# REGION I WQ ASSESSMENT RE. JRT - CONNECTICUT R. TRIB. (UT)



# REGION I WQ ASSESSMENT REPORT - CONNECTICUT R. TRIB. (UT)





### 3.19 UPPER HUDSON RIVER BASIN (VERMONT)

The two stations in this basin are located on the Hoosic River at North Pownal and on the Walloomsac River in New York just over the Vermont - New York state line.

The Hoosic flows from northwestern Massachusetts through extreme southwestern Vermont and into the Hudson River above Mechanicville, New York. The Walloomsac flows from Bennington, Vermont to Hoosick, New York and into the Hoosic River.

Class "C" standards violations are reported by the Hoosic River station for both turbidity (1 of 7, probably due to natural conditions) and fecal coliform (5 of 6). This station is affected by discharges in Massachusetts and from Pownal Tanning Co., the only major discharger on the Hoosic River in Vermont.

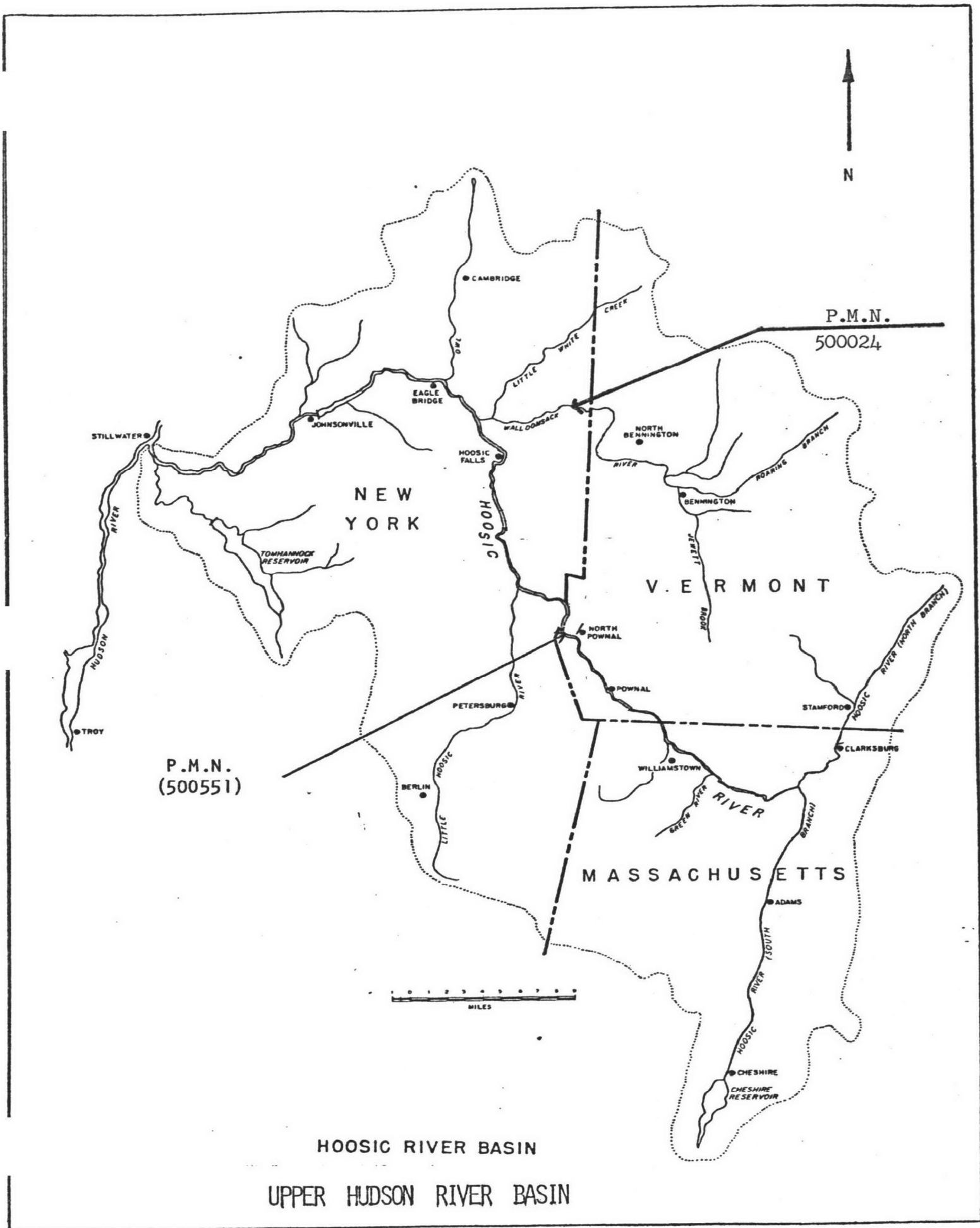
The station on the Walloomsac River reported violations of Class "C" standards for turbidity (1 of 7), pH (1 of 6) (both probably due to natural conditions) and fecal coliform (1 of 6). The only significant discharger upstream of this station is the Bennington Sewage Treatment Plant.

UPPER HUDSON RIVER BASIN  
{VERMONT}

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Hoosic River at North Pownal, VT	PMN 500551
2.	Walloomsac River near Shaftsbury, VT	PMN 500024



# SUMMARY OF WATER QUALITY VIOLATIONS

## STATION HOOS1

## HOOSIC R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	1.	14.29	NONE	25.00	22.43
DISS. OXYGEN MG/L	6	0.	0.0	5.00	NONE	11.48
PH SU	6	1.	16.67	6.00	8.50	7.63
COLIFORM FEC MF/100ML	6	5.	83.33	NONE	1000.00	3546.77

## STATION 500024

## WALLOOMSAC R. (VT)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	1.	14.29	NONE	10.00	9.43
DISS. OXYGEN MG/L	7	0.	0.0	6.00	NONE	11.54
PH SU	6	1.	16.67	6.00	8.50	7.52
COLIFORM FEC MF/100ML	6	1.	16.67	NONE	1000.00	42.81

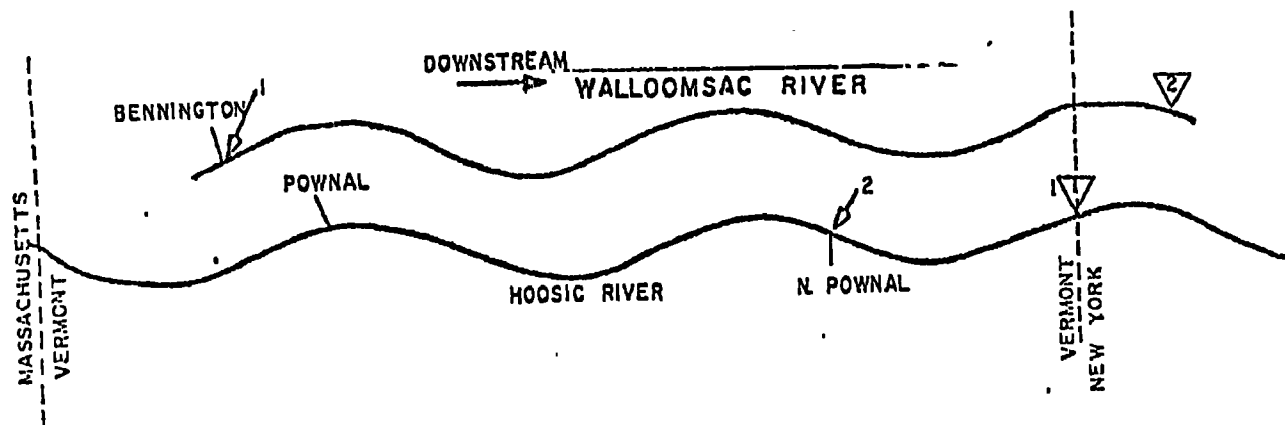
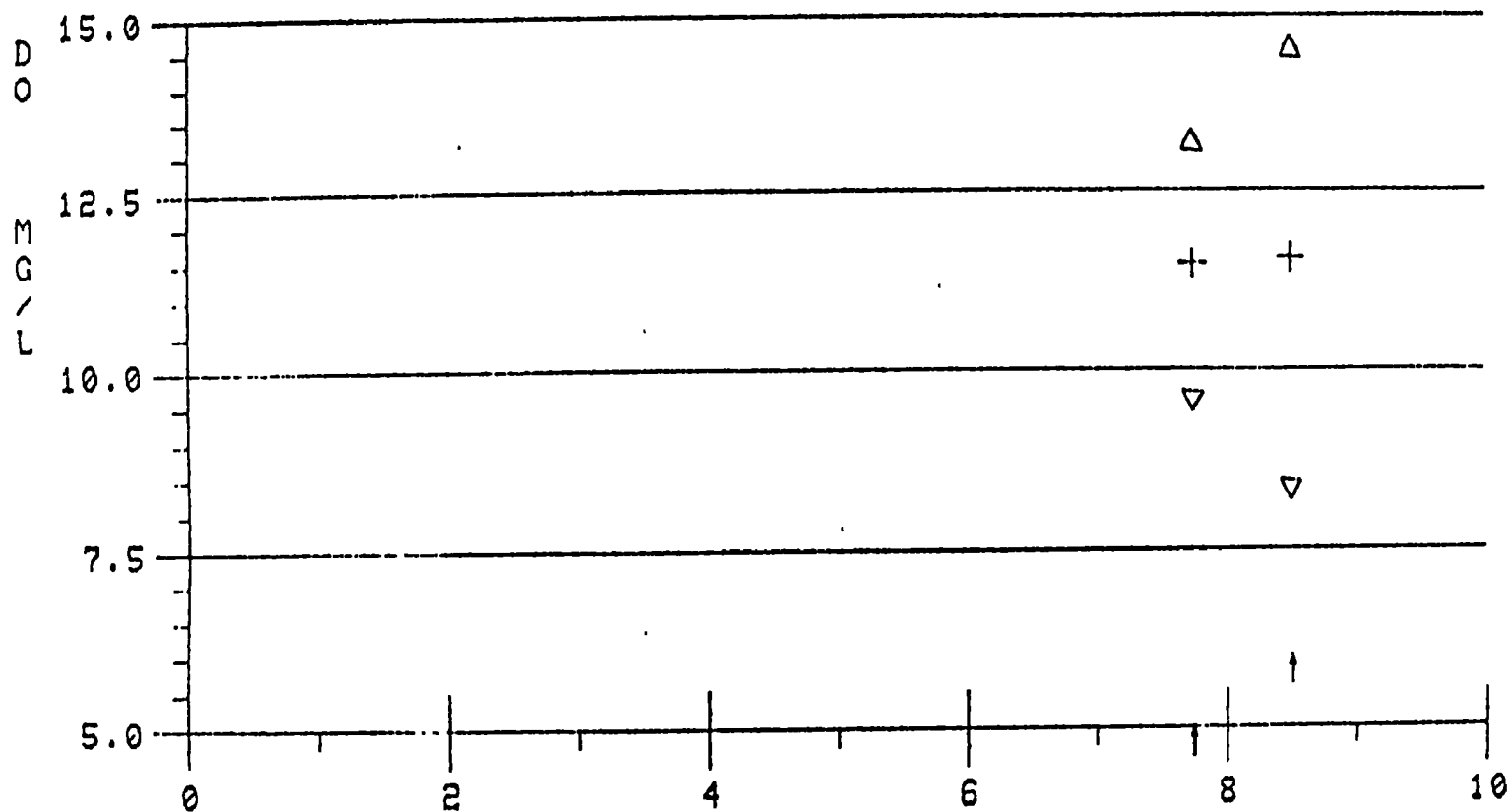
\* GEOMETRIC MEAN FOR COLIFORMS

SIGNIFICANT DISCHARGERS

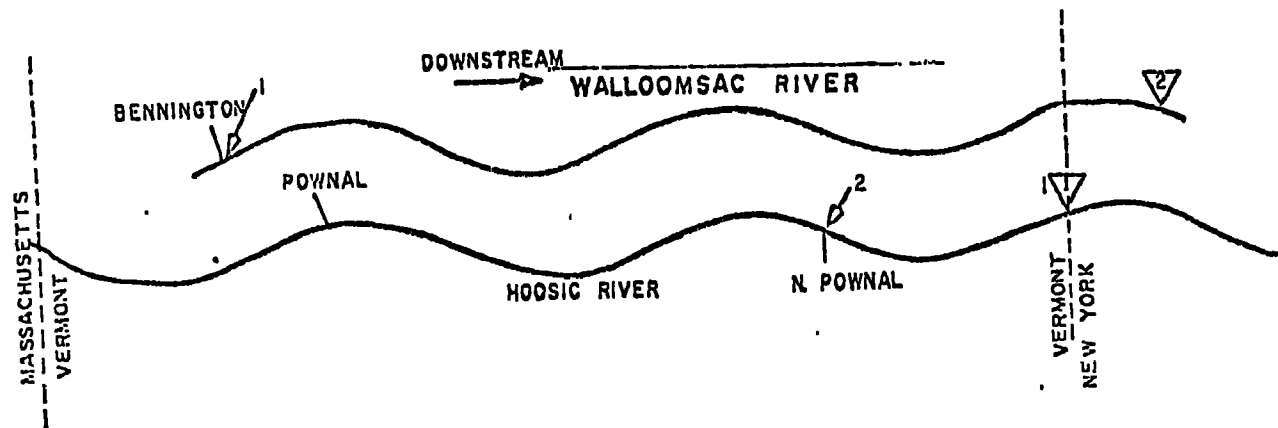
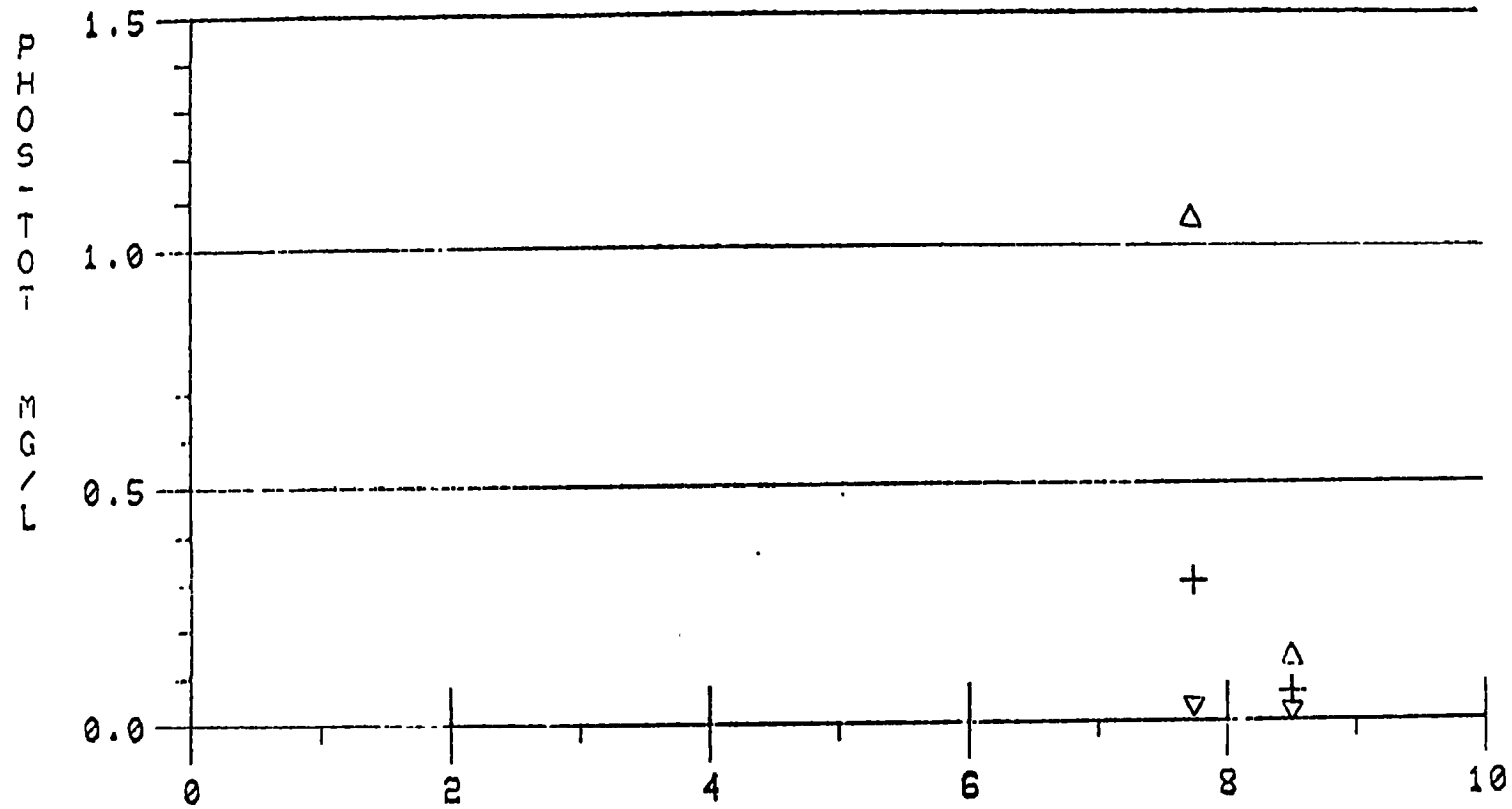
UPPER HUDSON BAY - MAJOR DISCHARGERS

<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. Bennington STP	Bennington	Wallomsac River	0100021
2. Pownal Tanning Co.	N. Pownal	Hoosic River	0000388

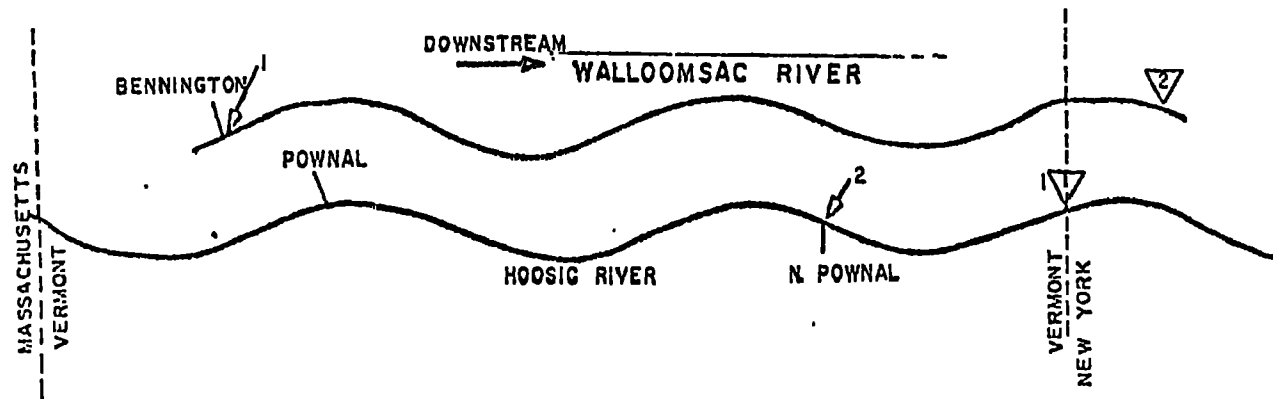
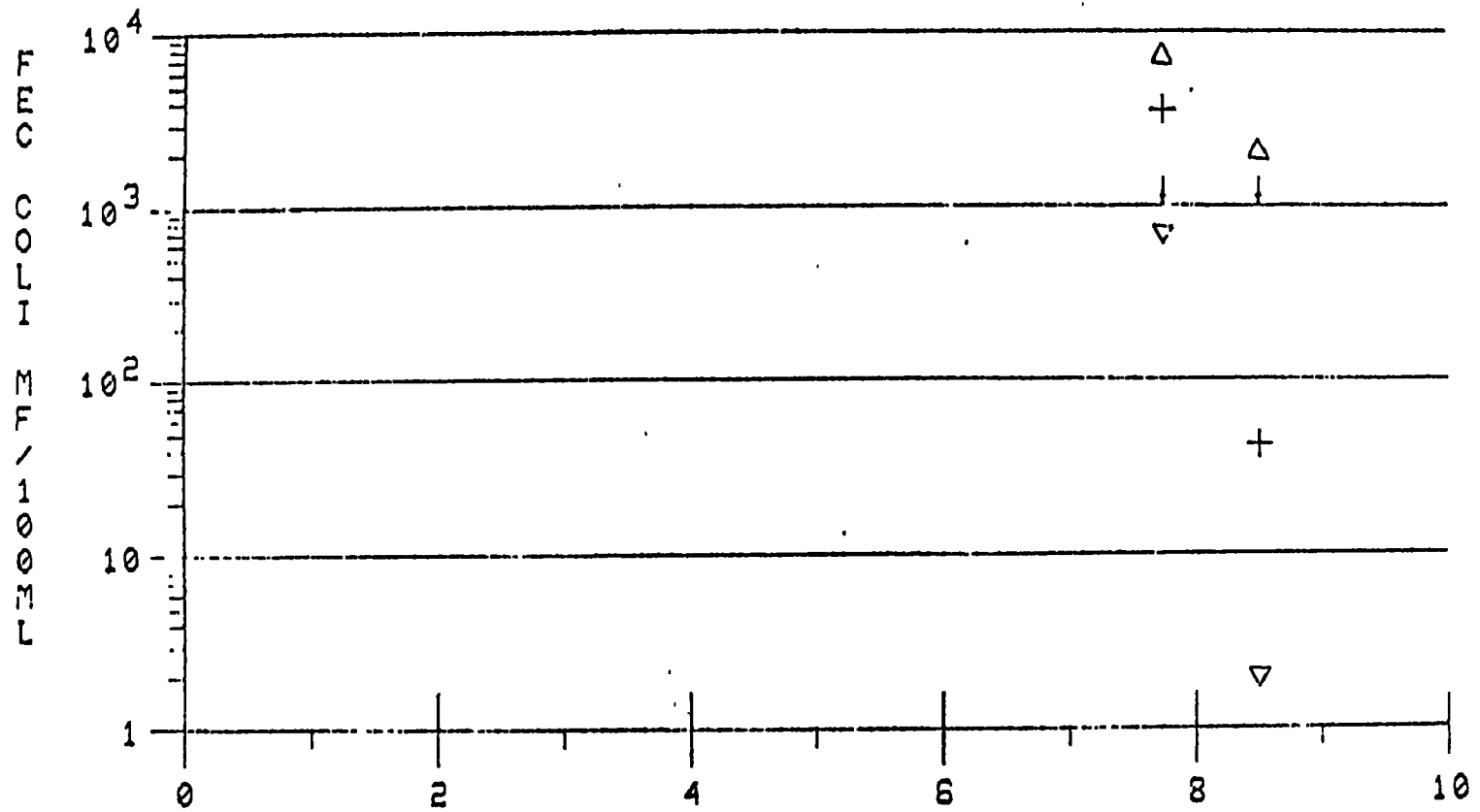
# REGION I WQ ASSESSMENT REPORT - HOOSIC R. (UT)



# REGION I WQ ASSESSMENT REPORT - HOOSIC R. (VT)



# REGION I WQ ASSESSMENT REPORT - HOOSIC R. (VT)



### 3.20 ANDROSCOGGIN RIVER BASIN (NEW HAMPSHIRE)

The Androscoggin River begins at Errol Dam at the outlet of Umbagog Lake and flows forty-six miles through New Hampshire before entering Maine at Gilead. Errol, Milan, Berlin, Gorham and Shelborne are located on the Androscoggin River with the major industry being the Brown Company paper mills. The flow of the river at Berlin is controlled by the Errol Dam and maintained at 1550 cfs.

In WY 76, Class B standards violations for pH (2 of 8) and total coliform (2 of 8) were reported at the Milan station. These conditions can be attributed to non-point sources and natural conditions. Slightly lower phosphorus levels were reported by the station at Gilead but the total coliform violations (6 of 7) remained at about the same level as they were last year. Industrial waste discharges from the Brown Paper Company, untreated domestic sewage from Berlin and Gorham, and non-point sources are primarily responsible for the water quality problems reported at Gilead.

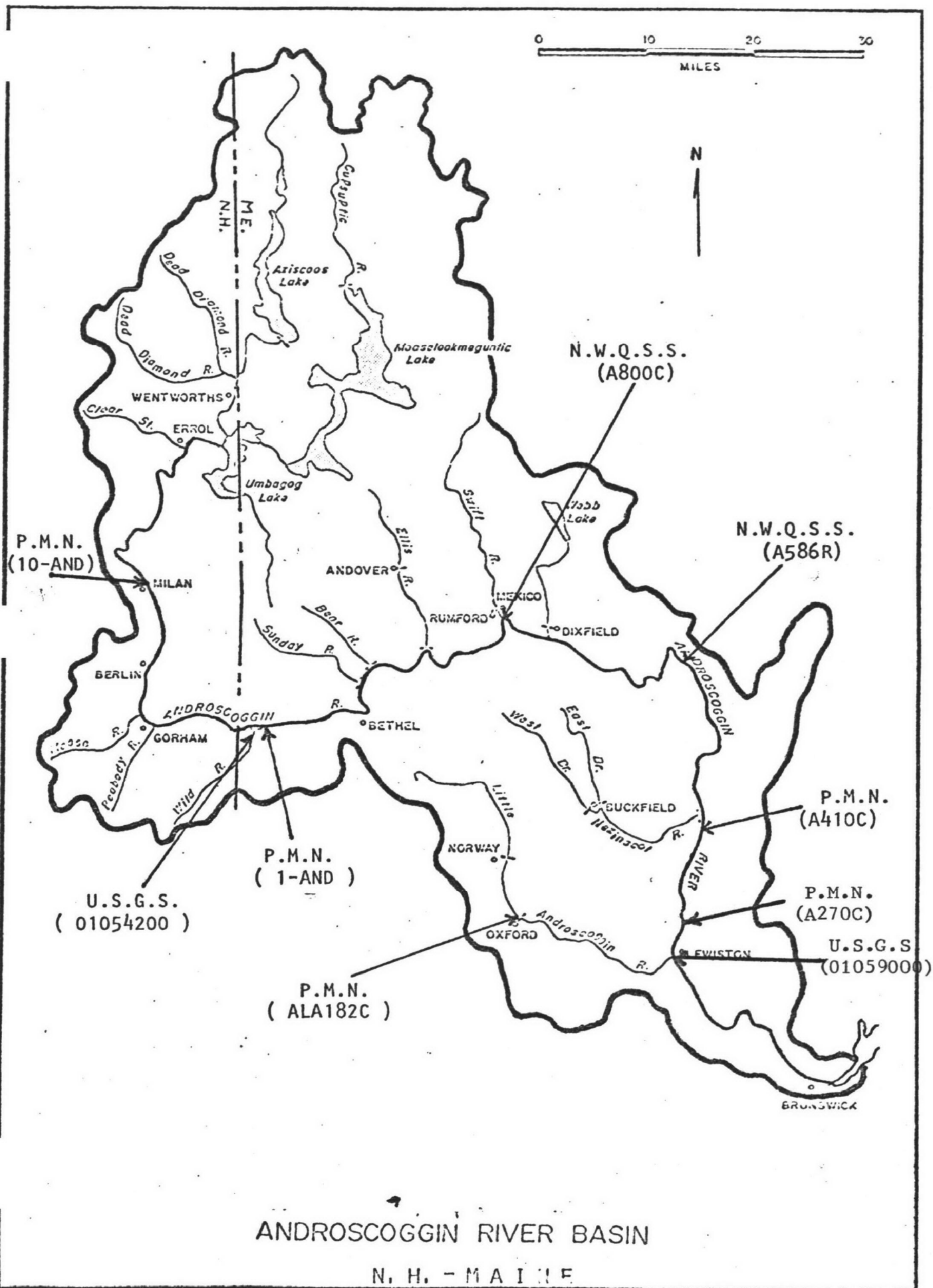
ANDROSCOGGIN RIVER

{NEW HAMPSHIRE}

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Androscoggin River Rte. 110 Milan, NH	PMN 10-AND
2.	Androscoggin River Rte. 2 Gilead, ME	PMN 1-AND



# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 10-AND

ANDROSCOGGIN R. (NH-ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	8	0.	0.0	NONE	25.00	2.21
DISS. OXYGEN MG/L	8	0.	0.0	5.00	NONE	10.47
PH SU	8	2.	25.00	6.50	8.00	6.50
COLIFORM TOT MFIM/100ML	8	2.	25.00	NONE	240.00	128.11

