

History of Water Level Gauges

Lower Great Lakes and International Section of the St. Lawrence River

by

The Coordinating Committee

on

Great Lakes Basic Hydraulic and Hydrologic Data

March 1987

HISTORY OF WATER LEVEL GAUGES

LOWER GREAT LAKES

AND

INTERNATIONAL SECTION OF THE

ST. LAWRENCE RIVER

HISTORY OF WATER LEVEL GAUGES

LOWER GREAT LAKES

AND

INTERNATIONAL SECTION OF THE

ST. LAWRENCE RIVER

TABLE OF CONTENTS

TEXT

<u>Subject</u>	<u>Page</u>
INTRODUCTION.	1
Requirement for internationally coordinated hydraulic and hydrologic data.	1
Establishment of international study	1
Authority.	3
Purpose and scope.	3
Acknowledgements	3
PRESENTATION OF DATA.	5
GAUGE HISTORY - LAKE ONTARIO	
Port Weller, Ontario	37
Port Dalhousie, Ontario.	40
Hamilton, Ontario.	43
Burlington, Ontario.	45
Toronto, Ontario	47
Oshawa, Ontario.	52
Cobourg, Ontario	54
Brighton, Ontario.	56
Point Petre, Ontario	58
Kingston, Ontario.	60
Tibbetts Point, New York	63
Sackets Harbor, New York	65
Port Ontario, New York	68
Oswego, New York	71
Little Sodus Bay, New York	74
Sodus Bay, New York.	77
Rochester, New York.	80
Oak