STATION 1-AND

ANDROSCOGGIN R. (NH-ME)

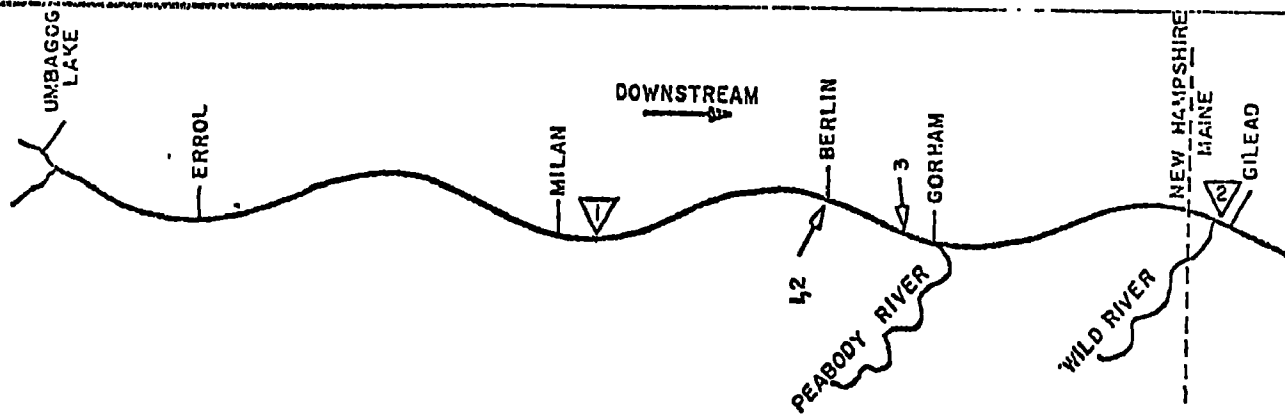
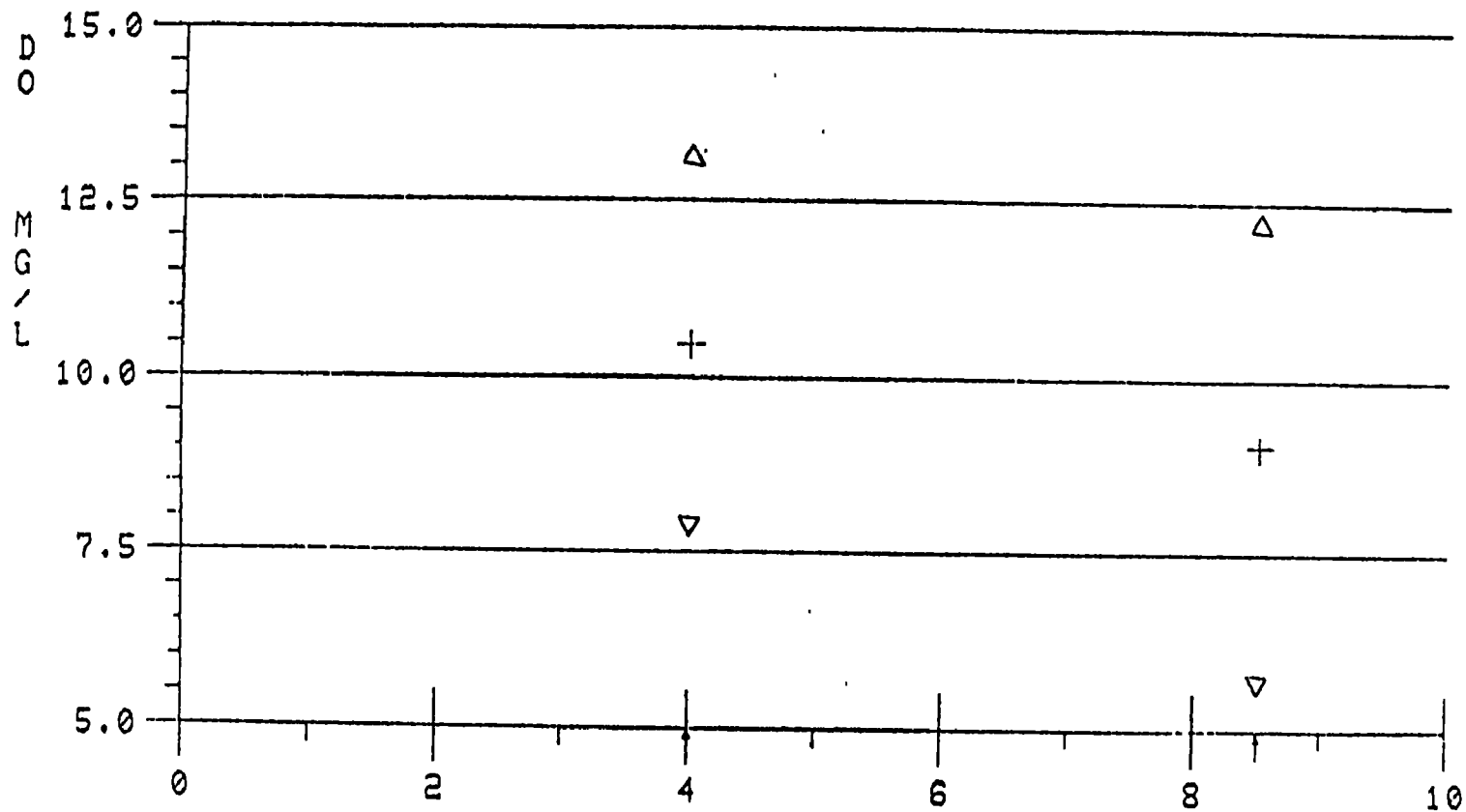
PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	8	0.	0.0	NONE	25.00	4.47
DISS. OXYGEN MG/L	8	0.	0.0	5.00	NONE	9.02
PH SU	8	0.	0.0	6.00	8.50	6.47
COLIFORM TOT MFIM/100ML	7	6.	85.71	NONE	1000.00	6029.70

\* GEOMETRIC MEAN FOR COLIFORMS

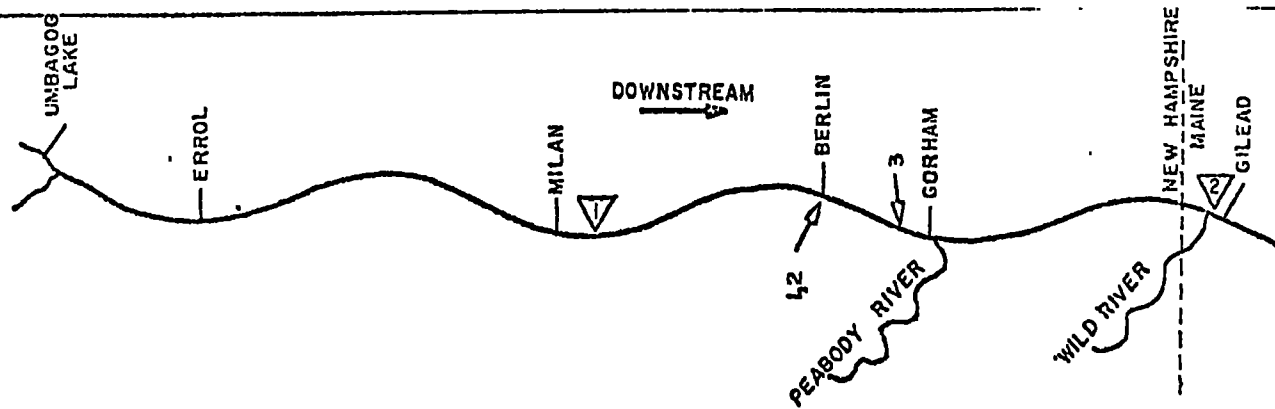
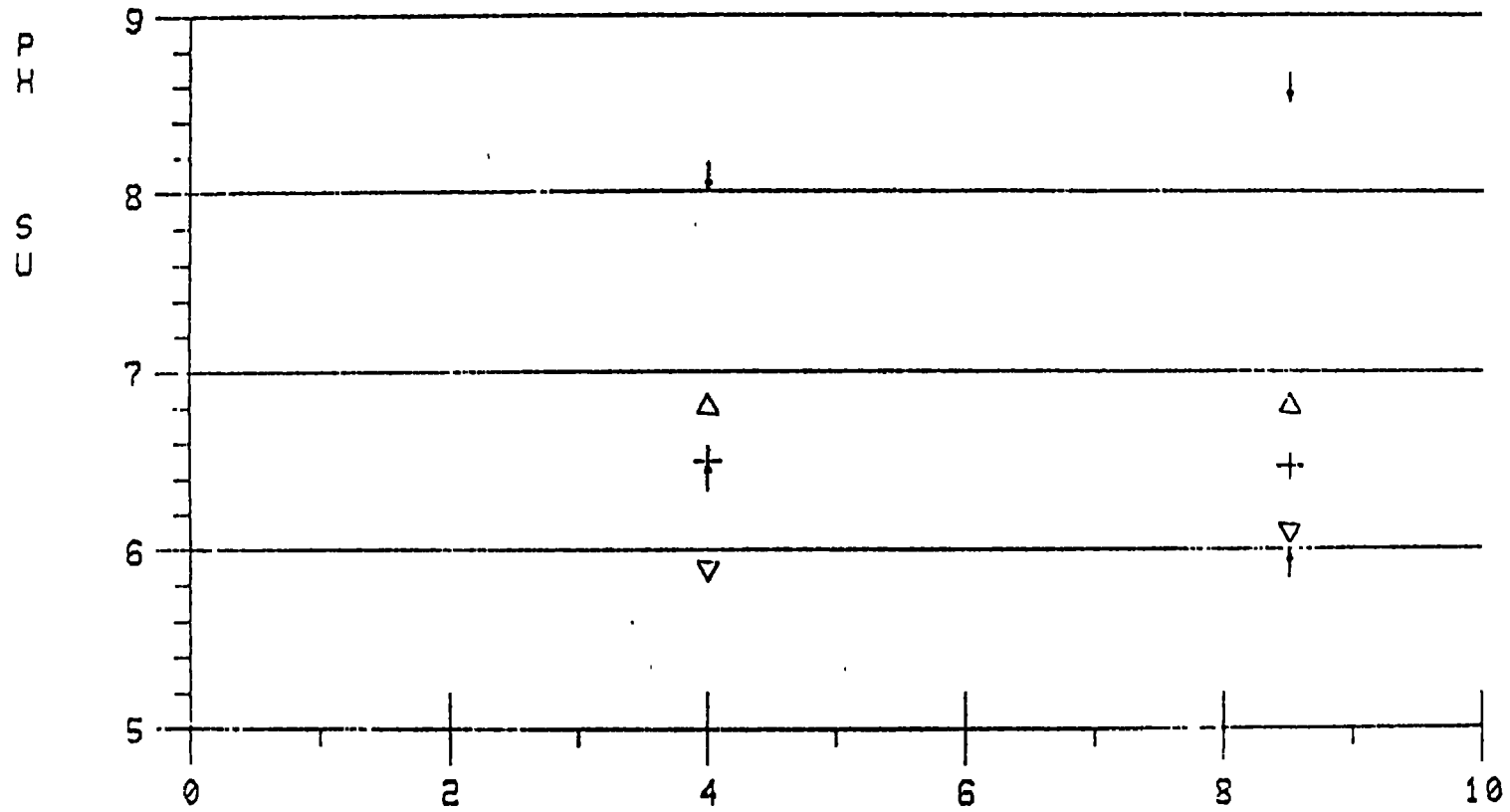
SIGNIFICANT DISCHARGERS

Androscoggin River Basin (New Hampshire)

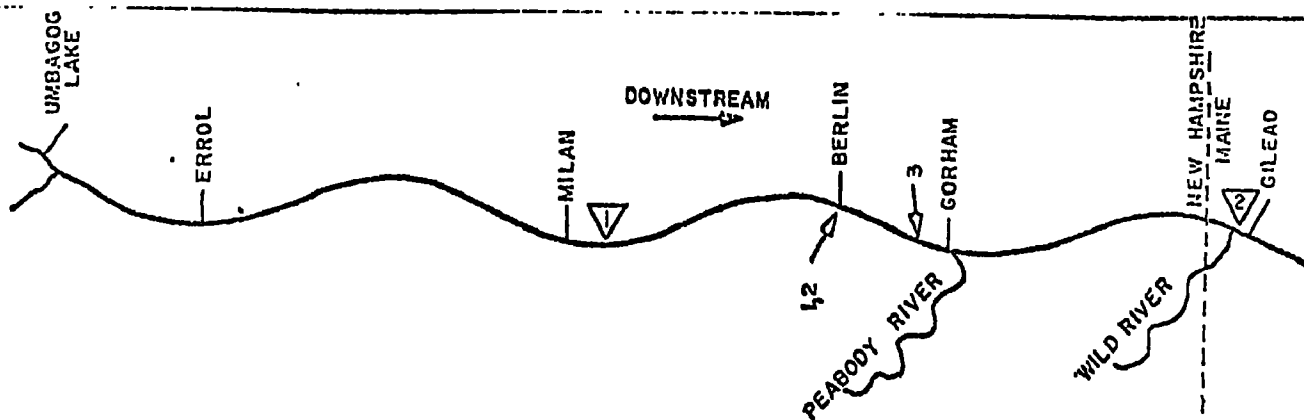
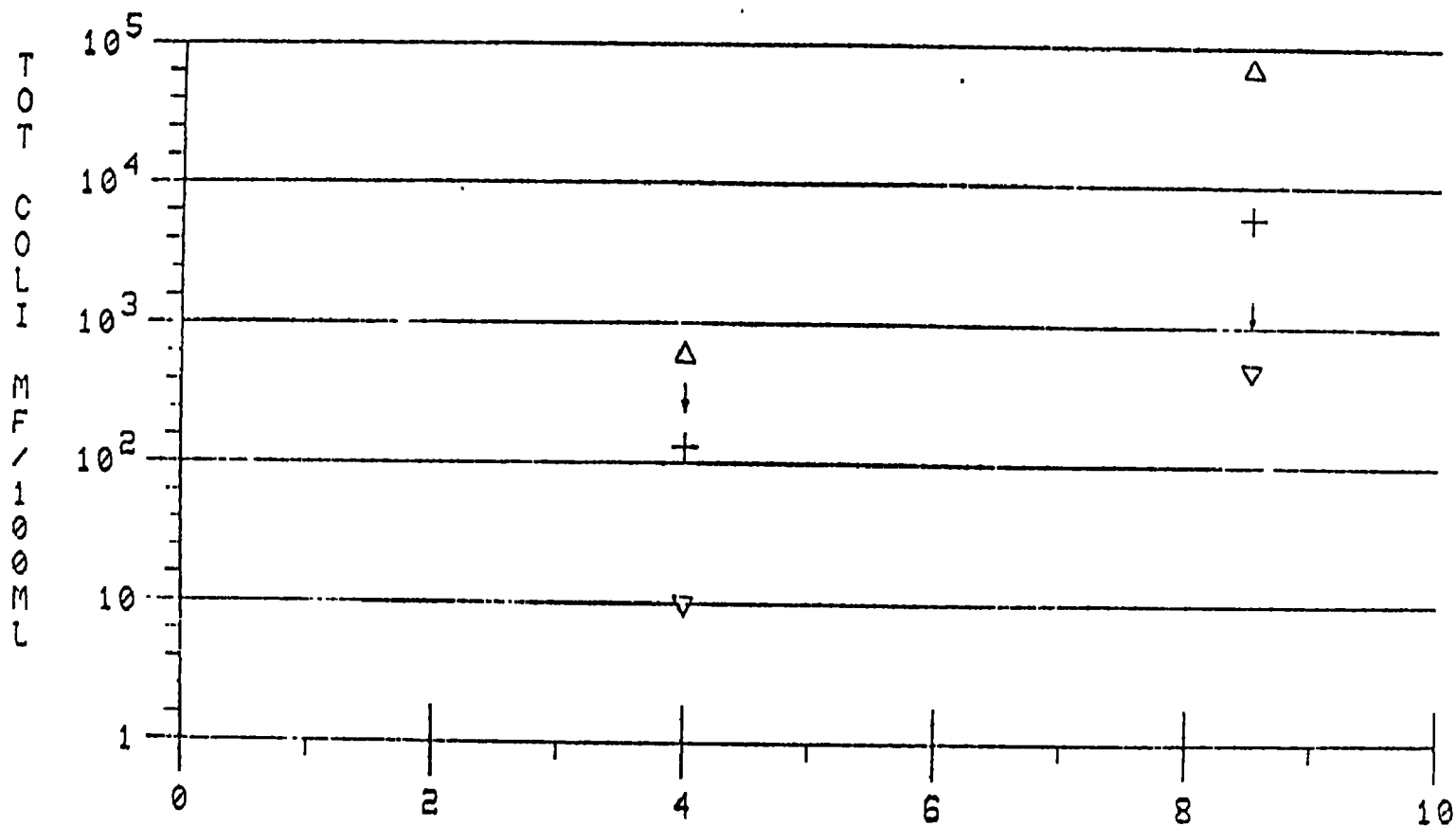
<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. Brown Company - Berlin Mill	Berlin	Androscoggin River	0000612
2. Brown Company - Cascade Mill	Berlin	Androscoggin River	0000655
3. Brown Company - Resi-Chemical Mill	Gorham	Androscoggin River	0000647



# REGION I WQ ASSESSMENT REPORT - ANDROSCOGGIN R. (NH-ME)



# REGION I WQ ASSESSMENT PART - ANDROSCOGGIN R. (NH-ME)



### 3.21 MERRIMACK RIVER BASIN (NEW HAMPSHIRE)

The Merrimack River is formed by the confluence of the Pemigewasset and Winnepesaukee Rivers at Franklin. Other major tributaries in New Hampshire are the Contoocook, Suncook, Piscataquog and Nashua Rivers.

A progressive degradation in water quality is observed proceeding downstream from Franklin to Nashua with increasing concentrations of coliform bacteria, suspended solids, BOD, nitrogen and phosphorus.

Numerous total coliform violations are reported at the Penacook, Hooksett, Bedford and Nashua stations. Natural conditions are believed to be responsible for the numerous pH violations seen at the New Hampton station on the Pemigewasset River and the Hooksett station on the Merrimack. Inadequate treatment of domestic sewage, industrial wastes and combined sewer overflows in Franklin, Concord, Manchester and Nashua contribute to the large number of coliform violations reported at the stations on the mainstream.

The S&A Division, during the past summer, conducted a chlorine toxicity study at Waterville Valley. The study utilized a flow through system of river water and wastewater treatment plant effluent. Live cage tests were also run using brook trout to determine the effects of the chlorinated effluent.

The O&M Section also inspected the following Federal and municipal wastewater facilities in the basin:

A. F. Satellite Station	Waterville	Goffstown
Ashland	Derry	Merrimack
Bay Sewage District	Nashua	

MERRIMACK RIVER BASIN

(NEW HAMPSHIRE)

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Pemigewasset River at Rte. 175, Woodstock, NH	PMN 33-23-PMI
2.	Pemigewasset River at New Hampton, NH	PMN 33-9-PMI
3.	Merrimack River at Penacook, NH	PMN 27-MER
4.	Merrimack River at Hooksett, NH	N.W.Q.S.S. 16-MER USGS 01090100
5.	Merrimack River at Bedford, NH	PMN 8-MER
6.	Nashua River, Hollis Depot, Hollis, NH	PMN 3-6-NSH
7.	Merrimack River at Nashua, NH	N.W.Q.S.S. 1-MER USGS 01096508

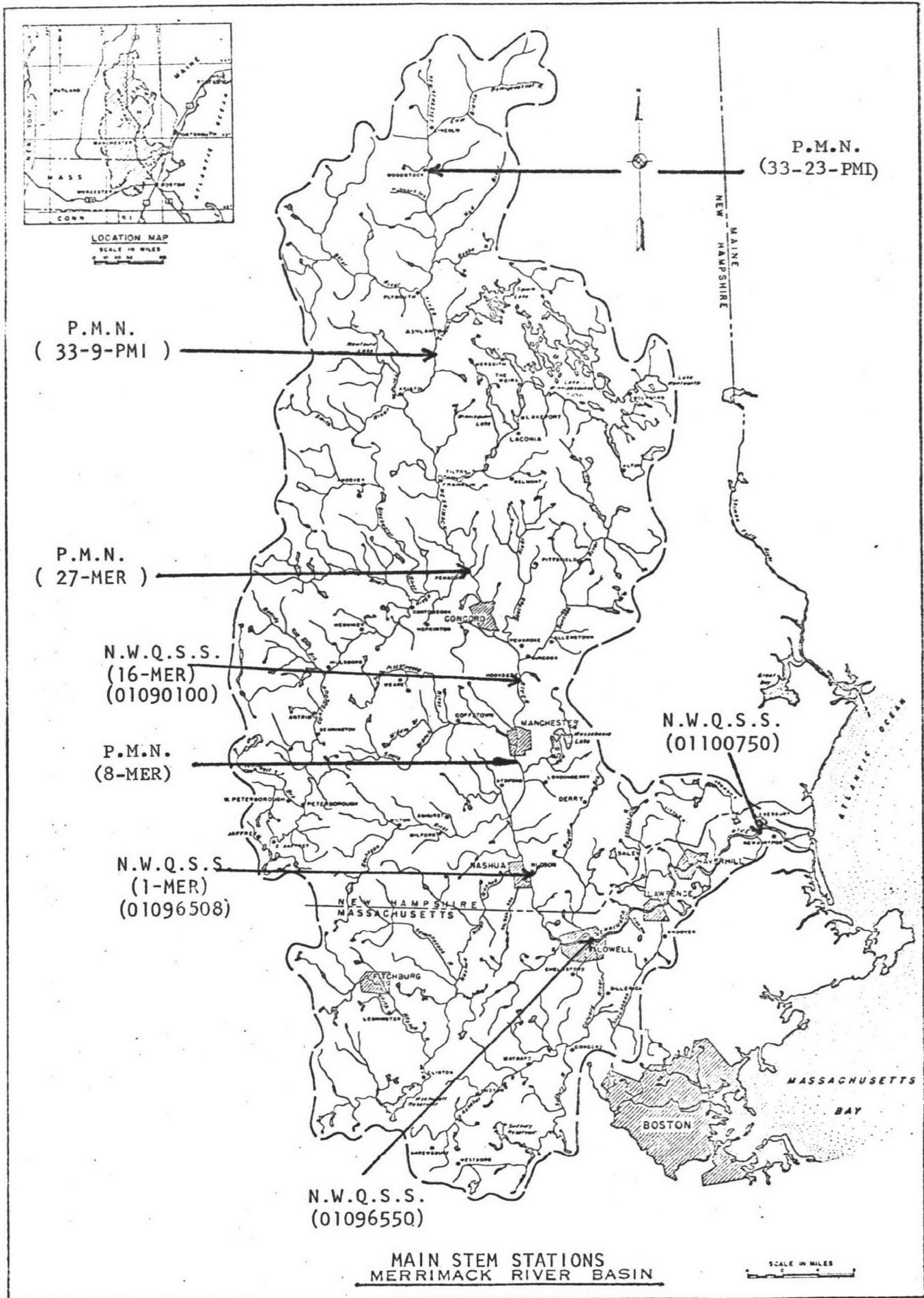
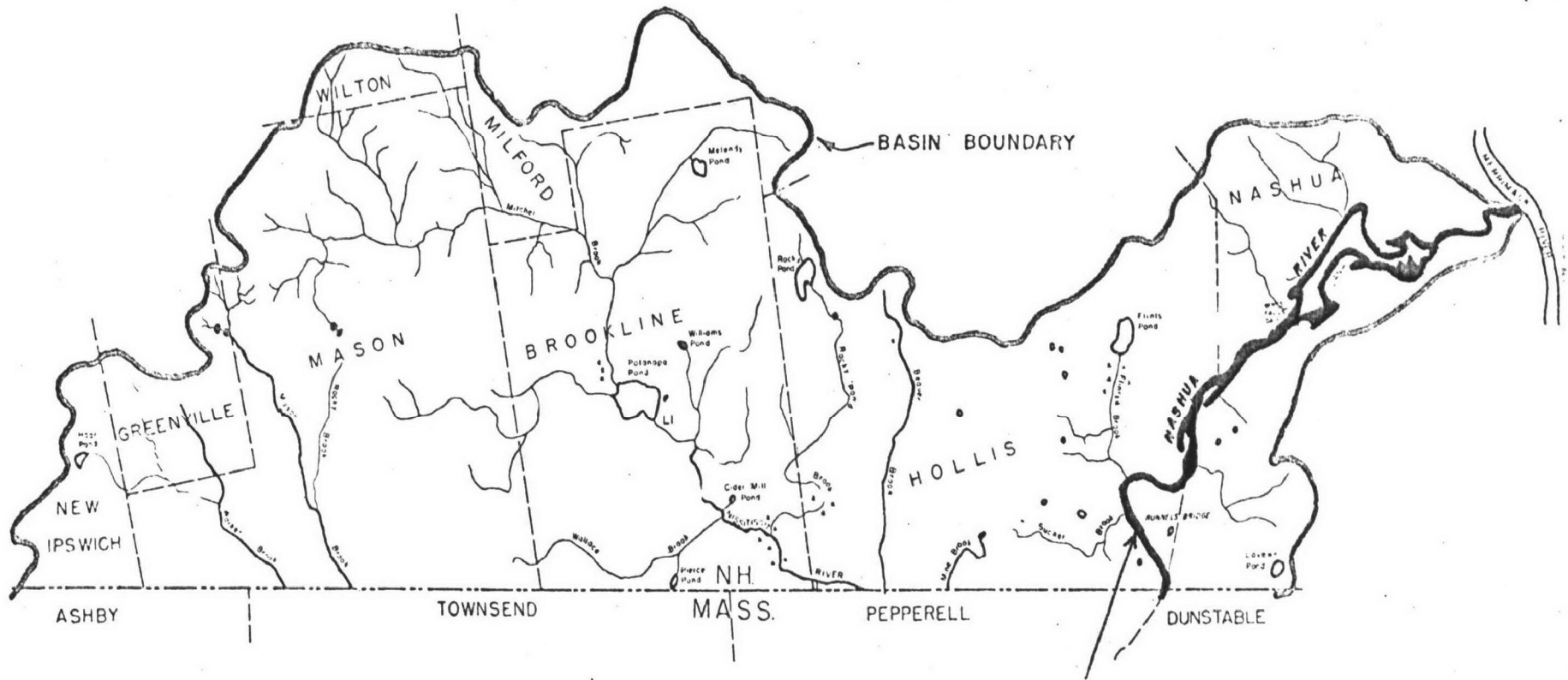


FIGURE 1



N.W.Q.S.S.  
(3-6-NSH)

# NASHUA RIVER BASIN IN

NEW HAMPSHIRE

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 33-23-PMI

PEMIGEWASSET R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	6	0.	0.0	NONE	25.00	0.70
DISS. OXYGEN MG/L	6	0.	0.0	5.00	NONE	10.35
PH SU	6	3.	50.00	6.50	8.00	6.40
COLIFORM TOT MFIM/100ML	5	1.	20.00	NONE	240.00	4.32

STATION 33-9-PMI

PEMIGEWASSET R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	9	0.	0.0	NONE	25.00	1.10
DISS. OXYGEN MG/L	9	0.	0.0	5.00	NONE	10.04
PH SU	9	8.	88.89	6.50	8.00	6.30
COLIFORM TOT MFIM/100ML	9	3.	33.33	NONE	240.00	187.45

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 27-MER

MERRIMACK R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	9	0.	0.0	NONE	25.00	1.54
DISS. OXYGEN MG/L	9	0.	0.0	5.00	NONE	10.19
PH SU	9	0.	0.0	6.50	8.00	6.81
COLIFORM TOT MFIM/100ML	9	7.	77.78	NONE	240.00	163.21

STATION 01090100

MERRIMACK R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	23	0.	0.0	NONE	25.00	1.65
DISS. OXYGEN MG/L	23	6.	26.09	5.00	NONE	7.67
PH SU	22	6.	27.27	6.50	8.00	7.01
COLIFORM TOT MFIM/100ML	23	23.	100.00	NONE	240.00	4438.65

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

## STATION 16-MER

## MERRIMACK R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	0.	0.0	NONE	25.00	1.76
DISS. OXYGEN MG/L	7	0.	0.0	5.00	NONE	10.01
PH SU	7	0.	0.0	6.50	8.00	6.84
COLIFORM TOT MFIM/100ML	7	7.	100.00	NONE	240.00	8457.63

## STATION 8-MER

## MERRIMACK R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	5	0.	0.0	NONE	25.00	2.30
DISS. OXYGEN MG/L	5	0.	0.0	5.00	NONE	9.30
PH SU	5	0.	0.0	6.00	8.50	6.76
COLIFORM TOT MFIM/100ML	4	3.	75.00	NONE	1000.00	218.87

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 3-6-NSH

NASHUA R. (NH-MA)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	0.	0.0	NONE	25.00	10.54
DISS. OXYGEN MG/L	7	0.	0.0	5.00	NONE	9.33
PH SU	7	0.	0.0	6.00	8.50	6.86
COLIFORM TOT MFIM/100ML	6	3.	50.00	NONE	1000.00	1170.81

STATION 01096508

MERRIMACK R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	23	0.	0.0	NONE	25.00	1.70
DISS. OXYGEN MG/L	23	5.	21.74	5.00	NONE	7.90
PH SU	22	5.	22.73	6.00	8.50	6.43
COLIFORM TOT MFIM/100ML	23	21.	91.30	NONE	1000.00	10143.20

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 1-MER

MERRIMACK R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	0.	0.0	NONE	25.00	2.49
DISS. OXYGEN MG/L	7	0.	0.0	5.00	NONE	9.51
PH SU	7	0.	0.0	6.00	8.50	6.74
COLIFORM TOT MFIM/100ML	7	7.	100.00	NONE	1000.00	29149.79

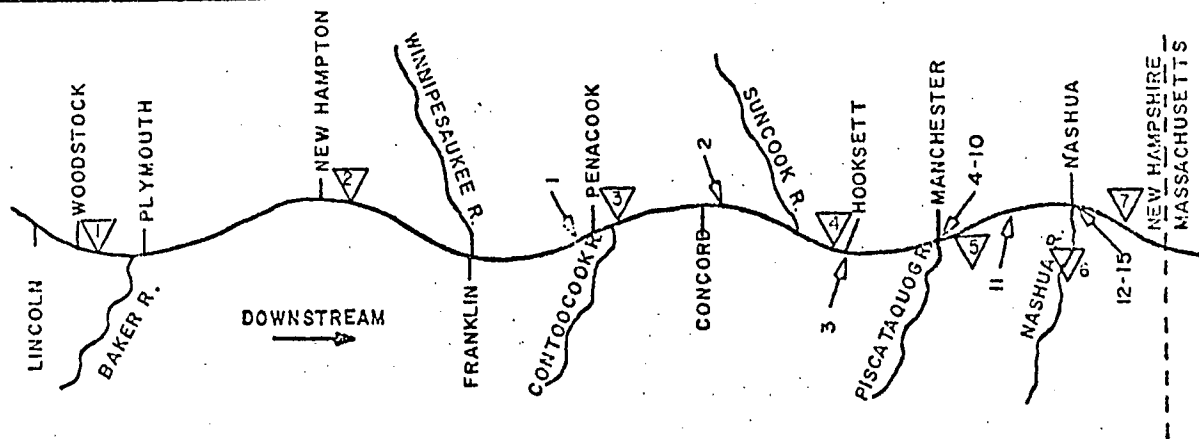
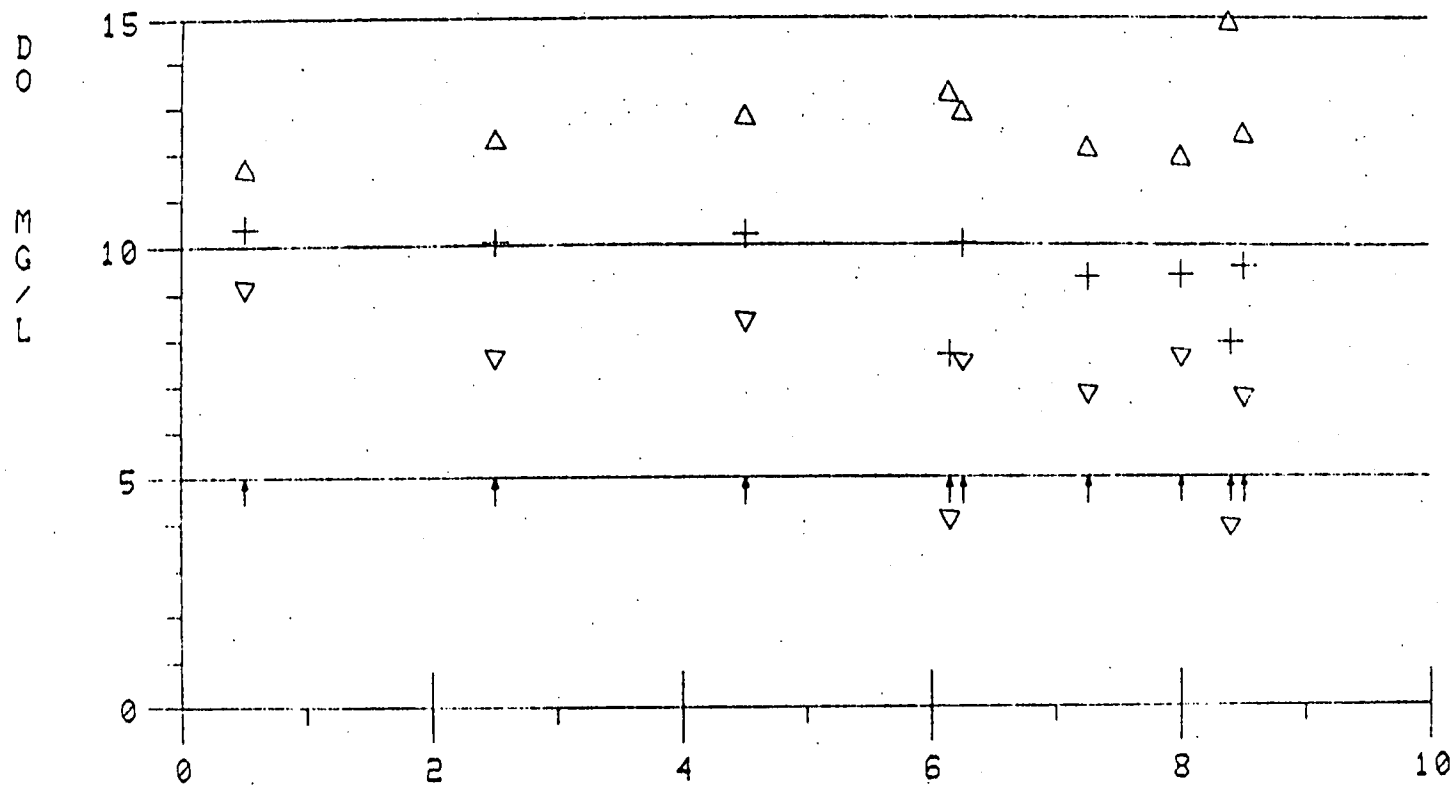
\* GEOMETRIC MEAN FOR COLIFORMS

# SIGNIFICANT DISCHARGERS

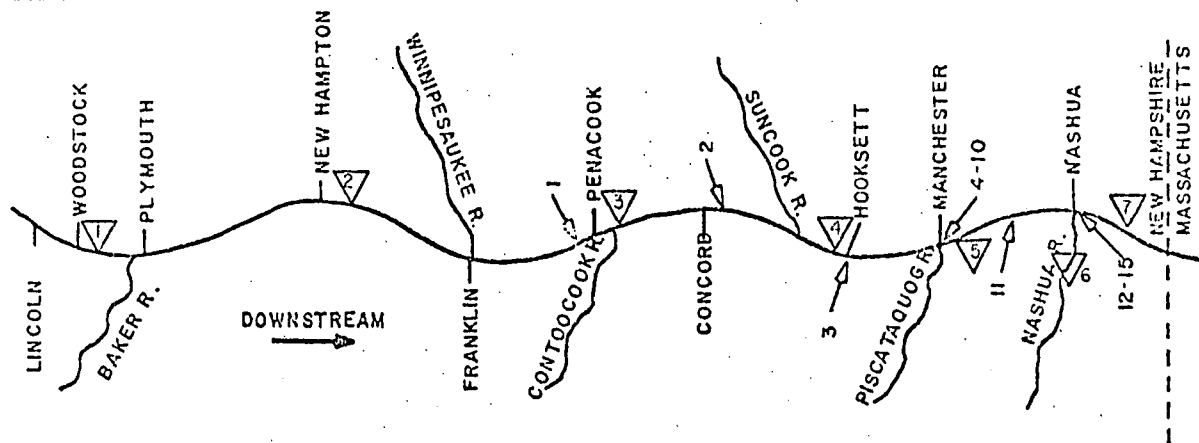
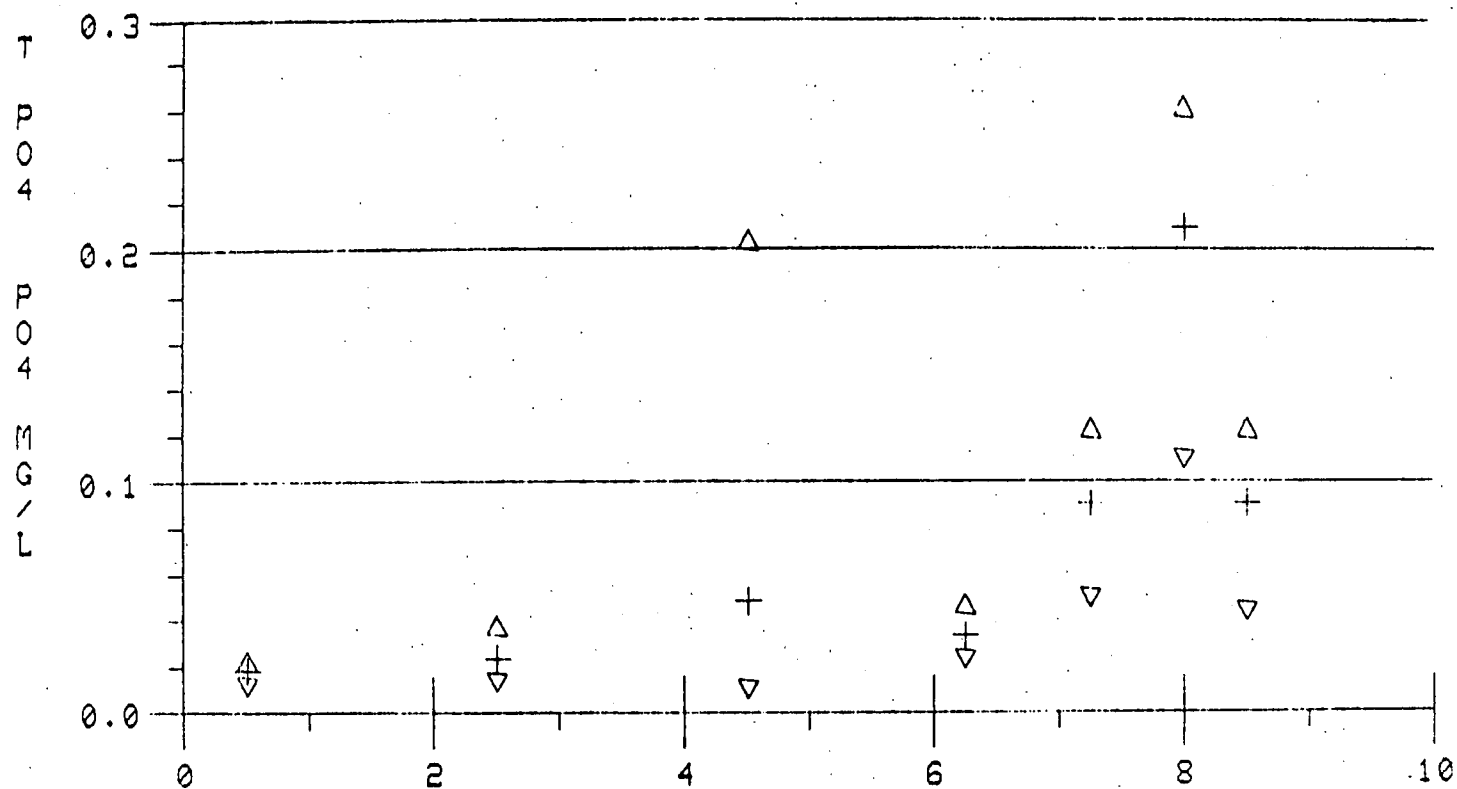
## MERRIMACK RIVER BASIN (NEW HAMPSHIRE)

	<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1.	Penacook WTP	Penacook	Merrimack River	0100331
2.	Concord STP	Concord	Merrimack River	0100901
3.	Hooksett WTP	Hooksett	Merrimack River	0100129
4.	Manchester STP	Manchester	Merrimack River	0100447
5.	Wanbec Dyeing & Finish Company	Manchester	Merrimack River	0000531
6.	Seal Tanning, Ohio Leather Company	Manchester	Merrimack River	0001066
7.	Groval Knitted Fabrics	Manchester	Merrimack River	0000981
8.	Granite State Packing	Manchester	Merrimack River	0001171
9.	Syntextiles, Inc.	Manchester	Merrimack River	0000507
10.	Foster Grant Company	Manchester	Merrimack River	0000116
11.	Merrimack WTP	Merrimack	Merrimack River	0100161
12.	Sanders Associates, Inc.	Nashua	Nashua River	0000442
13.	Hampshire Chemical W. R. Grace Company	Nashua	Spot Brook	0000591
14.	Nashua STP	Nashua	Merrimack River	0100170
15.	Mohawk Associates	Nashua	Nashua River	0000396

# REGION I WQ ASSESSMENT REPORT - MERRIMACK R. (NH)



# REGION I WQ ASSESSMENT REPORT - MERRIMACK R. (NH)



### 3.22 CONNECTICUT RIVER BASIN (NEW HAMPSHIRE)

The Connecticut River flows southerly from its source in northwestern New Hampshire and forms the New Hampshire - Vermont border before entering Massachusetts at Northfield. The entire width of this 256 mile segment of the mainstem is under the jurisdiction of New Hampshire and classifies it as "B" water. The major New Hampshire tributaries to the Connecticut River are the Upper Ammonoosuc, Ammonoosuc, Mascoma, Sugar, Cold and Ashuelot Rivers.

Discharges from the Groveton Paper Company and the wastewater treatment plant at Groveton, New Hampshire are responsible for the DO, pH and total coliform violations at Northumberland station. Inadequate sewage treatment at Lebanon and Hanover, as well as non-point sources, are believed responsible for the total coliform violations reported at the Windsor (3 of 4) and Walpole (8 of 10) stations. Industrial dischargers in Keene, W. Swanzey, Winchester and Hinsdale determine the quality of the Ashuelot River, particularly during low flow periods. Numerous coliform violations are reported at both stations on this river.

The municipal wastewater treatment facilities at Northumberland, Lancaster and Littleton were inspected by engineers from the Operations and Maintenance Section.

CONNECTICUT RIVER BASIN

(NEW HAMPSHIRE)

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Connecticut River at Northumberland, NH	PMN 61-CNT
2.	Connecticut River at Windsor, NH	PMN 22-CNT
3.	Connecticut River at Walpole, NH	USGS 01155050
4.	Ashuelot River near Swanzey, NH	PMN 2-16-ASH
5.	Ashuelot River at Hinsdale, NH	PMN 2-2-ASH



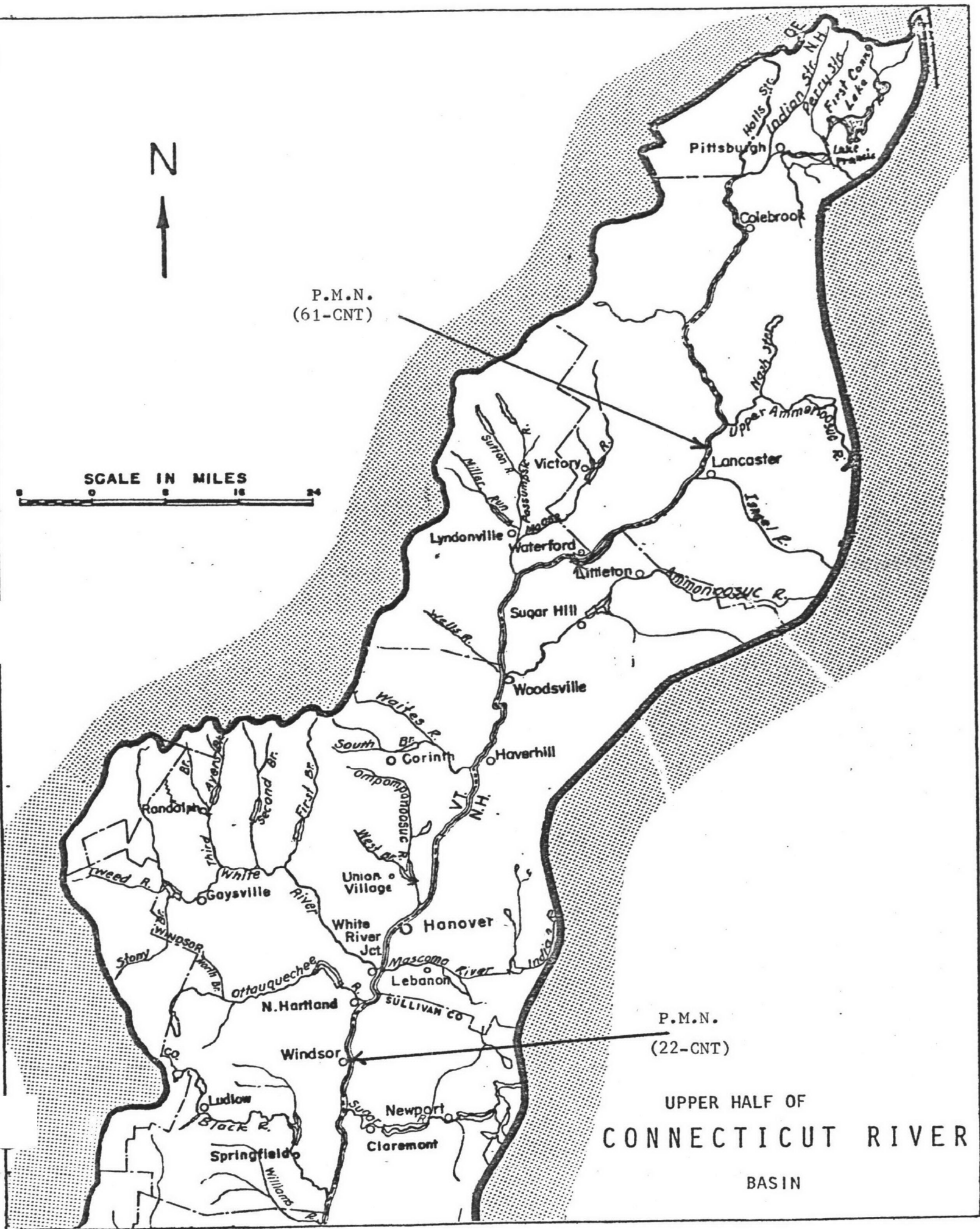
P.M.N.  
(61-CNT)

SCALE IN MILES

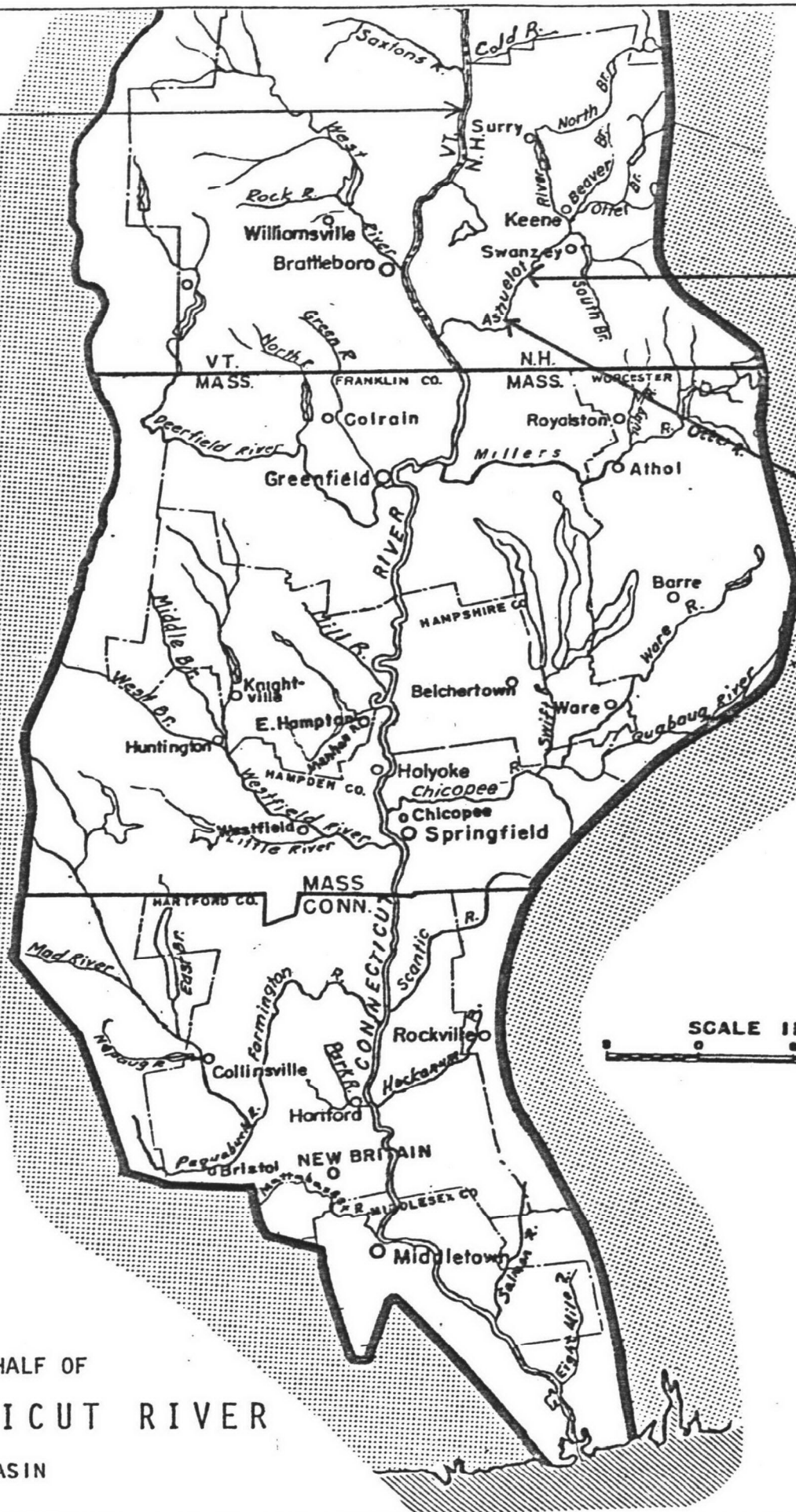


P.M.N.  
(22-CNT)

UPPER HALF OF  
CONNECTICUT RIVER  
BASIN



U.S.G.S.  
(01155050)



LOWER HALF OF  
CONNECTICUT RIVER  
BASIN

# SUMMARY OF WATER QUALITY VIOLATIONS

## STATION 61-CNT

## CONNECTICUT RIVER (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	6	0.	0.0	NONE	25.00	7.05
DISS. OXYGEN MG/L	6	1.	16.67	5.00	NONE	9.13
PH SU	6	1.	16.67	6.50	8.00	6.72
COLIFORM TOT MFIM/100ML	5	3.	60.00	NONE	240.00	37.54

## STATION 22-CNT

## CONNECTICUT RIVER (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	5	0.	0.0	NONE	25.00	6.22
TURBIDITY JKSN JTU	5	0.	0.0	NONE	25.00	6.22
DISS. OXYGEN MG/L	5	0.	0.0	5.00	NONE	10.46
DISS. OXYGEN MG/L	5	0.	0.0	5.00	NONE	10.46
PH SU	5	0.	0.0	6.50	8.00	7.28
PH SU	5	0.	0.0	6.50	8.00	7.28
COLIFORM TOT MFIM/100ML	4	3.	75.00	NONE	240.00	12.82
COLIFORM TOT MFIM/100ML	4	3.	75.00	NONE	240.00	12.82

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 01155050

CONNECTICUT RIVER (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH. MEAN *
TURBIDITY JKSN JTU	4	0.	0.0	NONE	25.00	1.25
DISS. OXYGEN MG/L	10	2.	20.00	5.00	NONE	9.94
PH SU	11	6.	54.55	6.50	8.00	6.65
COLIFORM TOT MFIM/100ML	10	8.	80.00	NONE	240.00	756.59

STATION 2-16-ASH

ASHEULOT R. (NH)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH. MEAN *
TURBIDITY JKSN JTU	5	0.	0.0	NONE	25.00	5.10
DISS. OXYGEN MG/L	5	1.	20.00	5.00	NONE	7.22
PH SU	5	0.	0.0	6.50	8.00	6.64
COLIFORM TOT MFIM/100ML	4	4.	100.00	NONE	240.00	31192.32

\* GEOMETPIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 2-2-ASH

ASHEULOT R. (NH)

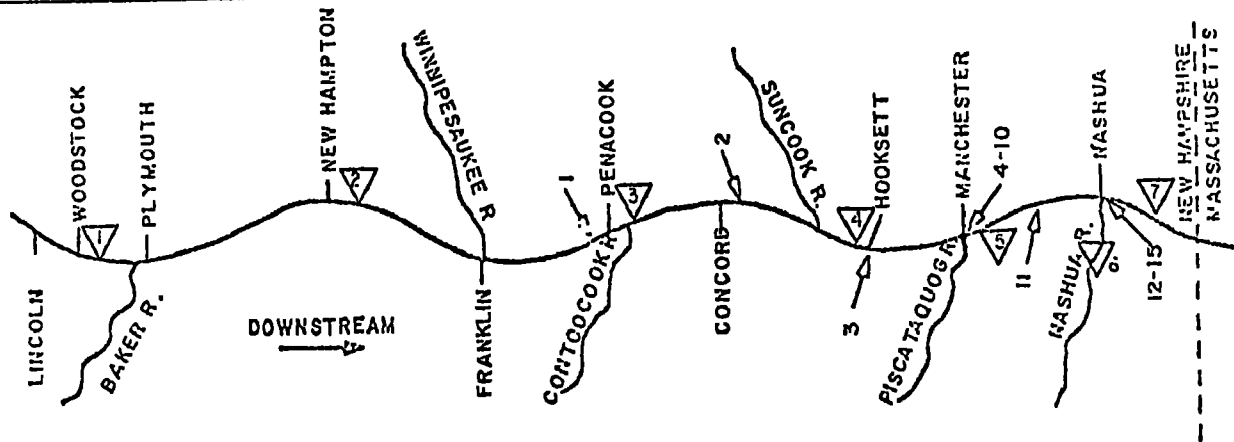
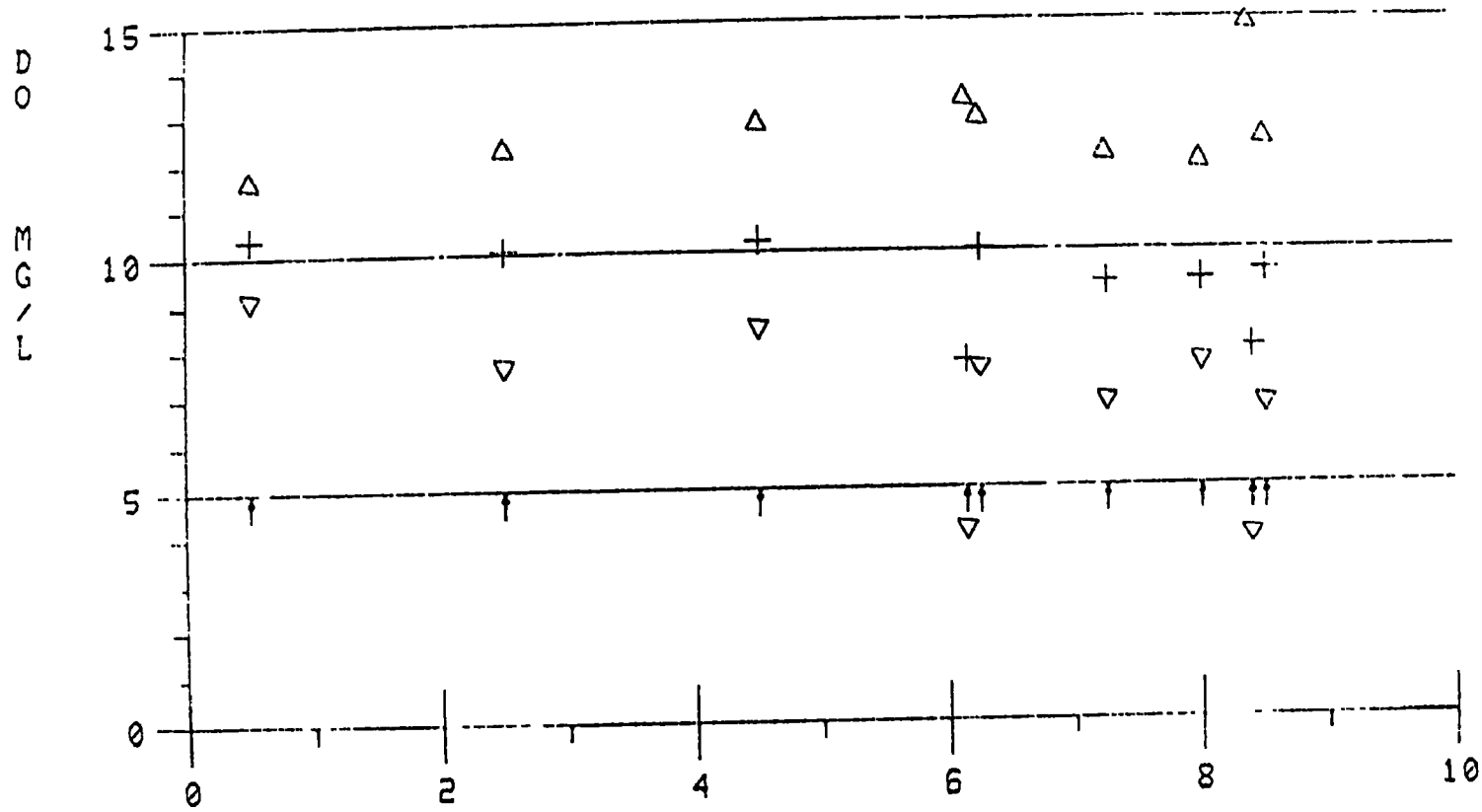
PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
TURBIDITY JKSN JTU	7	2.	28.57	NONE	25.00	27.99
DISS. OXYGEN MG/L	7	0.	0.0	5.00	NONE	9.99
PH SIJ	7	0.	0.0	6.00	8.50	6.91
COLIFORM TOT MFIM/100ML	5	5.	100.00	NONE	1000.00	77158.87

\* GEOMETRIC MEAN FOR COLIFORMS

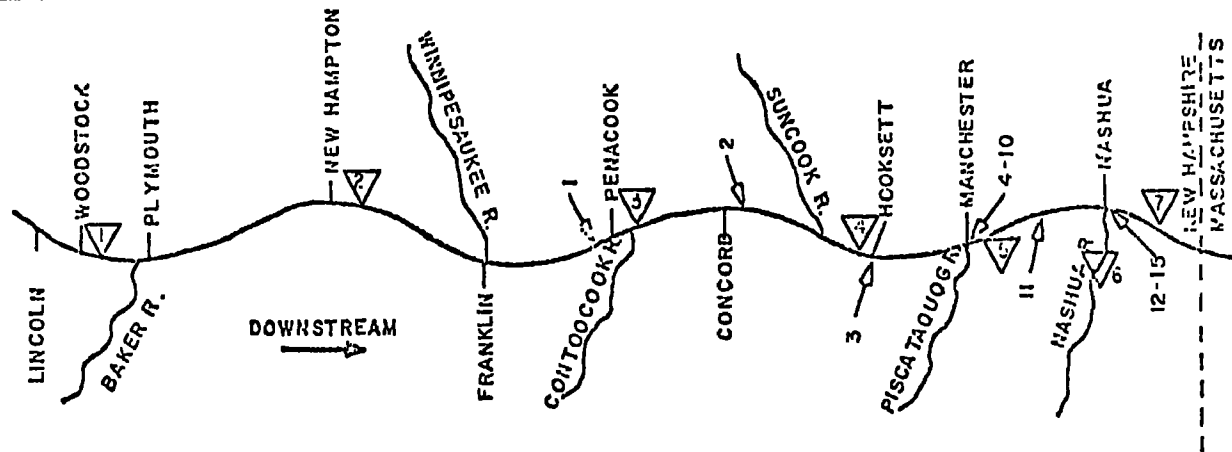
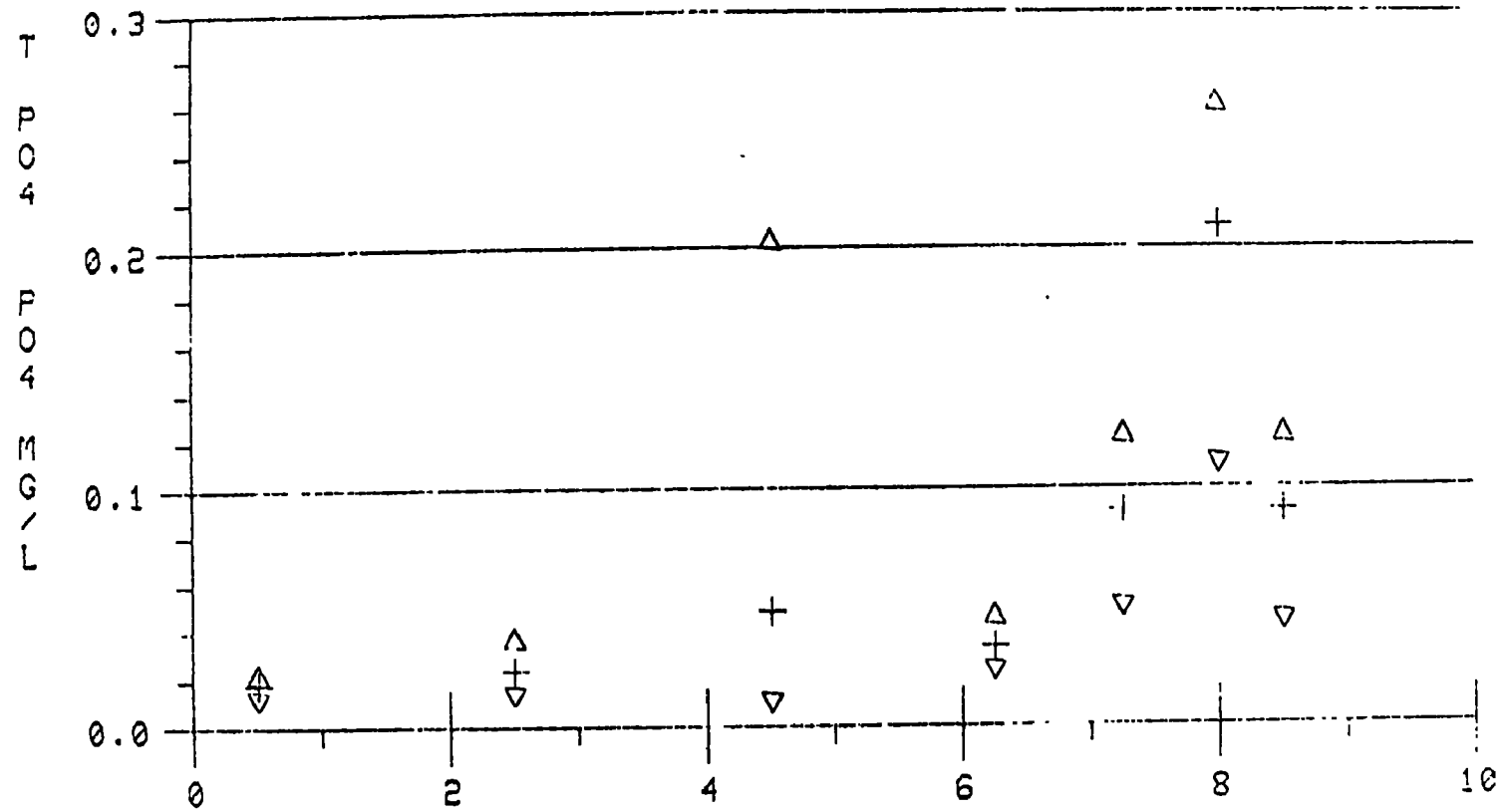
SIGNIFICANT DISCHARGERS  
CONNECTICUT RIVER BASIN (N.H.)

	<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1.	Groveton WTP	Groveton	Upper Ammonoosac R.	0100226
2.	Groveton Paper Co.	Northumberland	Connecticut R.	0001562
3.	Lancaster STP	Lancaster	Connecticut R.	0100145
4.	Lisbon STP	Lisbon	Connecticut R.	0100421
5.	Littleton STP	Littleton	Ammonoosac R.	0100153
6.	Hanover WTP	Hanover	Connecticut R.	0100099
7.	Central Screw Co.	Keene	Ashuelot R.	0000825
8.	Keene STP	Keene	Ashuelot R.	0100790
9.	Homestead Woolen Mills, Inc.	W.Swanzey	Ashuelot R.	0001589
10.	Paper Service Mills, Inc.	Winchester	Ashuelot R.	0000311
11.	Ashuelot Paper Co.	Winchester	Ashuelot R.	0001180
12.	A. C. Laurence Leather	Winchester	Ashuelot R.	0000183
13.	Hinsdale Products	Hinsdale	Ashuelot R.	0001554
14.	G. E. Robertson & Co.	Hinsdale	Ashuelot R.	0000434
15.	Hinsdale STP	Hinsdale	Ashuelot R.	0100382

# REGION I WO ASSESSMENT REI - MERRIMACK R. (NH)



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### 3.23 ANDROSCOGGIN RIVER BASIN (MAINE)

The Androscoggin River enters Maine in a highly polluted condition at Gilead. The poor quality at this point is primarily due to waste discharges from the Brown Paper Company in Berlin, New Hampshire. The river slowly recovers from these wastes until it reaches Rumford, Maine. At Rumford, municipal sewage and paper mill wastes from Boise - Cascade formerly Oxford Paper Company halt this recovery and cause a return to severe degradation. Wastewater treatment facilities are expected to be fully operational in November, 1976. Sewage, paper mill and textile waste loads continue to build as the river flows through Jay, Auburn, Lisbon Falls and Topsham. The largest dischargers on the mainstem are International and Pejepscot Paper Companies. Both will have facilities operational in 1977.

U.S.G.S. discontinued monitoring at their Auburn site on September, 1974 and resumed monitoring downstream at a site in Brunswick. The reasoning behind the move was to have the sampling site located at a point where a better mixture would be attained of the discharge from a treatment facility in the vicinity of Auburn.

There were no violations at the monitoring site in Rumford on the mainstem of the Androscoggin River. However, there were fecal coliform violations reported at the site in Turner in April and at the U.S.G.S. Station in Brunswick in September. Also, there were total coliform violations in November and August at the station in Oxford on the Little Androscoggin River and high phosphorus levels (.035 mg/l) were reported at the site in Jay in October.

The Little Androscoggin River has plastic, leather and paper industries located on it that will generally be implementing treatment facilities sometime in 1977. Marcal Paper Mills have been on line since 1974 and no violations have been reported. Also, on the mainstem of the Androscoggin, Bates Fabrics Manufacturing, W. S. Libbey and Max Miller and Co. have been tied in and operational since 1975. Other significant dischargers on the Androscoggin are expected to have treatment facilities operational in 1977.

The Federal facilities at Brunswick Naval Air Station and the Navy Annex at Topsham as well as the municipal wastewater treatment plant at Norway were inspected by our Operation and Maintenance personnel during WY 1976.

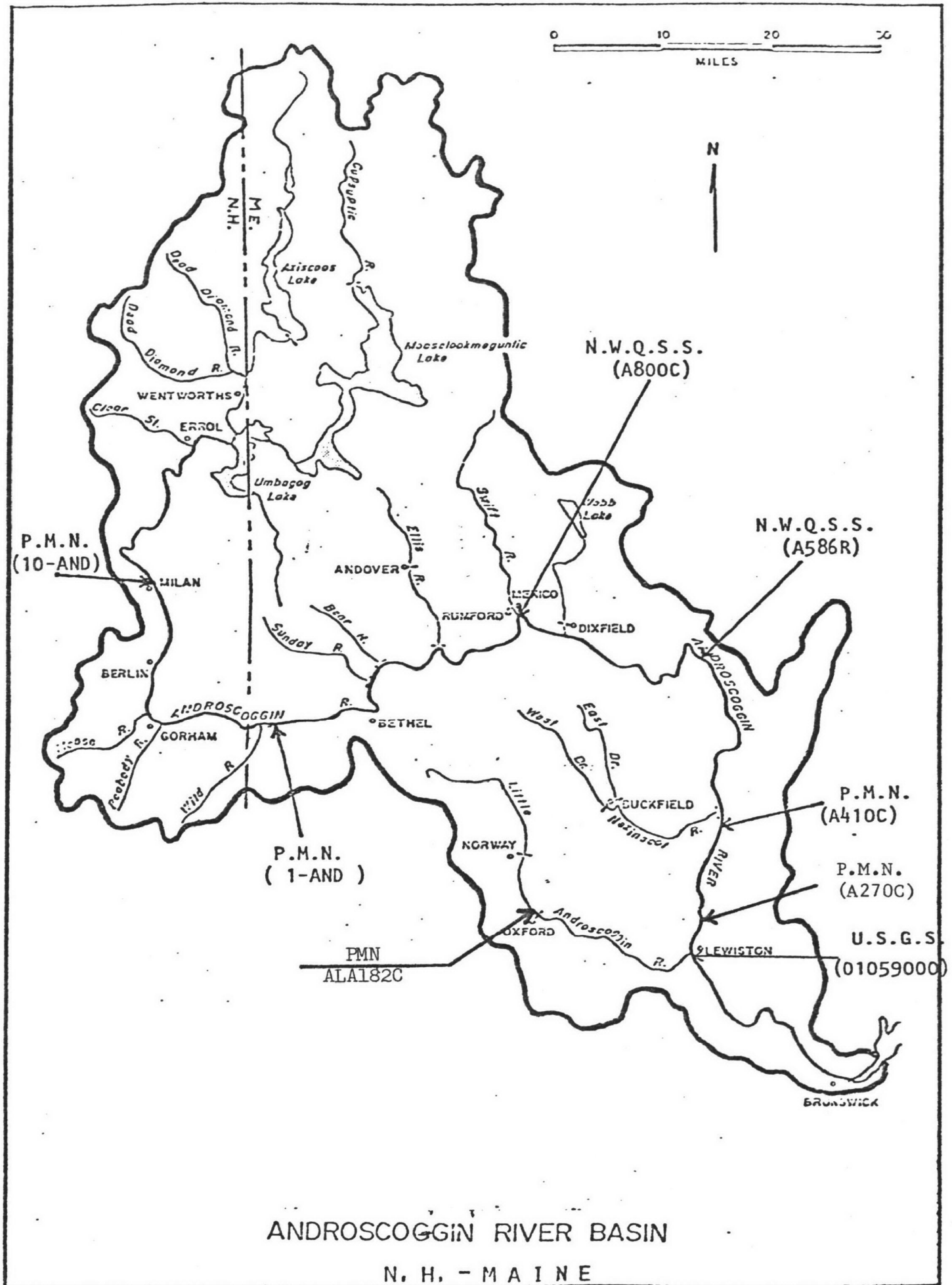
ANDROSCOGGIN RIVER BASIN

(MAINE)

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Androscoggin River at Rumford, ME	N.W.Q.S.S. A800C
2.	Androscoggin River at Jay, ME	N.W.Q.S.S. A586R
3.	Androscoggin River at North Turner, ME	PMN A410C
4.	Androscoggin River at Gulf Island Pond	PMN A270C
5.	Little Androscoggin at Welchville, ME	PMN ALA182C
6.	Androscoggin River at Auburn, ME	U.S.G.S. 01059000



# SUMMARY OF WATER QUALITY VIOLATIONS

## STATION A800C

## ANDROSCOGGIN R. (NH-ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	9	0.	0.0	5.00	NONE	9.37
PH SU	10	0.	0.0	6.00	8.50	6.28
COLIFORM TOT MFIM/100ML	10	0.	0.0	NONE	5000.00	259.50
COLIFORM FEC MF/100ML	10	0.	0.0	NONE	1000.00	62.74

## STATION A586R

## ANDROSCOGGIN R. (NH-ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	7	0.	0.0	5.00	NONE	9.17
PH SU	7	0.	0.0	6.00	8.50	6.51
COLIFORM TOT MFIM/100ML	7	0.	0.0	NONE	5000.00	1830.10
COLIFORM FEC MF/100ML	6	0.	0.0	NONE	1000.00	66.39

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

## STATION A410C

## ANDROSCOGGIN R. (NH-ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	11	0.	0.0	5.00	NONE	10.53
PH SU	11	0.	0.0	6.00	8.50	6.62
COLIFORM TOT MFIM/100ML	11	0.	0.0	NONE	5000.00	1634.59
COLIFORM FEC MF/100ML	11	1.	9.09	NONE	1000.00	101.82

## STATION A270C

## ANDROSCOGGIN R. (NH-ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	4	0.	0.0	5.00	NONE	9.82
PH SU	5	0.	0.0	6.00	8.50	6.42
COLIFORM TOT MFIM/100ML	5	0.	0.0	NONE	5000.00	18.71
COLIFORM FEC MF/100ML	5	0.	0.0	NONE	1000.00	24.15

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION ALA182C

LITTLE ANDROSCOGGIN R(ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	8	0.	0.0	5.00	NONE	10.49
PH SU	8	0.	0.0	6.00	8.50	6.49
COLIFORM TOT MFIM/100ML	7	2.	28.57	NONE	5000.00	1670.52
COLIFORM FEC MF/100ML	7	0.	0.0	NONE	1000.00	77.25

STATION 01059400

ANDROSCOGGIN R. (NH-ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN MG/L	12	0.	0.0	5.00	NONE	11.04
PH SU	12	0.	0.0	6.00	8.50	6.74
COLIFORM FEC MF/100ML	12	1.	8.33	NONE	1000.00	177.92

\* GEOMETRIC MEAN FOR COLIFORMS

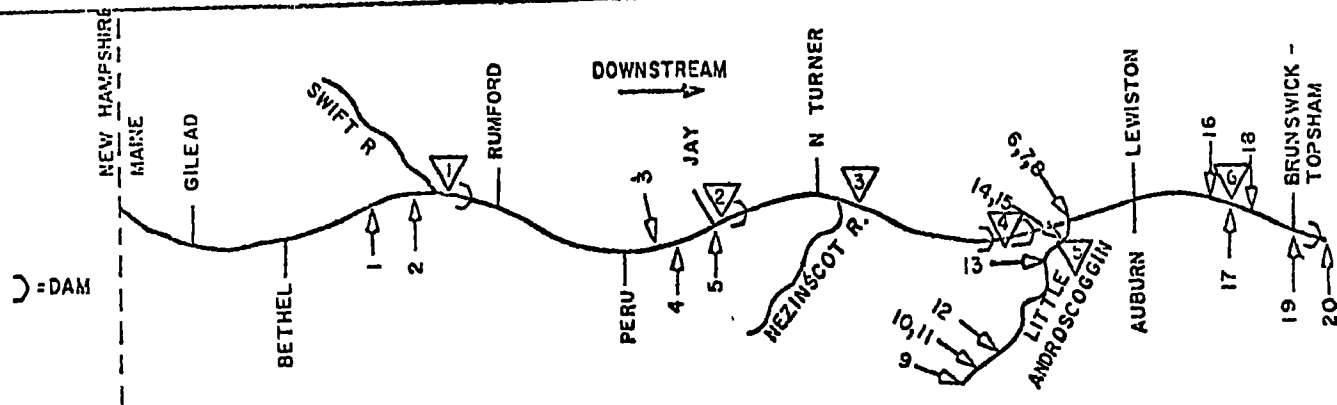
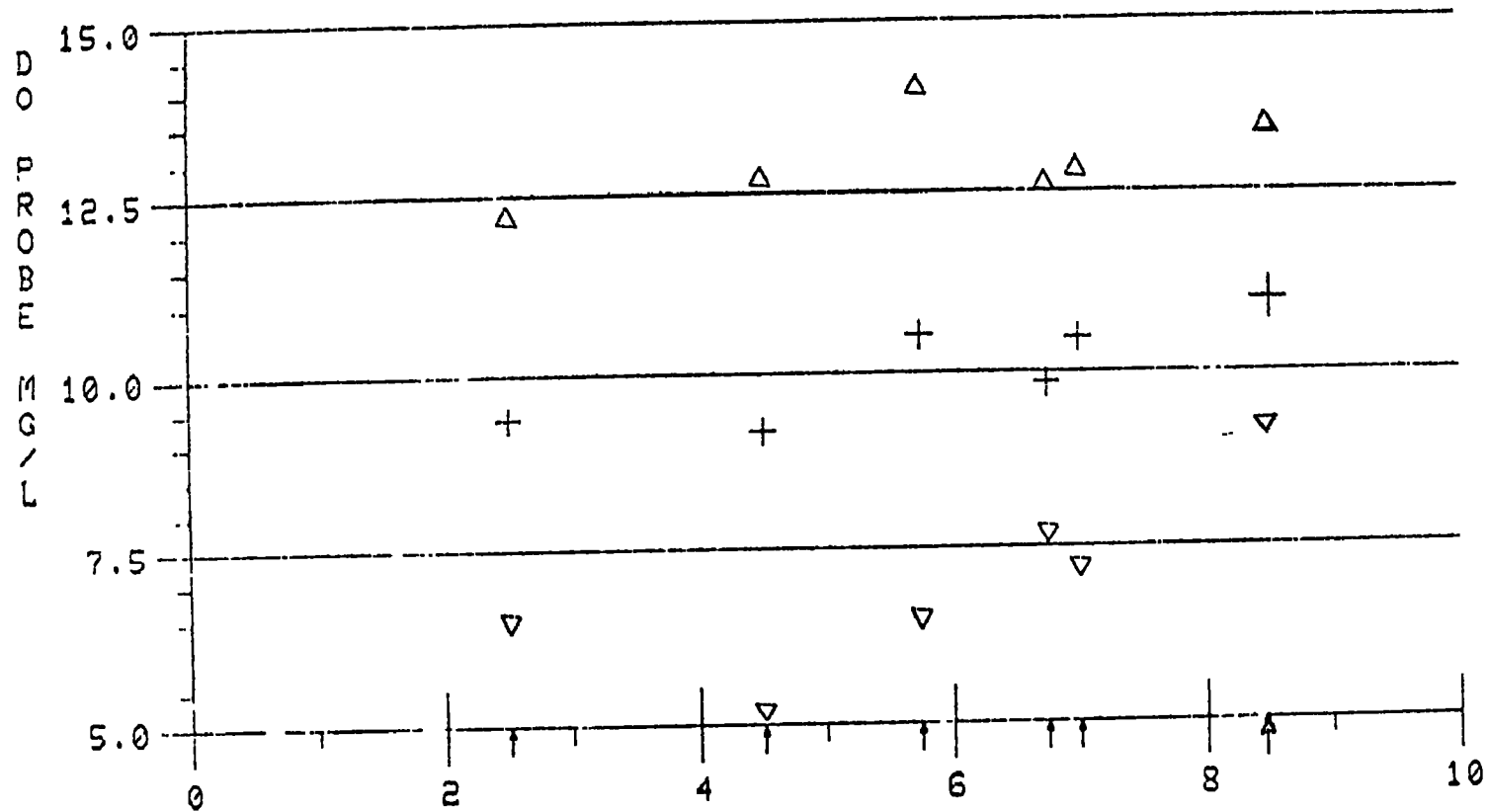
SIGNIFICANT DISCHARGERS  
ANDROSCOGGIN RIVER BASIN (ME)

<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
4. Oxford Paper Co. (Boise-Cascade)	Rumford	Androscoggin River	0002054
5. Diamond National	West Peru	Androscoggin River	0001848
6. Brindis Leather Co.*	Canton	Whitney Brook	0001317
7. International Paper Androscoggin Mill	Jay	Androscoggin River	0001937
8. International Paper** Otis Mill	Chisholm	Androscoggin River	0001929
9. Bates Fabrics Mfg.**	Lewiston	Androscoggin River	0001791
10. W. S. Libbey**	Lewiston	Androscoggin River	0001988
11. Max Miller & Co.**	Lewiston	Androscoggin River	0002500
12. South Paris, MTP**	South Paris	Little Androscoggin	0100951
13. J.C. Lawrence Leather**	South Paris	Little Androscoggin	0000311
14. A. L. Stewart & Sons**	Paris	Little Androscoggin	0000680
15. Robinson Mfg. Co.	Oxford	Little Androscoggin	0002526
16. Marcal Paper Mills**	Mechanic Falls	Little Androscoggin	0002011
17. Bonan Footwear**	Auburn	Little Androscoggin	0001813
18. Pioneer Plastics	Auburn	Little Androscoggin	0000540
19. Max Miller & Co.**	Lisbon Falls	Androscoggin	0001597
20. U. S. Gypsum Co.**	Lisbon Falls	Androscoggin	0002241
21. Pejepscot PaperCo.	Topsham	Androscoggin	0002089
22. Brunswick-Topsham Dist.	Brunswick	Androscoggin	0000957
23. Pejepscot Paper Co.	Topsham	Androscoggin	0002071

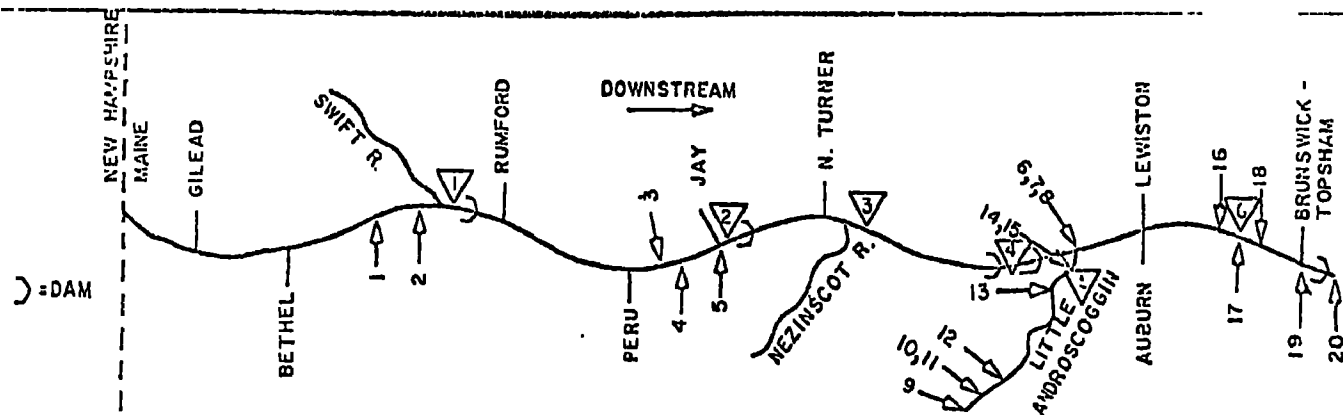
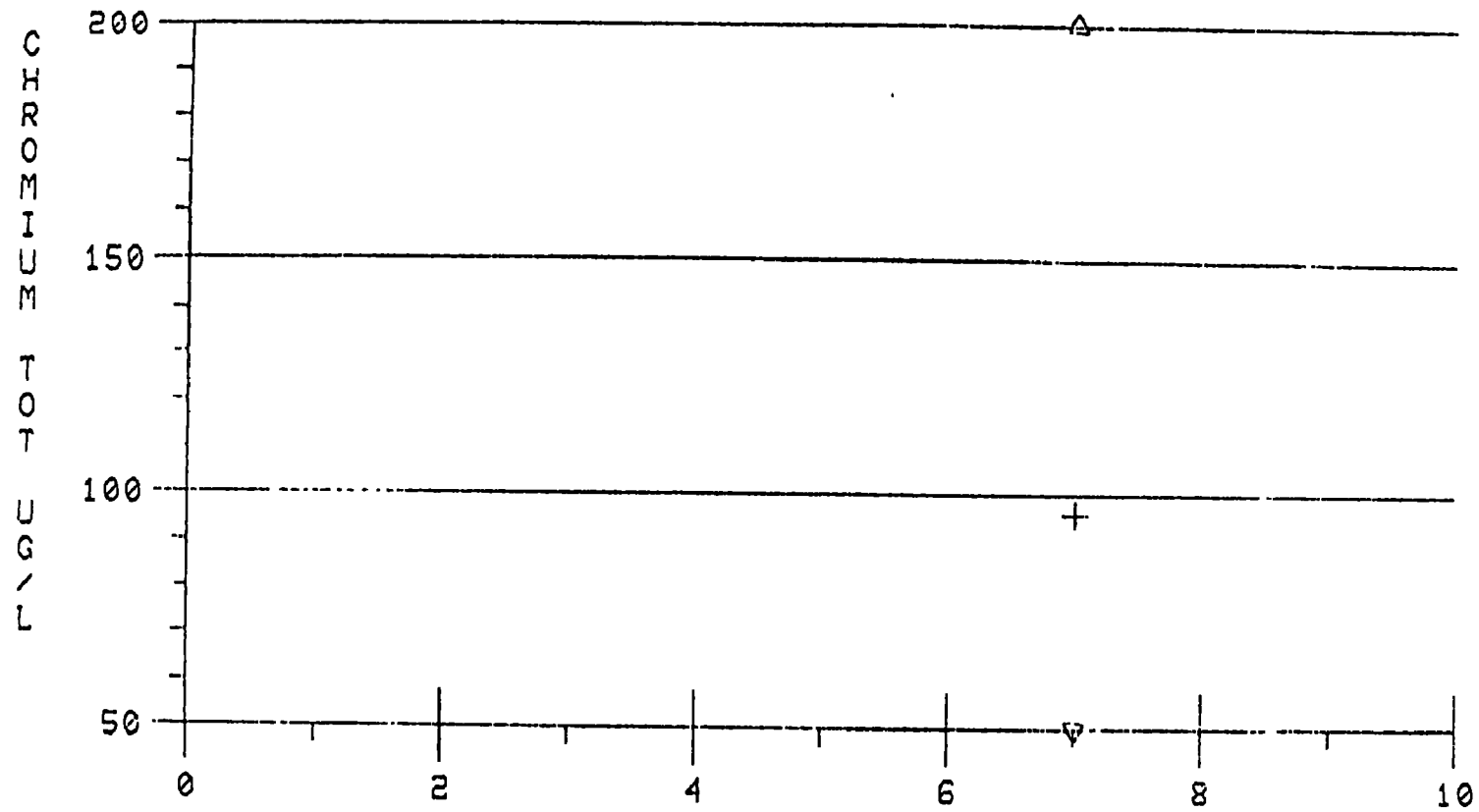
\* Out of business

Completed WWTP or tied to municipal system

# REGION I WQ ASSESSMENT REPORT - ANDROSCOGGIN R. (NH-ME)



# REGION I WQ ASSESSMENT REPORT - ANDROSCOGGIN R. (NH-ME)



### 3.24 PRESUMPCOT RIVER BASIN (MAINE)

The major bodies of water in this basin are the Presumpscot, Royal and Crooked Rivers with impoundments on the mainstem forming Long and Sebago Lakes.

The water quality on the mainstem varies from Class A at the outlet of Sebago Lake to severe degradation below Westbrook, Maine. At Westbrook, the effluent from the S. D. Warren Company, Division of Scott Paper has an organic waste equivalent of nearly one-half million people. This large volume of organic waste along with the natural and controlled low flows are the primary causes of the river's degradation. S. D. Warren has completed construction of a secondary treatment plant that should be fully operational by October, 1976.

The following tables show that both the total and fecal coliform standards were violated at all stations. However, there were no DO violations reported.

Both GTE Sylvania on the north branch of the Little River in Standish and the S. D. Warren Co., a division of Scott Paper Co. in Westbrook, both had treatment plants in operation and compliance in WY 1976.

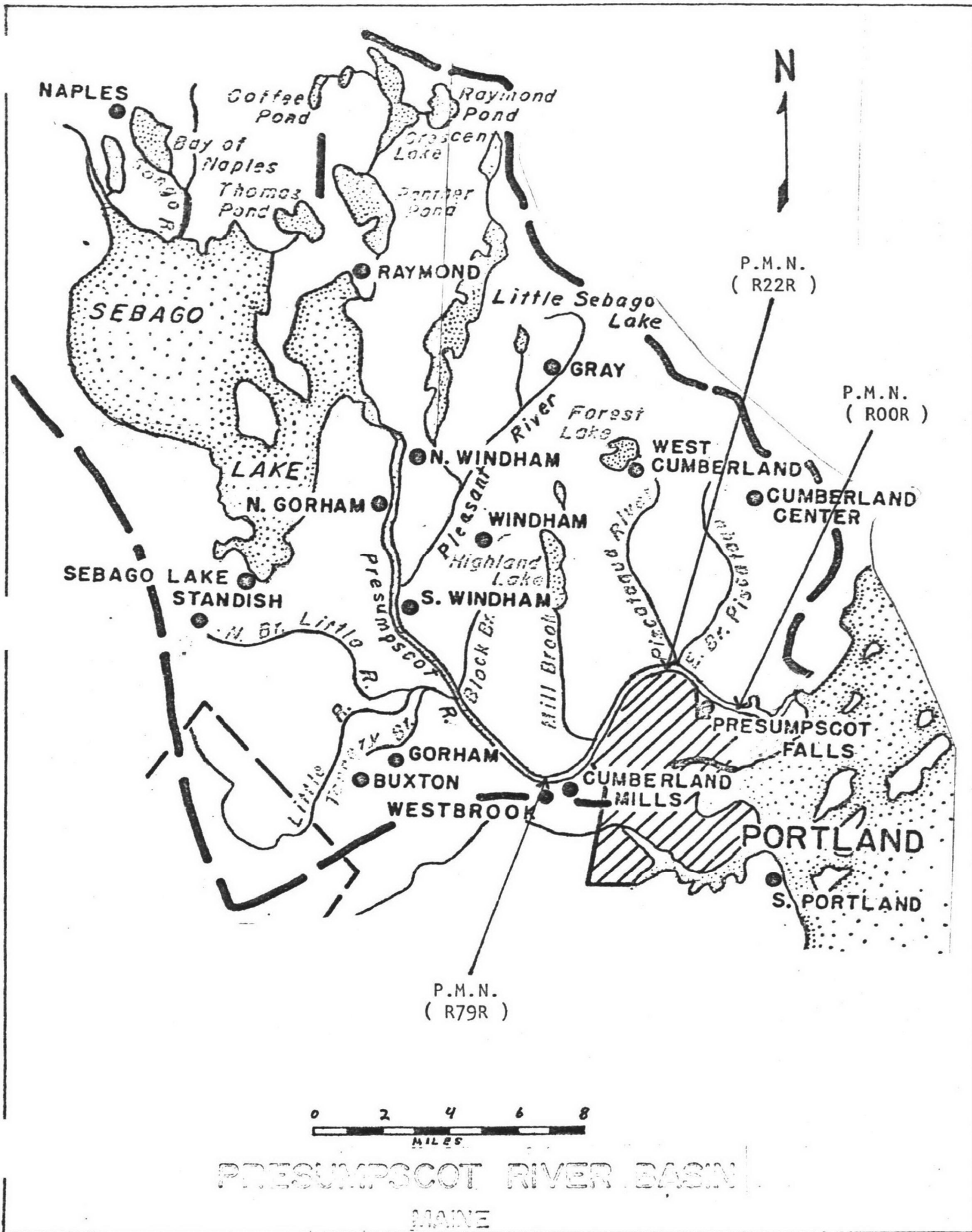
PRESUMPCOT RIVER BASIN

{MAINE}

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Presumpscot River at Westbrook, ME	PMN R79R
2.	Presumpscot River at Falmouth, ME	PMN R22R
3.	Presumpscot River at Presumpscot Falls, ME	PMN R00R



# SUMMARY OF WATER QUALITY VIOLATIONS

## STATION R79R

## PRESUMPCOT R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	18	0.	0.0	5.00	NONE	10.76
PH SU	18	0.	0.0	6.00	8.50	6.51
COLIFORM TOT MFIM/100ML	18	2.	11.11	NONE	5000.00	1543.90
COLIFORM FEC MF/100ML	11	3.	27.27	NONE	1000.00	453.81

## STATION R22R

## PRESUMPCOT R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	8	0.	0.0	5.00	NONE	9.65
PH SU	8	0.	0.0	6.00	8.50	6.61
COLIFORM TOT MFIM/100ML	8	8.	100.00	NONE	5000.00	57917.45
COLIFORM FEC MF/100ML	8	8.	100.00	NONE	1000.00	8214.00

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION R00R

PRESUMPCOT R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	7	0.	0.0	5.00	NONE	9.60
PH SU	7	0.	0.0	6.00	8.50	6.40
COLIFORM TOT MFIM/100ML	7	7.	100.00	NONE	5000.00	35472.39
COLIFORM FEC MF/100ML	7	5.	71.43	NONE	1000.00	3160.58

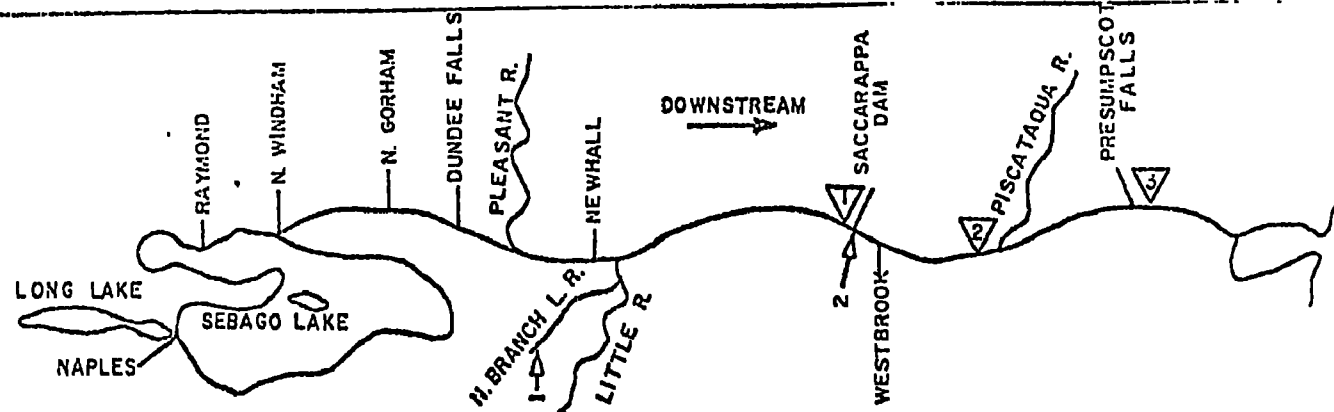
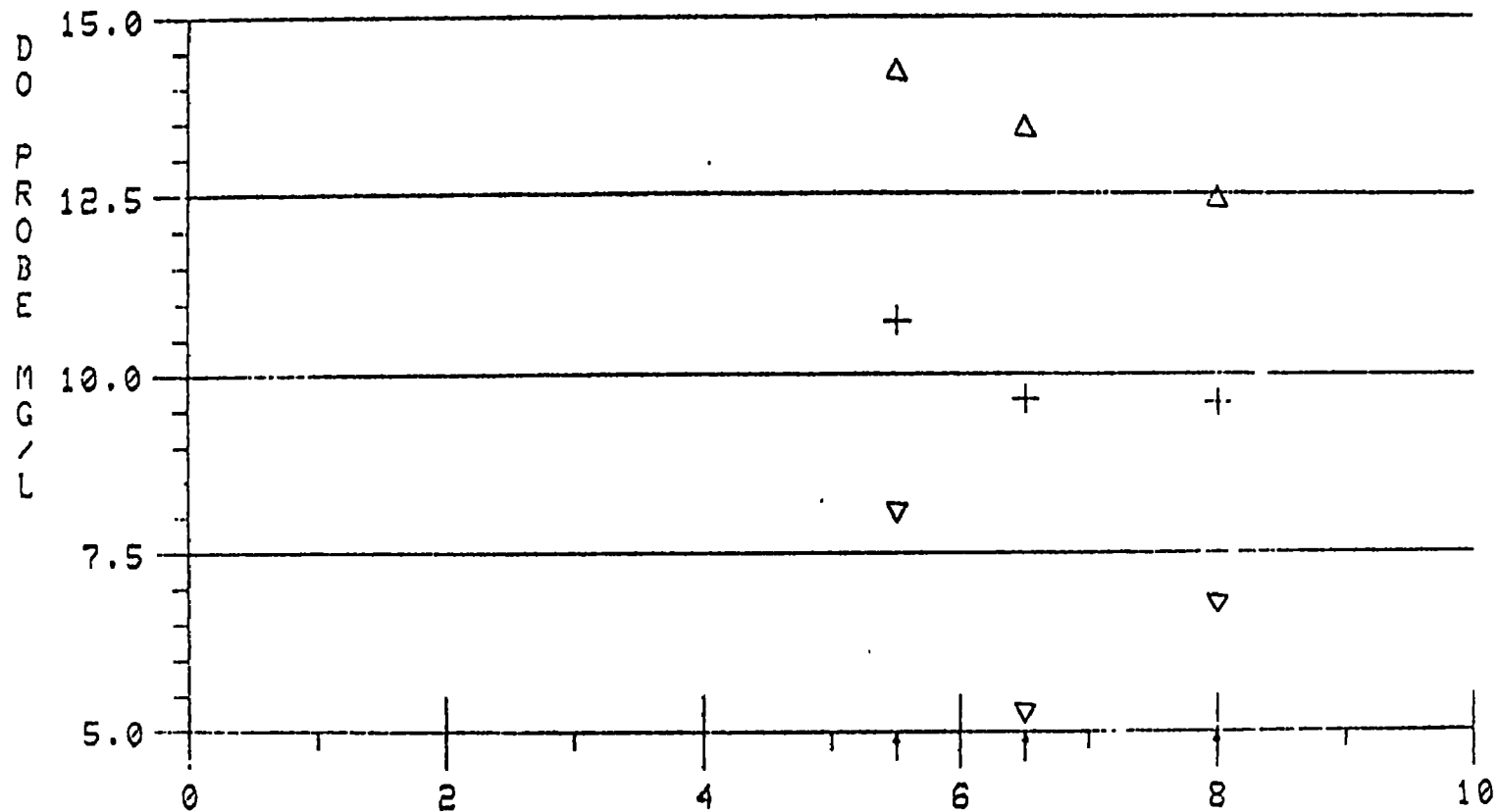
\* GEOMETRIC MEAN FOR COLIFORMS

SIGNIFICANT DISCHARGERS

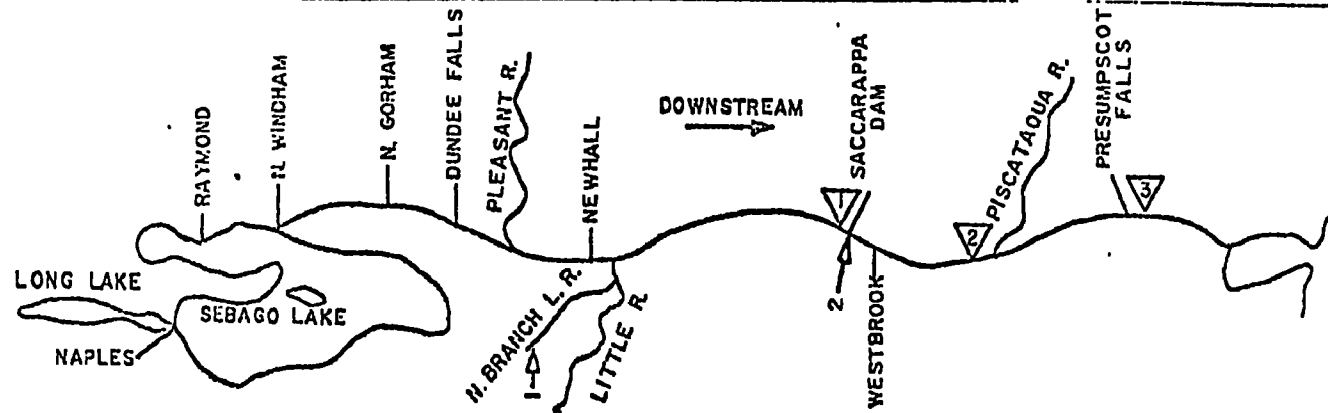
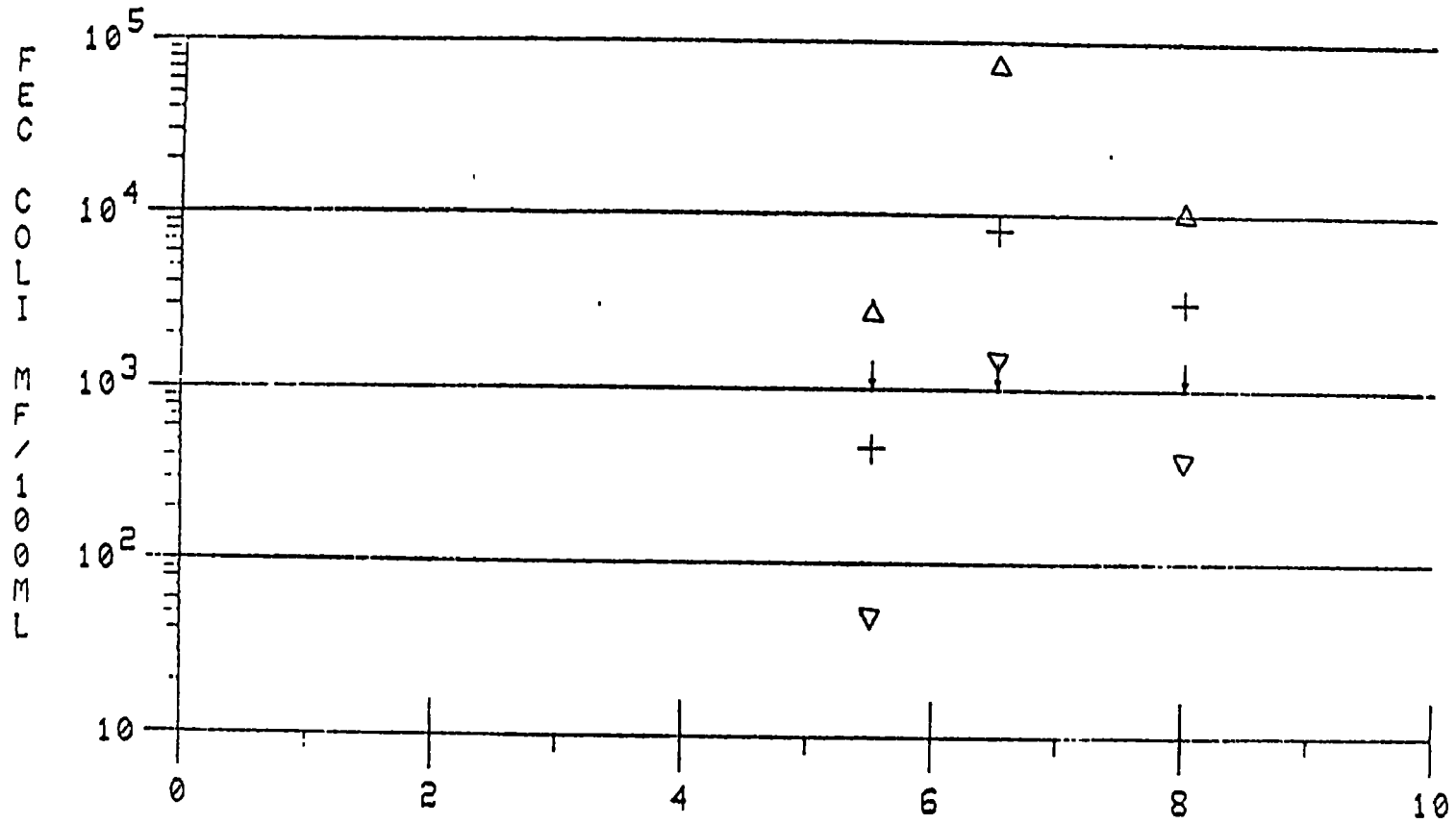
PRESUMPCOT RIVER BASIN

<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. GTE Sylvania	Standish	N. Branch of Little River	0002321
2. S.D. Warren Co.-Scott Paper Co.	Westbrook		0002399

# REGION I WQ ASSESSMENT REPORT - PRESUMPCOT R. (ME)



# REGION I WQ ASSESSMENT REPORT - PRESUMPCOT R. (ME)



### 3.25 KENNEBEC RIVER BASIN

The Kennebec River flows from Moosehead Lake through Skowhegan and Augusta into Merrymeeting Bay at Abagadasset Point near Bath. Major tributaries to the mainstem are the Carrbasset, Sandy and Sebasticook Rivers.

The major water quality problems in this basin are due to paper and pulp mill discharges on the mainstem, textile mill and tannery wastes on the Sebasticook River.

The following data shows that on the Kennebec River the total coliform bacteria standards are violated in July and August at the station in Gardiner, and in November of 1975 and April, May, August and September of 1976 at the station in Augusta. Fecal coliform violations occur in February at Fairfield and December, March, July and September at Augusta. The only DO violation is recorded in July at the station in Augusta.

On the Sebasticook River, the standard for total coliform was violated in September.

The most serious problems on the mainstem occur between Waterville and Gardiner. These violations are primarily caused by industrial discharges in Waterville and Augusta.

Operations and Maintenance personnel provided technical assistance to the Greenville wastewater treatment facility and also inspected the wastewater treatment plant at the Togus Veterans' Administration Hospital.

KENNEBEC RIVER BASIN

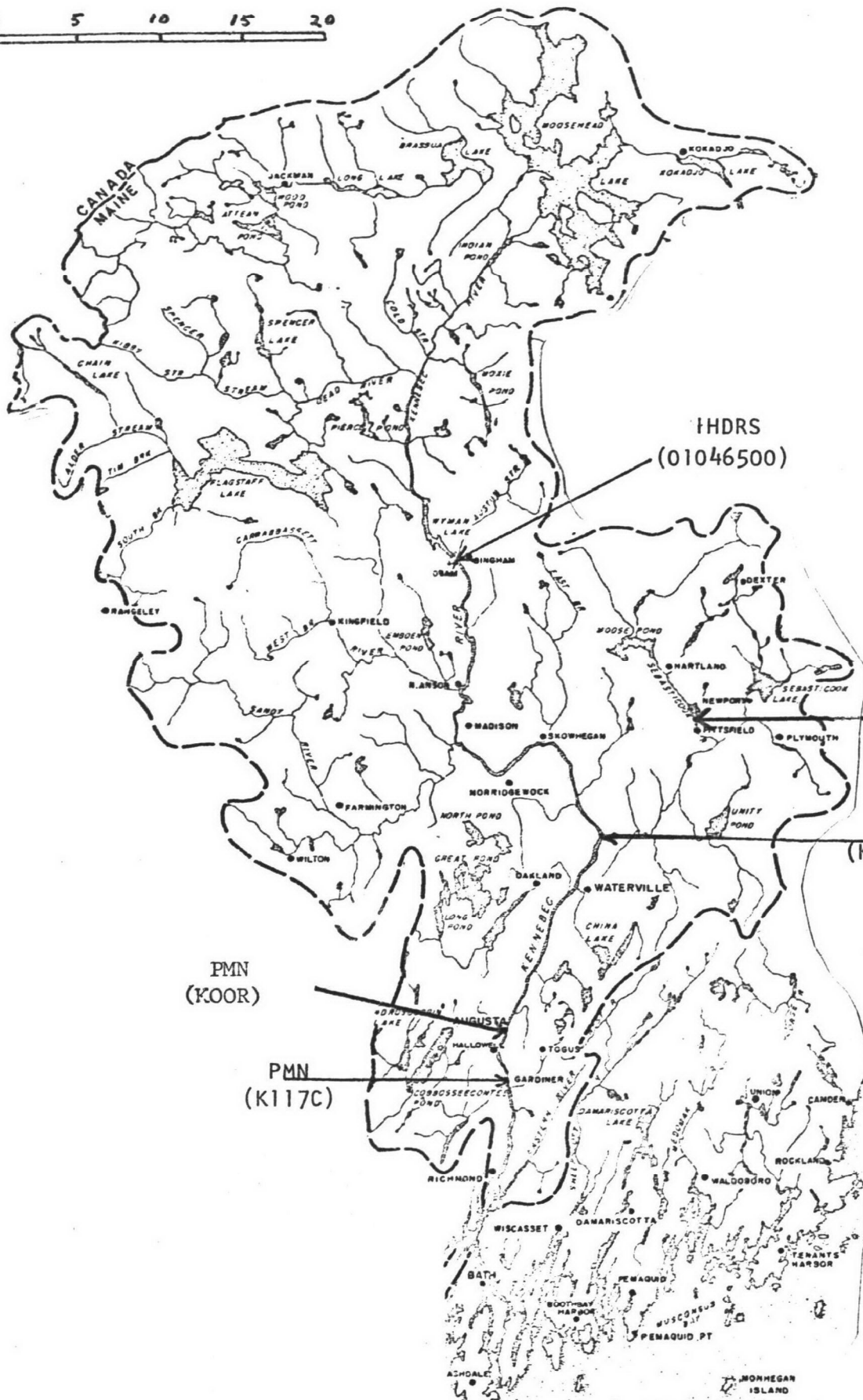
(MAINE)

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Kennebec River at Bingham, ME	U.S.G.S. 01046500
2.	Kennebec River at Fairfield, ME	PMN K247R
3.	Sebasticook River at West Palmyra, ME	PMN KSB365C
4.	Kennebec River at Augusta, ME	PMN KOOR
5.	Kennebec River at Gardiner, ME	PMN K117C

0 5 10 15 20



KENNEBEC RIVER BASIN  
MAINE

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION 01046500

KENNEBEC R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN MG/L	11	0.	0.0	5.00	NONE	10.44
PH SU	11	0.	0.0	6.00	8.50	6.64
COLIFORM FEC MF/100ML	12	0.	0.0	NONE	1000.00	0.06

STATION K247R

KENNEBEC R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	8	0.	0.0	5.00	NONE	12.31
DISS. OXYGEN SATUR %	8	0.	0.0	60.00	NONE	94.75
PH SU	8	0.	0.0	6.00	8.50	6.74
COLIFORM TOT MFIM/100ML	8	0.	0.0	NONE	1000.00	438.49
COLIFORM FEC MF/100ML	8	1.	12.50	NONE	200.00	56.28

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION KSH355C

SEBASTICOOK R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	7	0.	0.0	5.00	NONE	9.17
PH SU	7	0.	0.0	6.00	8.50	6.91
COLIFORM TOT MFIM/100ML	7	1.	14.29	NONE	5000.00	2359.65
COLIFORM FEC MF/100ML	7	0.	0.0	NONE	1000.00	87.66

STATION K00R

KENNEBEC R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	10	1.	10.00	5.00	NONE	10.16
PH SU	10	0.	0.0	6.00	8.50	6.43
COLIFORM TOT MFIM/100ML	9	5.	55.56	NONE	5000.00	10976.34
COLIFORM FEC MF/100ML	10	4.	40.00	NONE	1000.00	634.45

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION K-117C

KENNEBEC R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	2	0.	0.0	5.00	NONE	6.35
PH SU	1	0.	0.0	6.00	8.50	6.60
COLIFORM TOT MFIM/100ML	2	2.	100.00	NONE	5000.00	31400.64
COLIFORM FEC MF/100ML	2	0.	0.0	NONE	1000.00	200.00

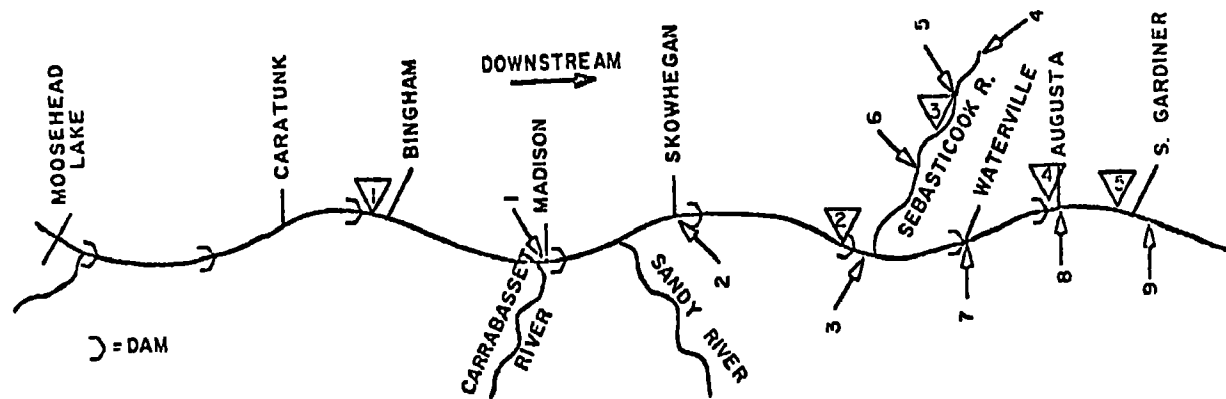
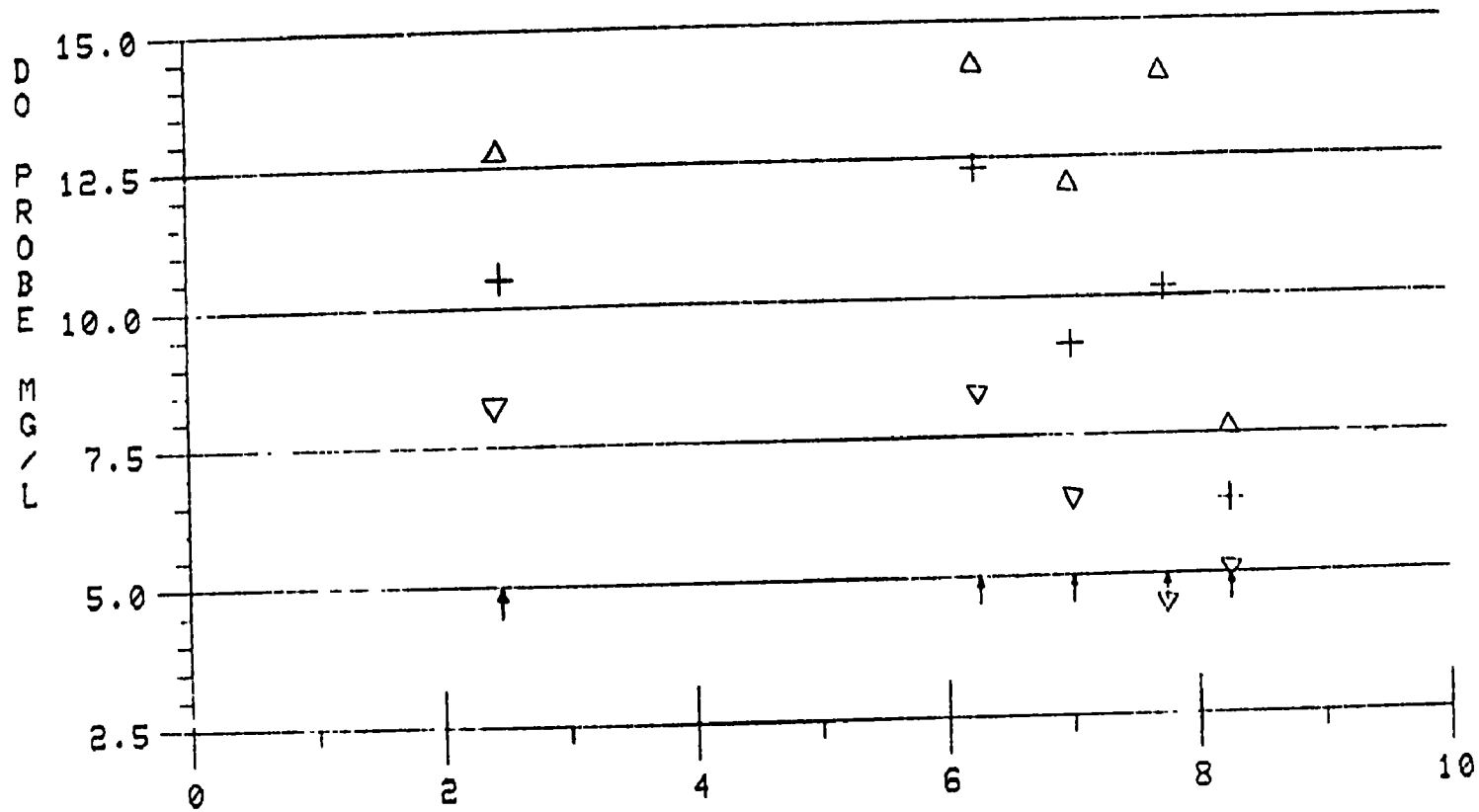
\* GEOMETRIC MEAN FOR COLIFORMS

# SIGNIFICANT DISCHARGERS

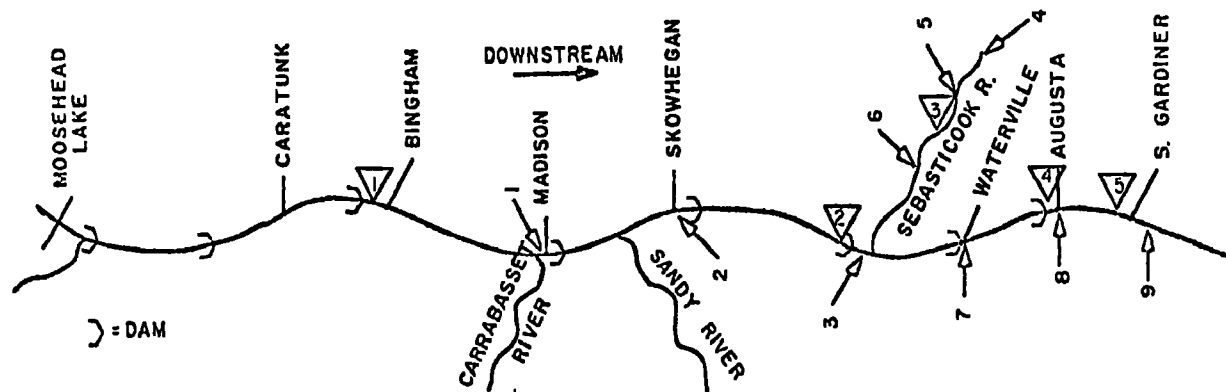
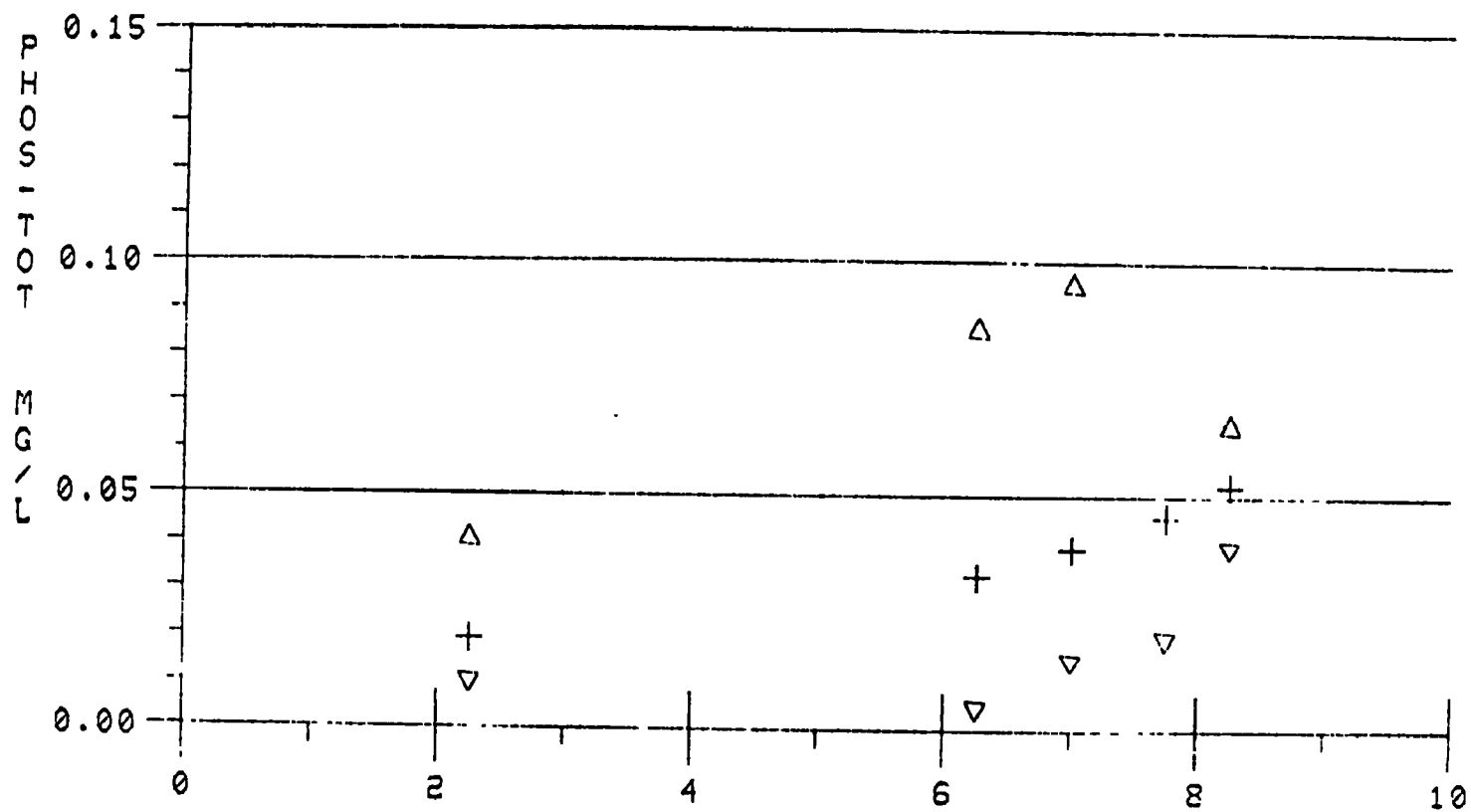
## KENNEBEC RIVER BASIN

<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. Anson-Madison STP Kennebec River Pulp +Paper	Anson Madison	Kennebec River Kennebec River	0101389 0002534
2. Skowhegan STP Scott Paper Co.	Skowhegan Winslow	Kennebec River Kennebec River	0100625 0002178
3. Cascade Woolen Mill Oakland STP	Oakland Oakland	Messalonskee Stream Messalonskee Stream	0000116 0100463
4. Dexter STP  Amos Abbot Corinna STP Eastland Woolen Mill	Dexter  Dexter Corinna Corinna	E. Branch Sebasticoock River Sebasticoock River Sebasticoock River Sebasticoock River	  0100170 0001759 0100153 0021466
5. Hartland STP Hartland Tanning Co.	Hartland Hartland	Sebasticoock River Sebasticoock River	0101443 0000108
6. Pittsfield STP	Pittsfield	Sebasticoock River	0100528
7. Waterville SD Wyandotte Industries Co Scott Paper Co-Winslow Keyes Fibre-Waterville Keyes Fibre-Shawmut	Waterville Waterville Winslow Waterville Shawmut	Kennebec River Kennebec River Piscataquis River Kennebec River Kennebec River	0101508 0000787 0021521 0000337 0000302
8. Augusta SD Statler Industries Inc. Globe Albany Corp.	Augusta Augusta N. Monmouth	Kennebec River Kennebec River Wilson Stream	0100013 0002224 0001911
9. Gardiner Yorktowne Paper Mills	Gardiner Gardiner	Kennebec River Cobbosseecontee	0101702 0002542

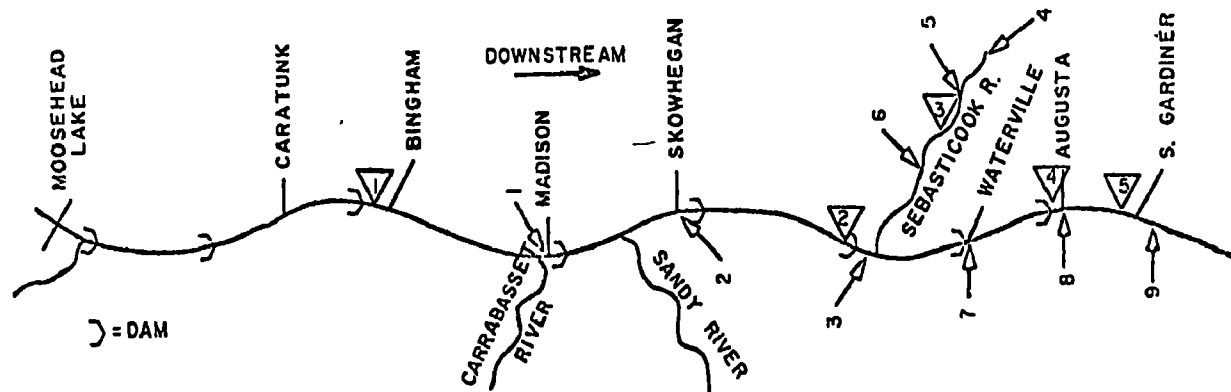
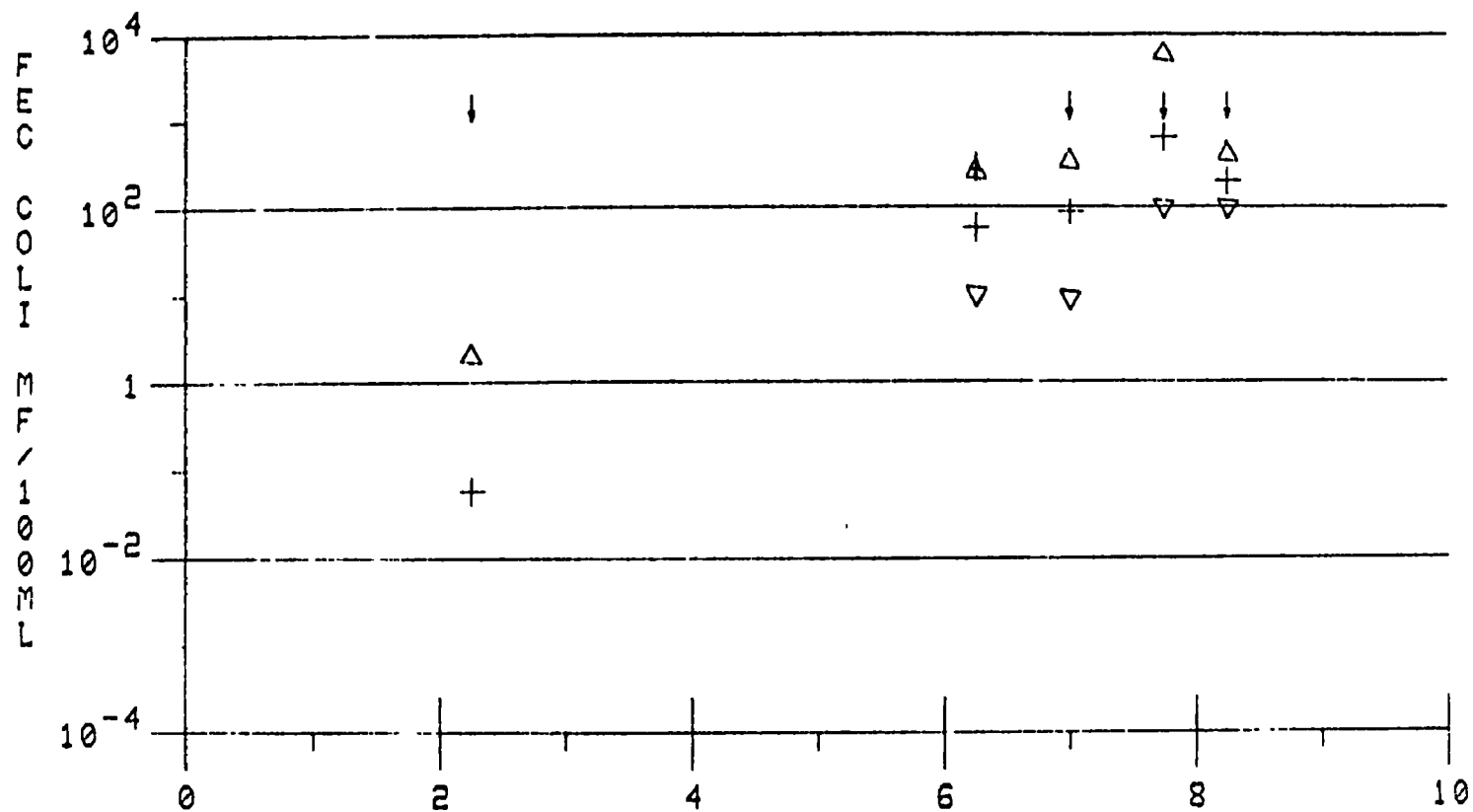
# REGION I WQ ASSESSMENT REPORT - KENNEBEC R. (ME)



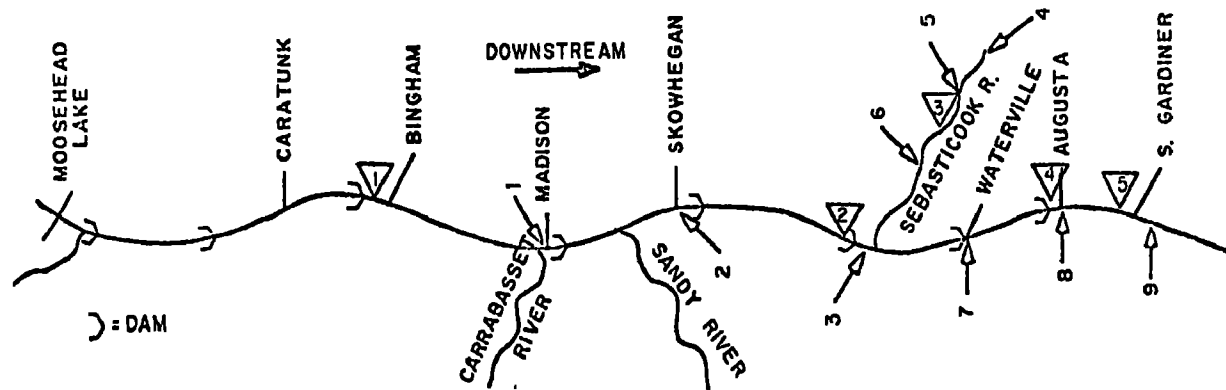
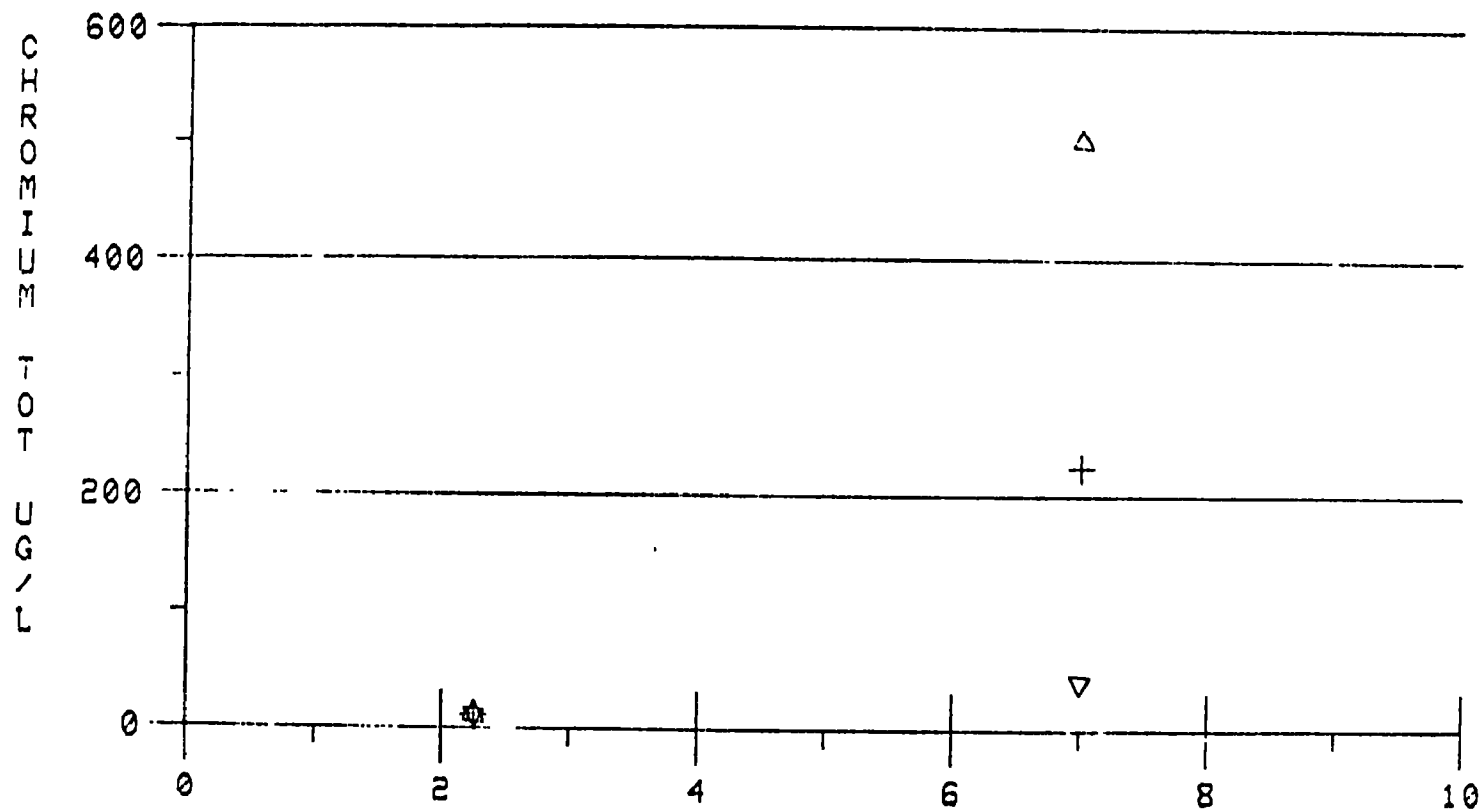
# REGION I WQ ASSESSMENT REPORT - KENNEBEC R. (ME)



# REGION I WQ ASSESSMENT REPORT - KENNEBEC R. (ME)



# REGION I WQ ASSESSMENT REPORT - KENNEBEC R. (ME)



### 3.26 PENOBSCOT RIVER BASIN

The Penobscot River Basin with a drainage area of 8,910 square miles is the largest basin to lie totally within Maine's boundaries. The mainstem drains a complex network of lakes in northern Maine and flows 74 miles to the ocean at Penobscot Bay.

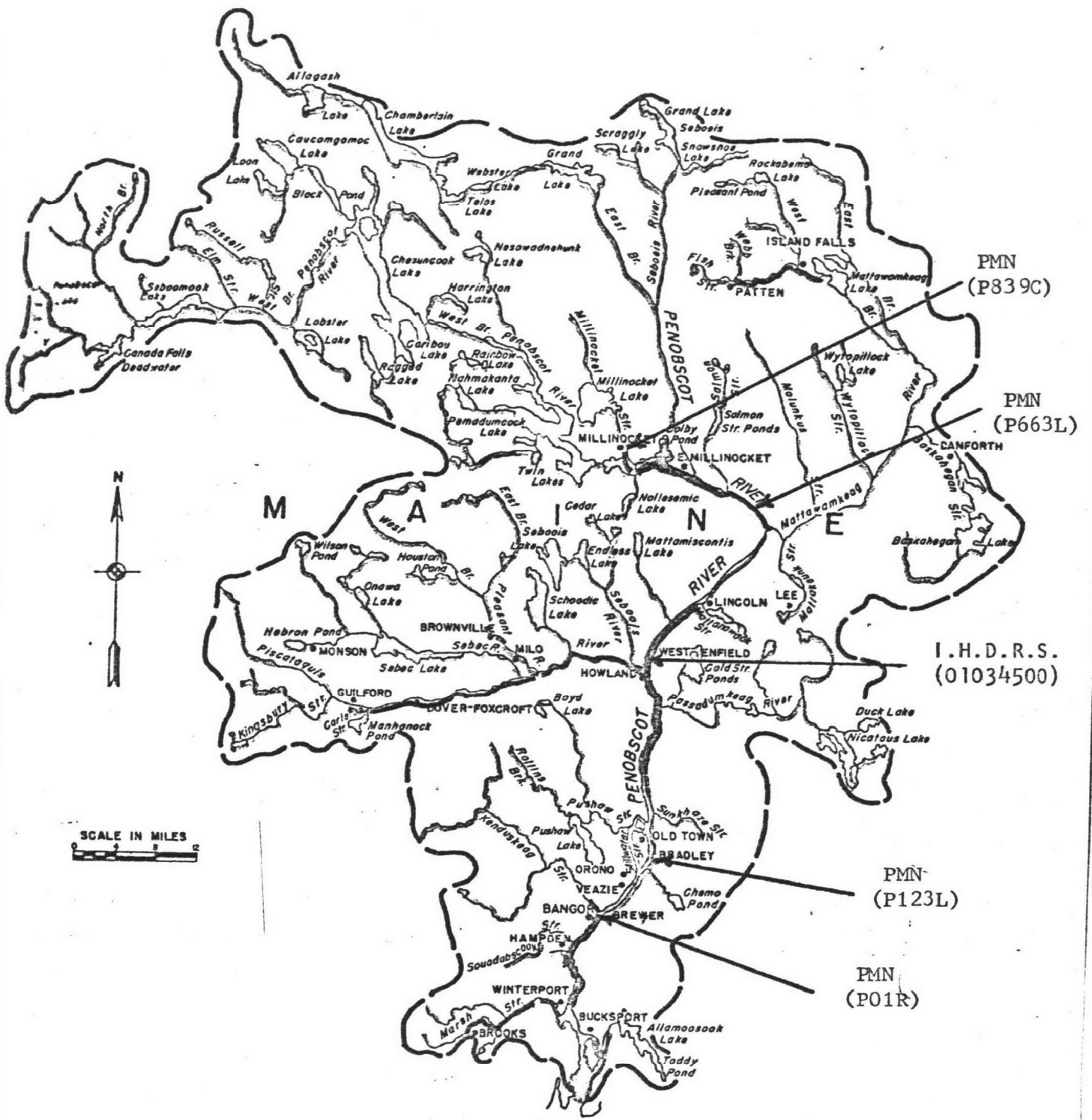
Data from five stations in the Penobscot River basin showed no violations of pH, DO or coliform standards.

Many industries along the Penobscot River and its tributaries have operational wastewater treatment plants. Others are in various stages of completion and are expected to be operational by the end of October, 1976.

The Operation and Maintenance Section performed inspections at both the Orono and Bangor Wastewater Treatment Facilities.

PENOBSCOT RIVER  
(MAINE)  
in  
DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Ferguson Lake Canal at Millinocket, ME	PMN P839C
2.	Penobscot River at Mattawamkeag, ME	PMN P663L
3.	Penobscot River at West Enfield, ME	U.S.G.S. 01034500
4.	Penobscot River at Bradley, ME	PMN P123L
5.	Penobscot River at Bangor, ME	PMN P01R



# PENOBSCOT RIVER BASIN

MAINE

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION P839C

PENOBSCOT R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	11	0.	0.0	2.00	NONE	11.45

STATION P663L

PENOBSCOT R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	11	0.	0.0	5.00	NONE	9.56
PH SU	12	0.	0.0	6.00	8.50	6.15
COLIFORM TOT MFIM/100ML	9	0.	0.0	NONE	5000.00	230.13
COLIFORM FEC MF/100ML	11	0.	0.0	NONE	1000.00	56.03

STATION 01034500

PENOBSCOT R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
PH SU	12	0.	0.0	6.00	8.50	6.67
COLIFORM FEC MF/100ML	11	0.	0.0	NONE	1000.00	82.61

\* GEOMETRIC MEAN FOR COLIFORMS

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION P123L

PENOBSCOT R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	9	0.	0.0	5.00	NONE	10.29
PH SU	11	0.	0.0	6.00	8.50	6.28
COLIFORM TOT MFIM/100ML	8	0.	0.0	NONE	5000.00	246.92
COLIFORM FEC MF/100ML	10	0.	0.0	NONE	1000.00	28.12

STATION P01R

PENOBSCOT R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	10	0.	0.0	5.00	NONE	11.12
PH SU	10	0.	0.0	6.00	8.50	6.52
COLIFORM TOT MFIM/100ML	9	0.	0.0	NONE	5000.00	574.03
COLIFORM FEC MF/100ML	11	0.	0.0	NONE	1000.00	97.18

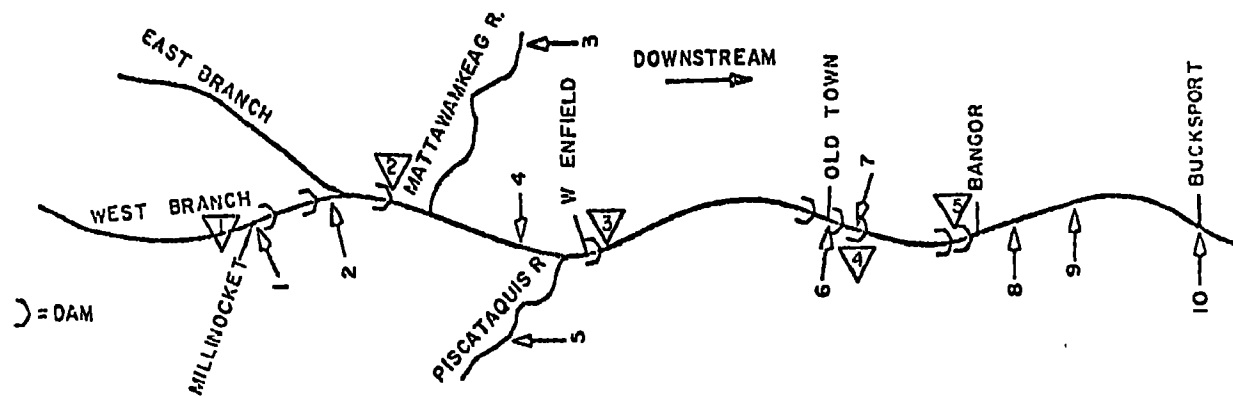
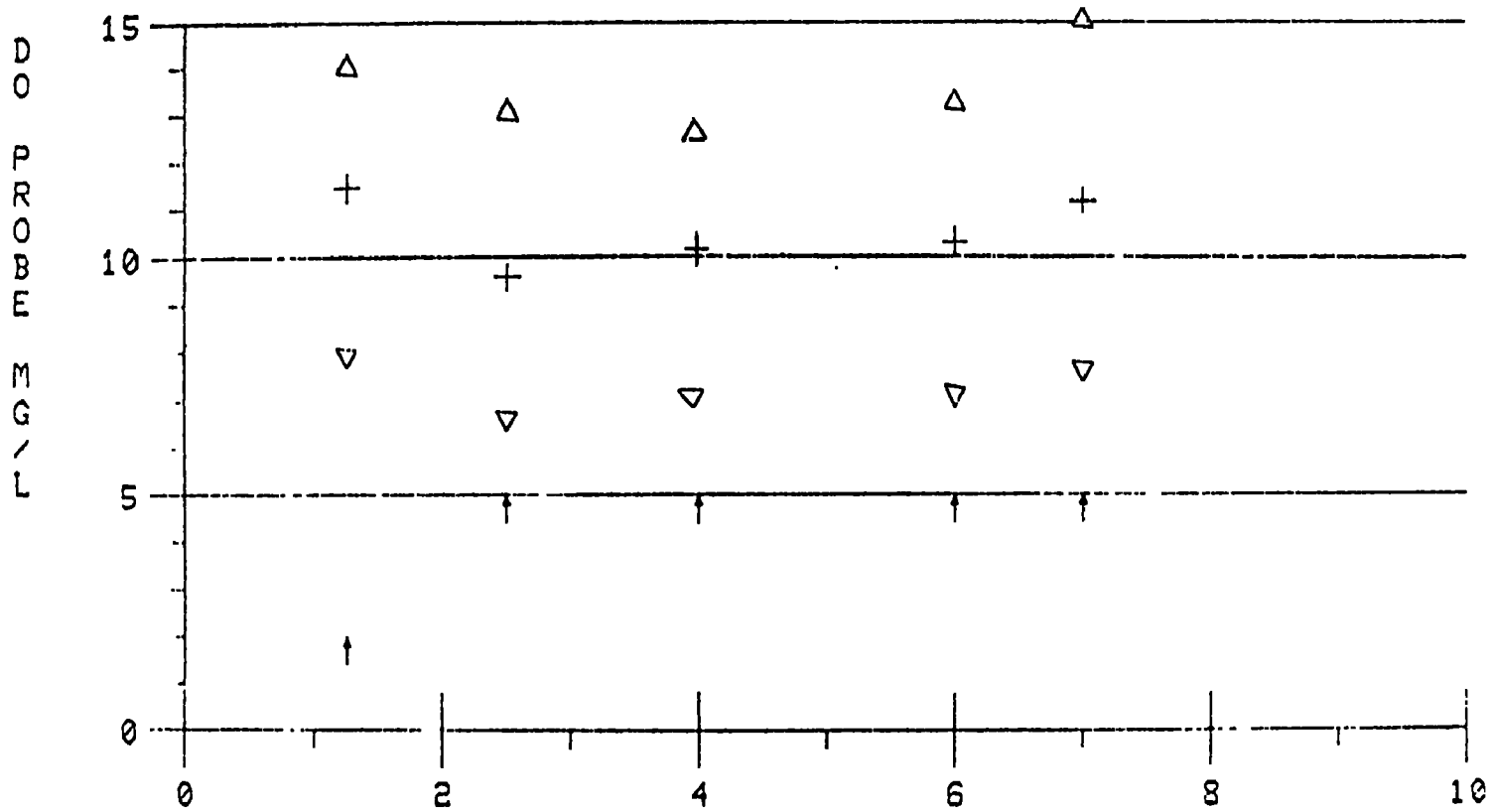
\* GEOMETRIC MEAN FOR COLIFORMS

# SIGNIFICANT DISCHARGERS

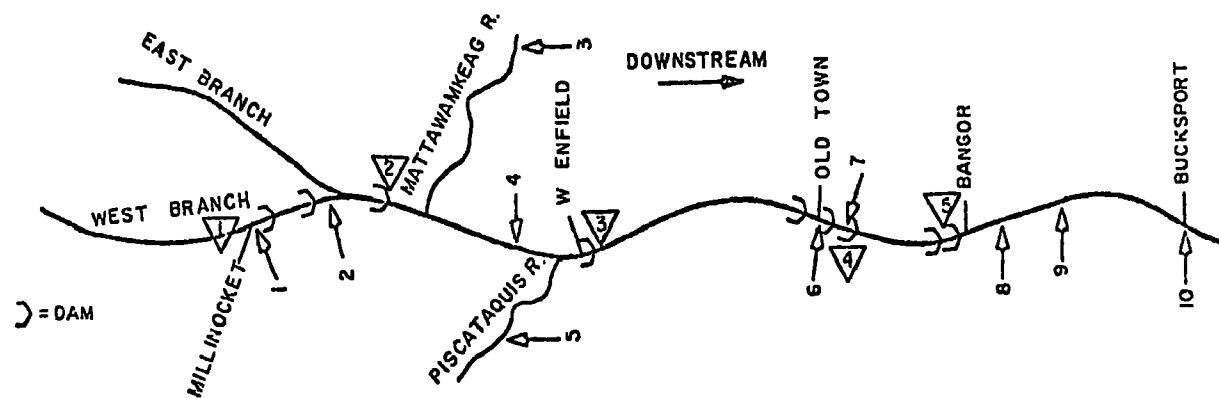
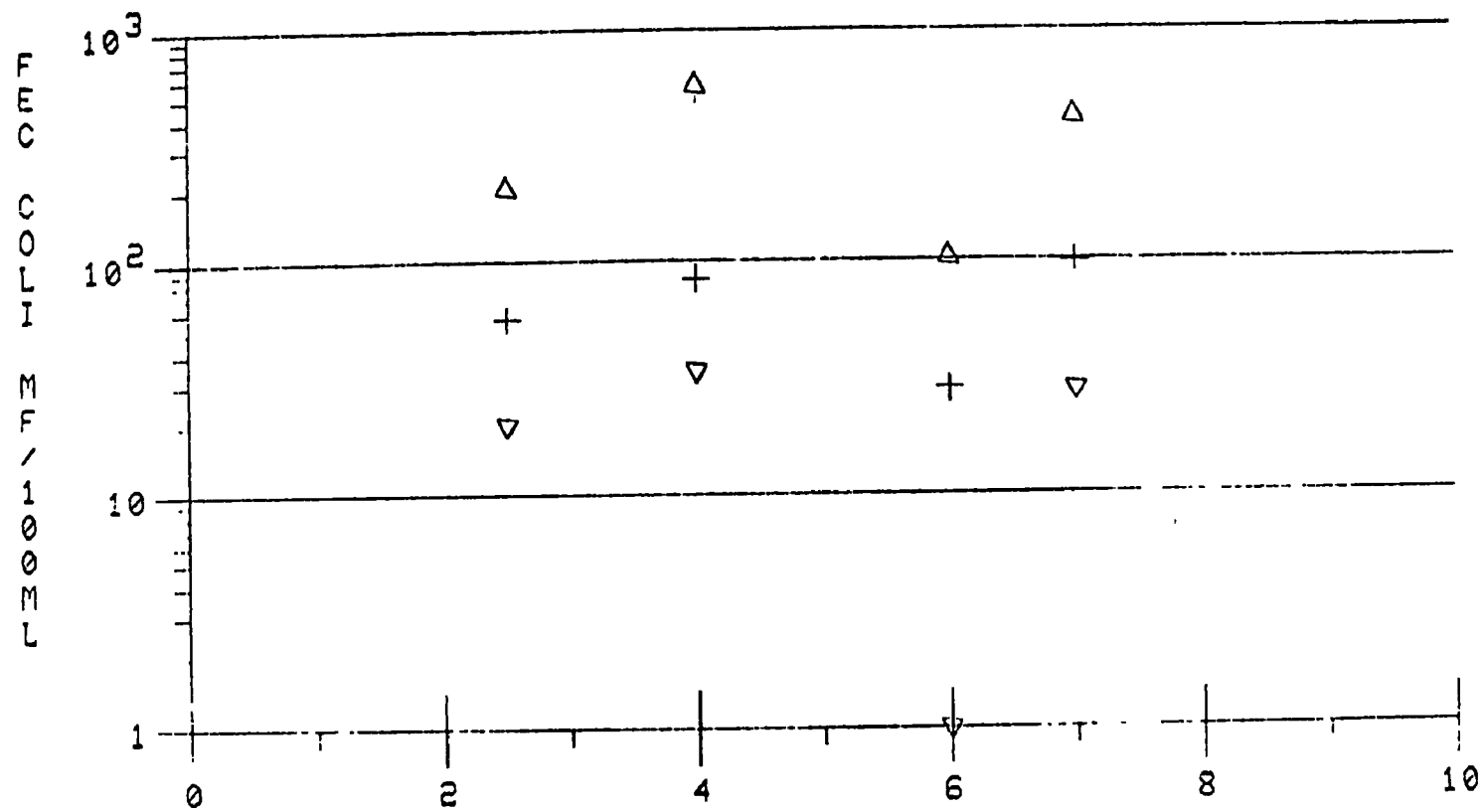
## PENOBSCOT RIVER BASIN

<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. Great Northern Paper Millinocket STP	Baileyville Millinocket	Penobscot River Millinocket Stream	0000167 0100803
2. Great Northern Paper	E. Millinocket	Penobscot River	0000175
3. Stein-Hall Co.	Island Falls	Mattawamkeag River	0001856
4. Lincoln Pulp and Paper Co.	Lincoln	Penobscot River	0002003
5. Guildford Industries Inc.	Guildford	Piscatoquis River	0001902
6. Owens Illinois Inc. Old Town STP	Oldtown Oldtown	Penobscot River Penobscot River	0002046 0100471
7. Diamond International Corp.	Oldtown	Penobscot River	0002020
8. Eastern Fine Paper Brewer STP	Brewer Brewer	Penobscot River Penobscot River	0000086 0100072
9. Sobin Chlor-Alkali Inc.	Orrington	Penobscot River	0000639
10. St. Regis Paper Co. Bucksport STP	Bucksport Bucksport	Penobscot River Penobscot River	0002160 0100111

# REGION I WQ ASSESSMENT REPORT - PENOBSCOT R. (ME)



# REGION I WQ ASSESSMENT REPORT - PENOBSCOT R. (ME)



### 3.27 ST. CROIX BASIN (MAINE)

The St. Croix River drains the Chiputneticook Lakes and forms the Maine - Canada border for 77 miles before it flows into the ocean at Calais, Maine.

The Georgia-Pacific Corporation paper mill in Woodland is the only major industrial discharger in the basin. Discharges from this plant control the quality of the St. Croix from Woodland to the ocean.

The following data shows that the DO standards were violated in July and August, while no violations were reported for fecal coliform or pH. Total coliform which had been violated consistently in the past was not monitored.

Georgia-Pacific Corporation's treatment plant is not yet operational. The plant was scheduled to attain operational level July 1, 1976, but leaks in a force main required that four miles of pipe be replaced. The company requested an extension until October 1, 1976 which was not granted. The State of Maine and EPA, Region 1 were still negotiating with Georgia-Pacific as of September 30 and no operational level date had been established.

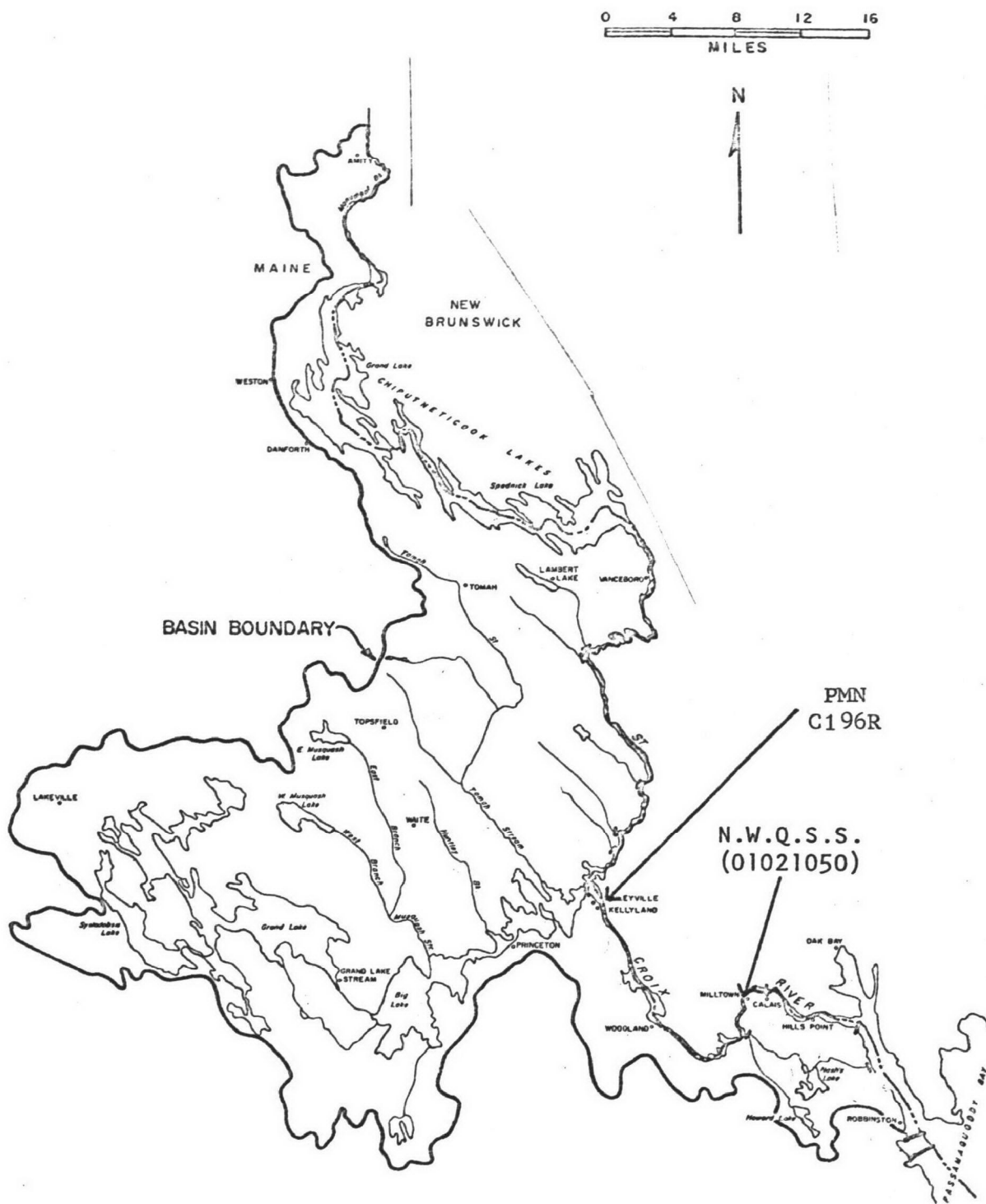
ST. CROIX RIVER BASIN

(MAINE)

in

DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	St. Croix River at Kellyland	PMN C196R
2.	St. Croix River at Milltown, ME	U.S.G.S. 01021050



# SAINT CROIX RIVER BASIN

MAINE

# SUMMARY OF WATER QUALITY VIOLATIONS

STATION C196R

ST. CROIX R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS	PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM	ARITH MEAN *
DISS. OXYGEN PROBE MG/L	11 0.	0.0	5.00 NONE	10.90
PH SU	11 0.	0.0	6.00 8.50	6.33
COLIFORM TOT MFIM/100ML	7 0.	0.0	NONE 5000.00	2.20
COLIFORM FEC MF/100ML	11 0.	0.0	NONE 1000.00	0.05

STATION 01021050

ST. CROIX R. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS	PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM	ARITH MEAN *
DISS. OXYGEN MG/L	21 3.	14.29	5.00 NONE	9.11
PH SU	22 0.	0.0	6.00 8.50	6.58
COLIFORM FEC MF/100ML	20 0.	0.0	NONE 1000.00	26.88

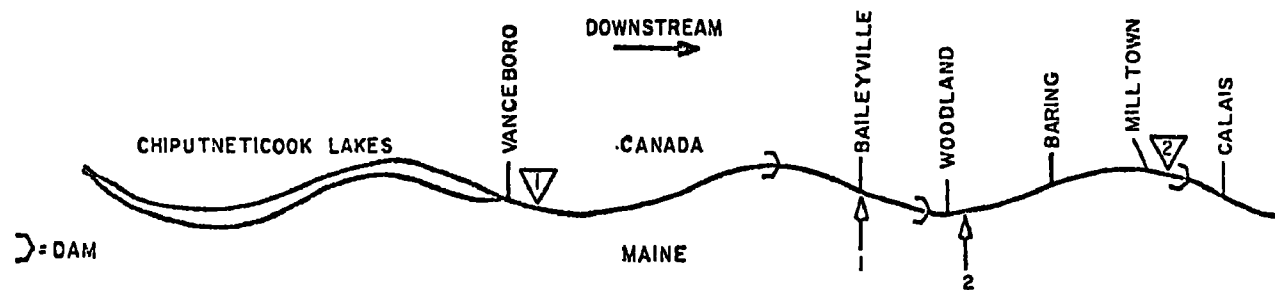
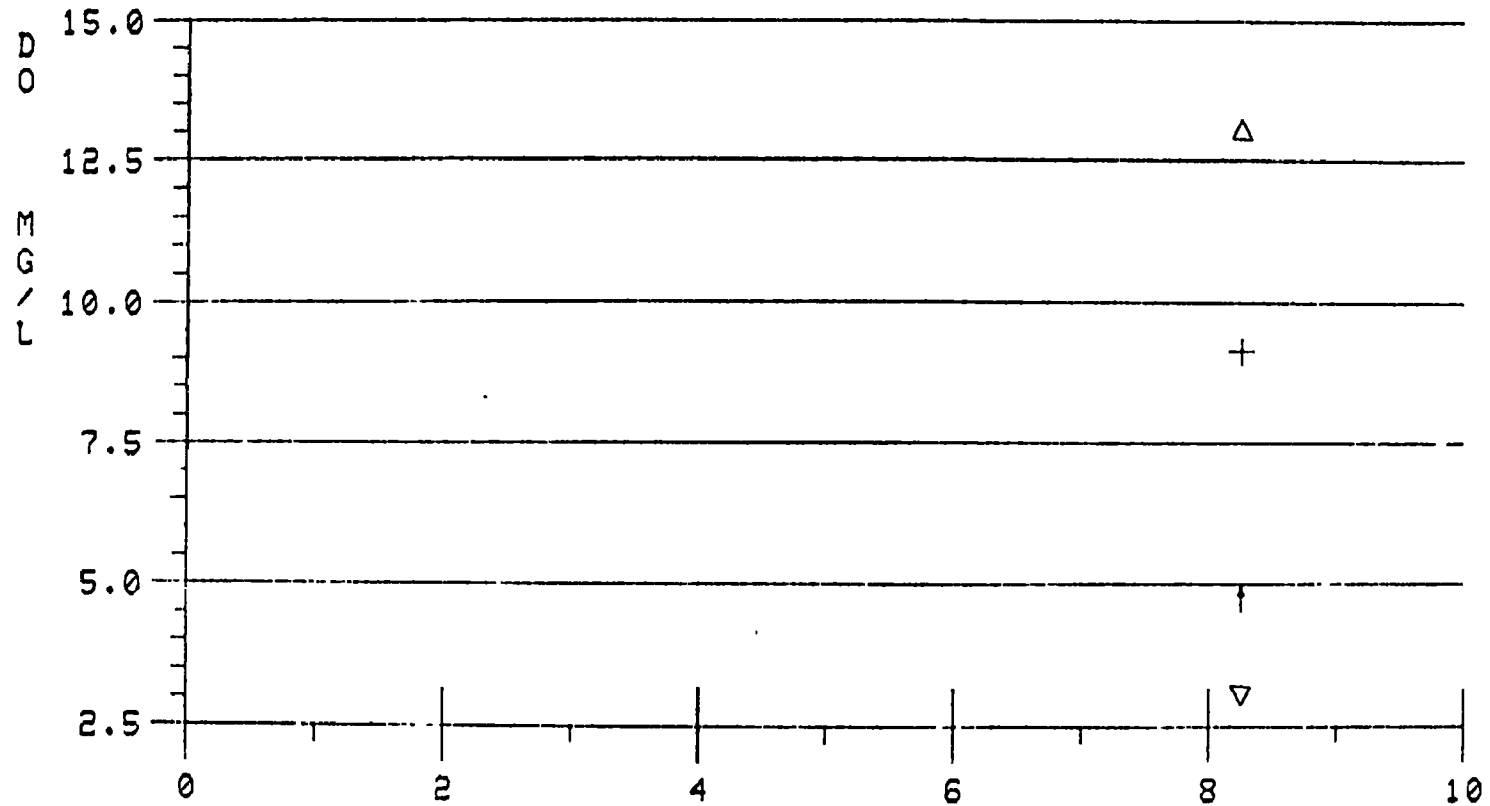
\* GEOMETRIC MEAN FOR COLIFORMS

SIGNIFICANT DISCHARGERS

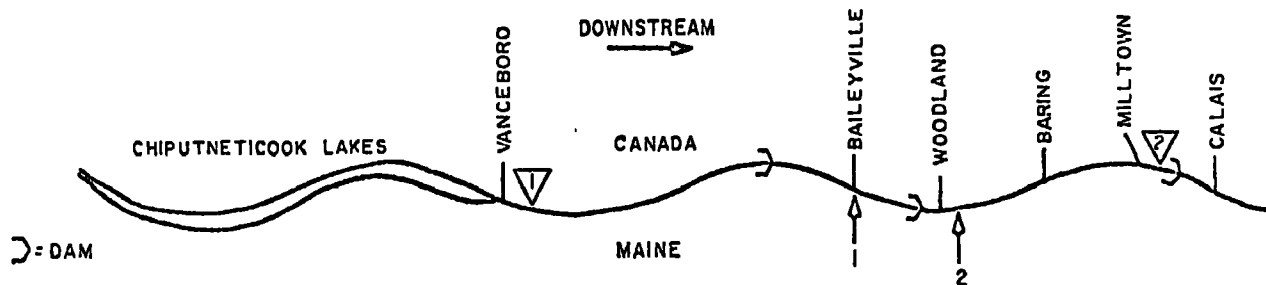
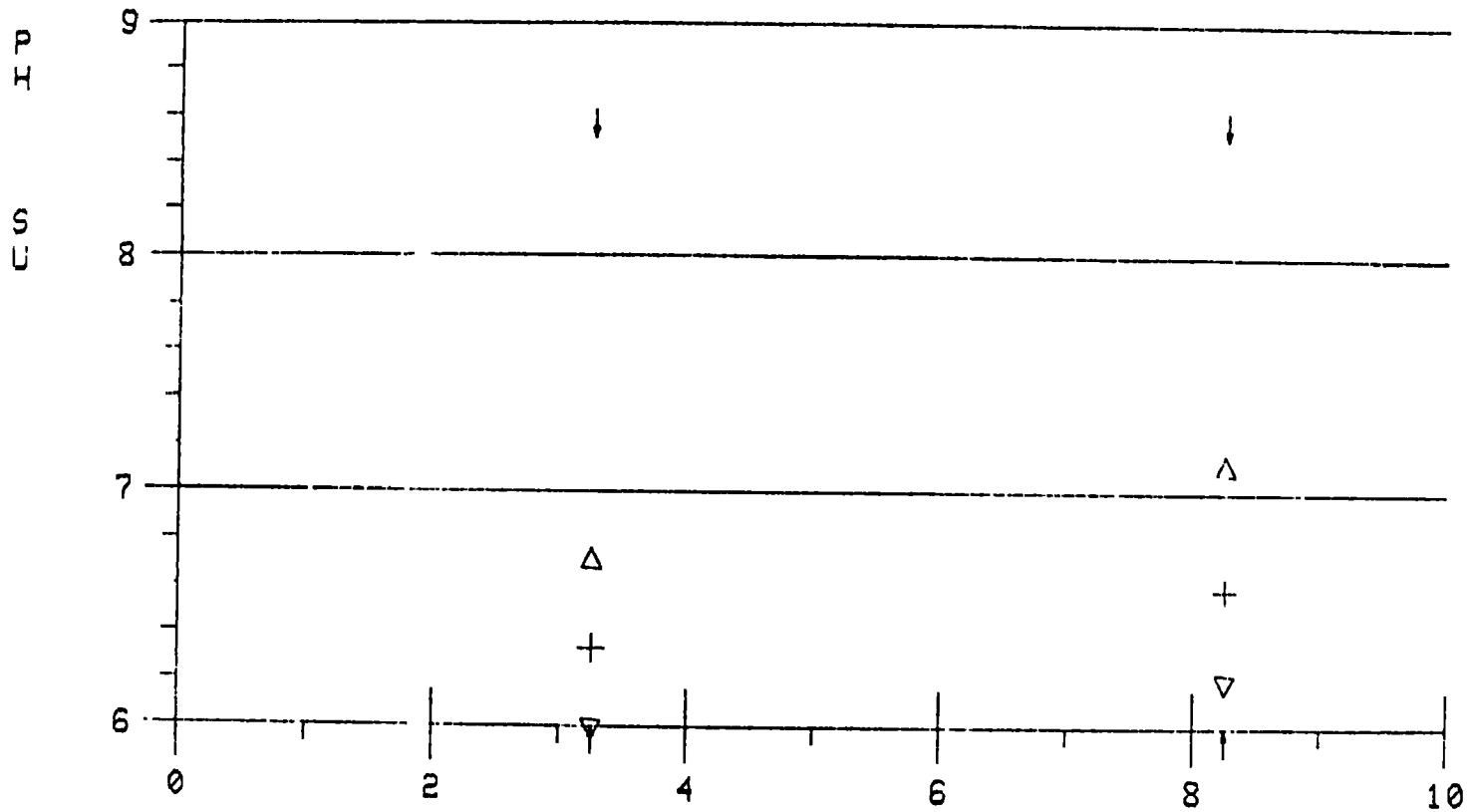
ST. CROIX RIVER BASIN

<u>Discharger</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. Baileyville WPCF	Baileyville	St. Croix River	0101320
2. Georgia-Pacific Woodland	Baileyville	St. Croix River	0001872

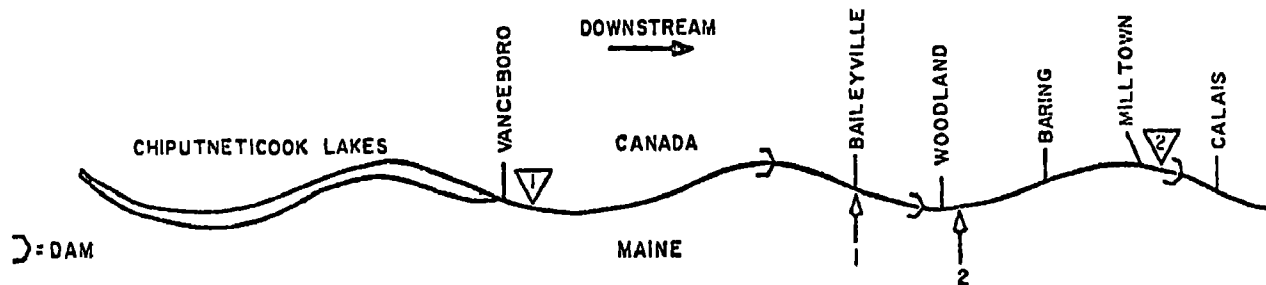
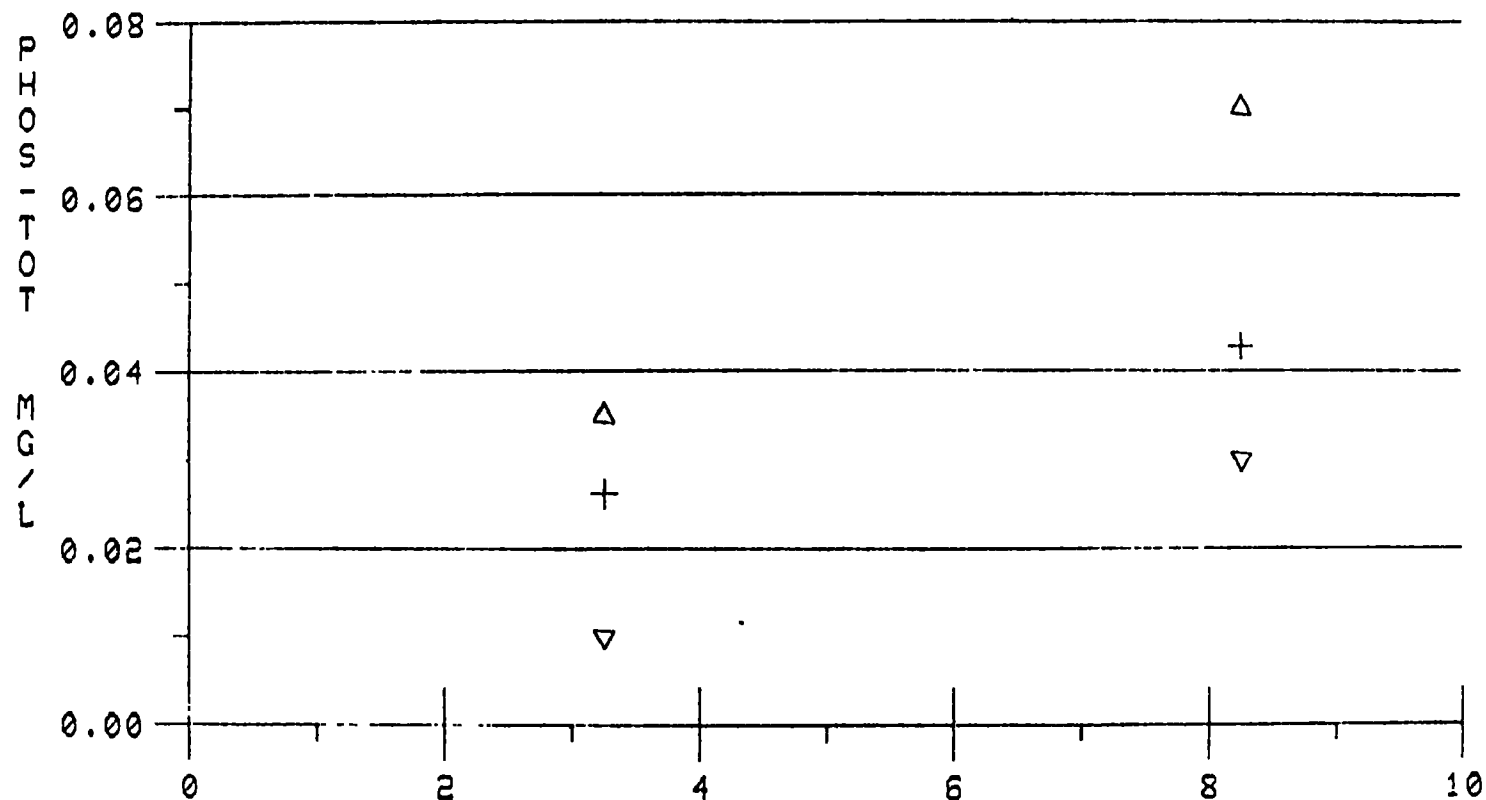
# REGION I WQ ASSESSMENT REPORT - ST. CROIX R. (ME)



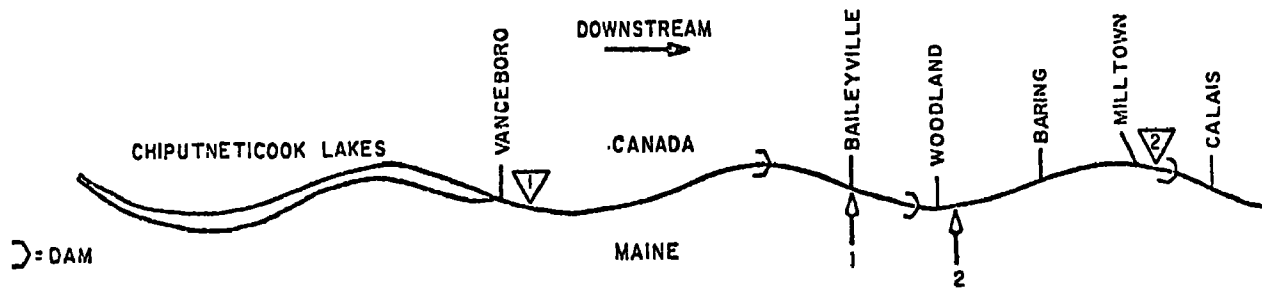
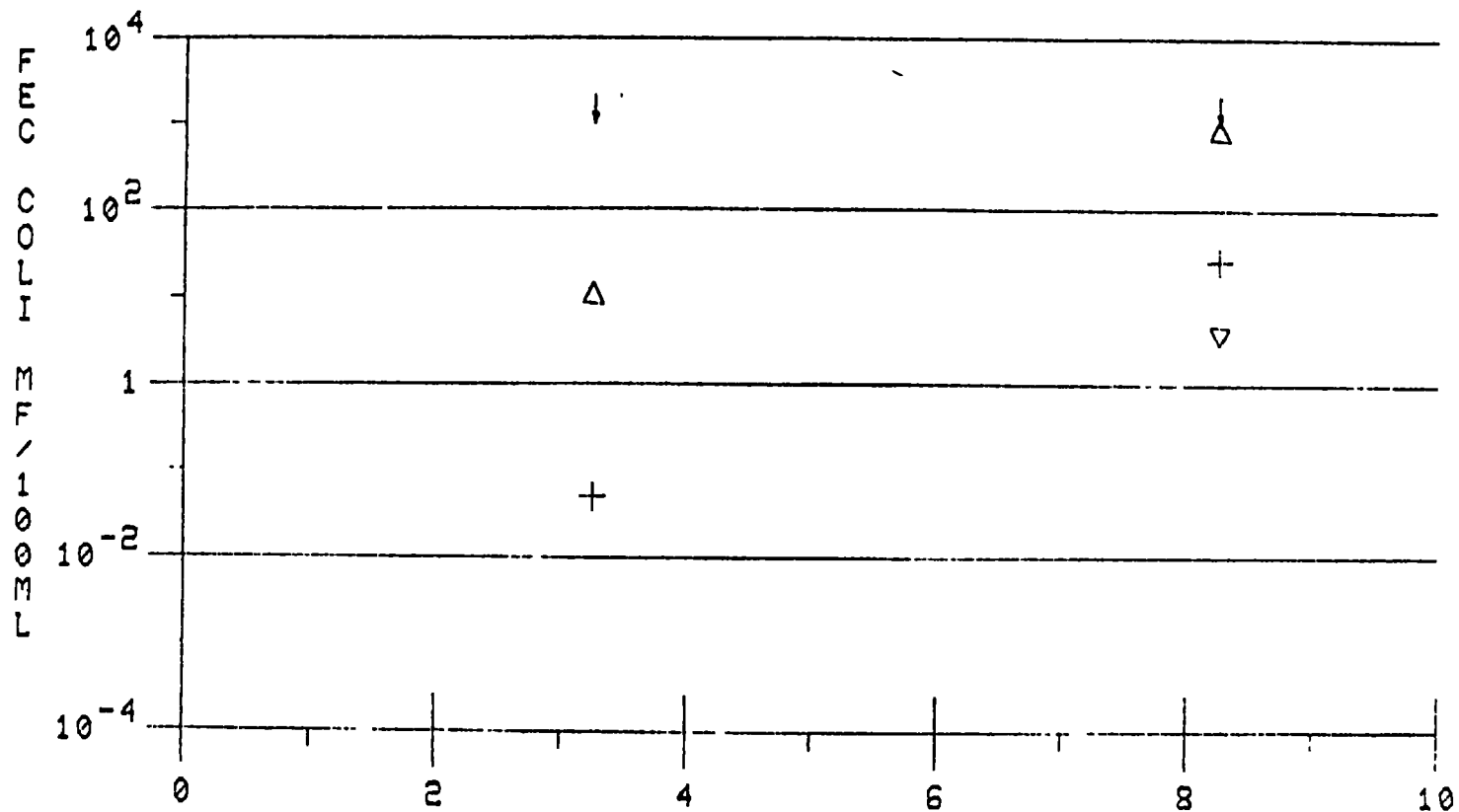
# REGION I WQ ASSESSMENT REPORT - ST. CROIX R. (ME)



# REGION I WQ ASSESSMENT REPORT - ST. CROIX R. (ME)



# REGION I WQ ASSESSMENT REPORT - ST. CROIX R. (ME)



### 3.28 ST. JOHN RIVER BASIN

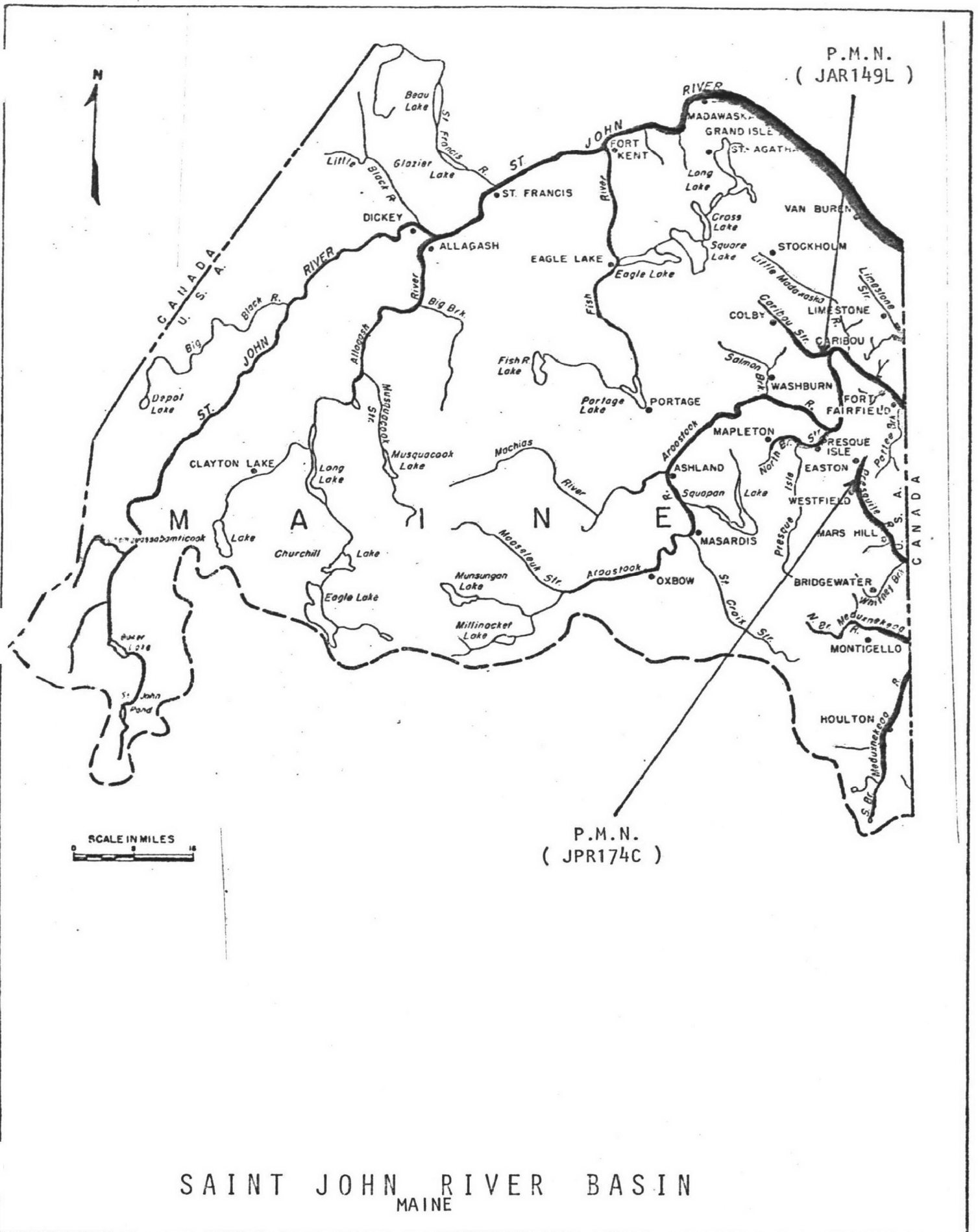
The St. John River Basin drains the northernmost portion of Maine and parts of southern New Brunswick. The mainstem forms the United States - Canadian border from St. Francis to Hamlin, Maine. Major tributaries to the St. John are the St. Francis, Allagash, Fish and Aroostook Rivers.

The two stations monitored in this basin are on the Aroostook River and the Prestile Stream. Water quality standards for total coliform were reported violated in June at the Prestile Stream station and in January, May, June, July, August and September at the Aroostook River station in Caribou. The Aroostook River station also violated its B-1 standard for fecal coliform during the months of May, June, July, August and September. The increase in violations at this station was primarily due to the shut down of the secondary treatment plant at Potato Services, Inc.

The municipal wastewater treatment facilities at Presque Isle, Mapleton, Mars Hill and Houlton were inspected by personnel from the Operations and Maintenance Section.

ST. JOHN BASIN  
{MAINE}  
in  
DOWNSTREAM ORDER

Plot Station Number	Station Location	Map Station Number
1.	Prestile Stream Easton, ME	PMN JPR174C
2.	Aroostook River Caribou Dam, Caribou, ME	PMN JAR149L



# SUMMARY OF WATER QUALITY VIOLATIONS

STATION JPRI74C

ST. JOHNS R. TRIB. (ME)

PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	8	0.	0.0	5.00	NONE	11.26
PH SU	7	0.	0.0	6.00	8.50	7.41
COLIFORM TOT MFIM/100ML	7	1.	14.29	NONE	5000.00	888.84
COLIFORM FEC MF/100ML	8	0.	0.0	NONE	1000.00	42.78

STATION JARI49L

AROOSTOOK R. (ME)

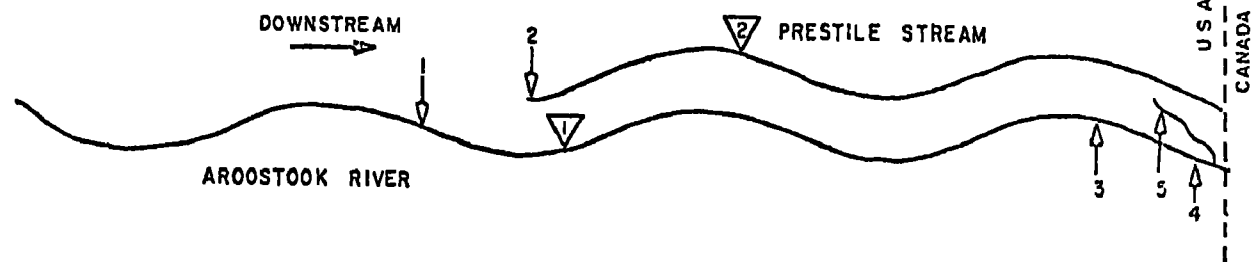
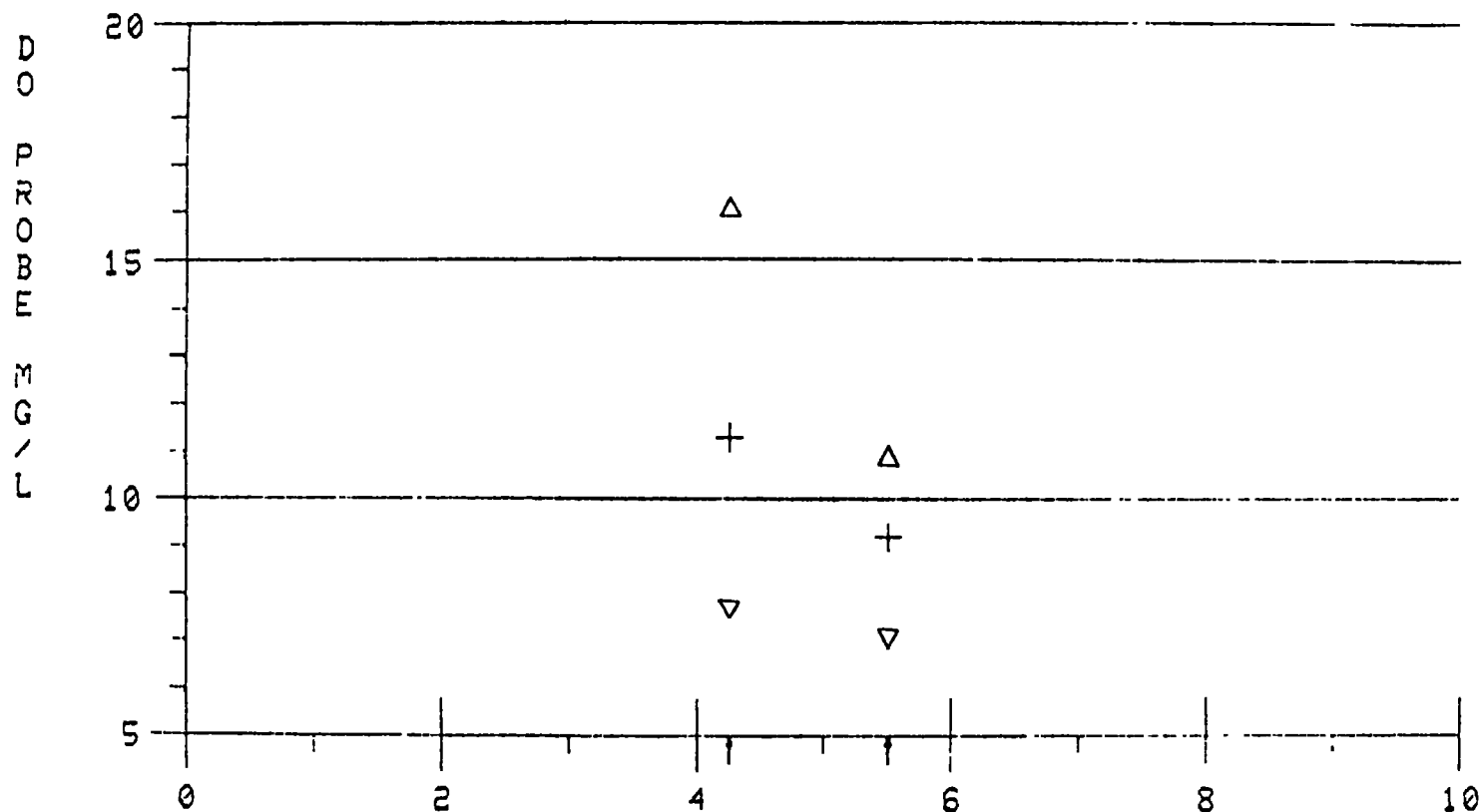
PARAMETER	- NUMBER OF - VALUES VIOLATIONS		PERCENT VIOLATIONS	- CRITERIA - MINIMUM MAXIMUM		ARITH MEAN *
DISS. OXYGEN PROBE MG/L	7	0.	0.0	5.00	NONE	9.16
PH SU	6	0.	0.0	6.00	8.50	7.36
COLIFORM TOT MFIM/100ML	6	6.	100.00	NONE	300.00	2285.24
COLIFORM FEC MF/100ML	7	5.	71.43	NONE	60.00	83.72

\* GEOMETRIC MEAN FOR COLIFORMS

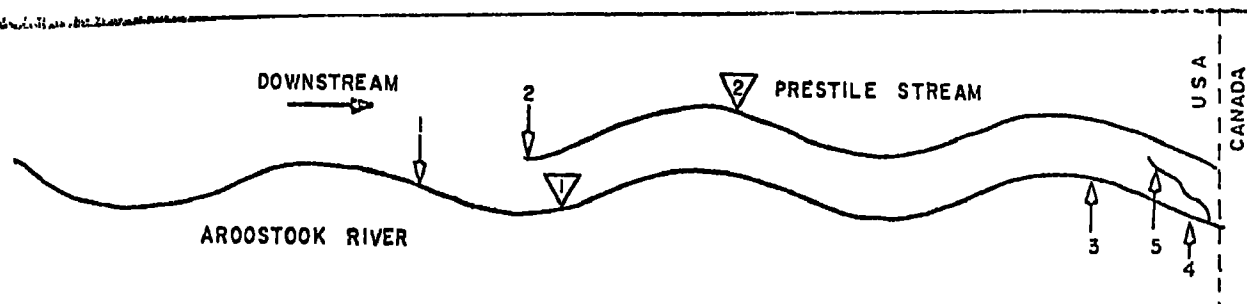
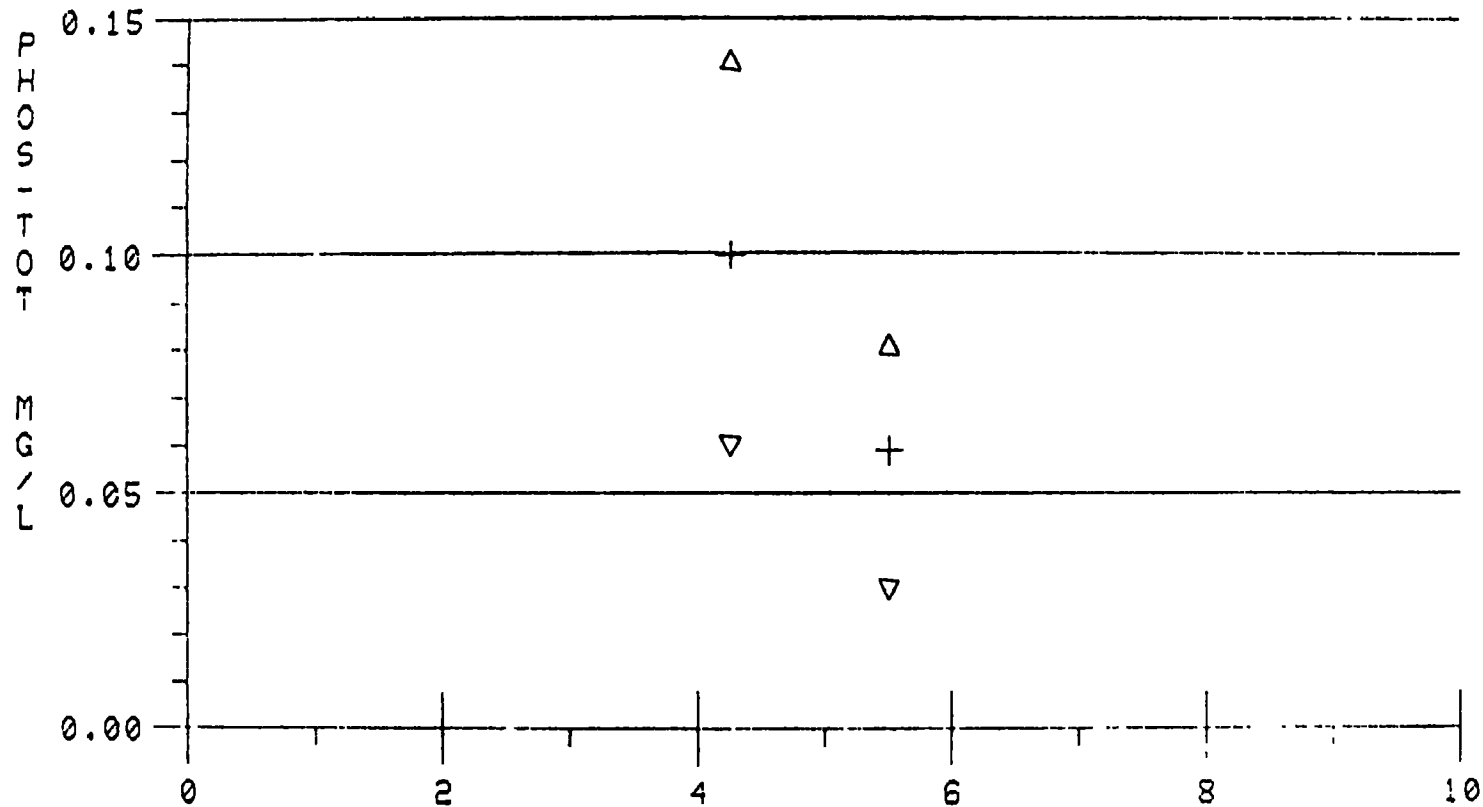
# SIGNIFICANT DISCHARGERS

## ST. JOHN RIVER BASIN

<u>Discharger-</u>	<u>Location</u>	<u>Receiving Water</u>	<u>NPDES No.</u>
1. McCain's Foods	Presque Isle	Aroostook River	0000566
2. Vahlsing Inc.	Easton	Prestile Stream	0002551
3. Caribou STP	Caribou	Aroostook River	0100145
4. Fort Fairfield STP	Fort Fairfield	Aroostook River	0100226
A + P Tea Co.	Fort Fairfield	Aroostook River	0001881



REGION I WQ ASSESSMENT R T - ST. JOHNS R. TRIB. (ME)



# REGION I WQ ASSESSMENT PORT - ST. JOHNS R. TRIB. (ME)

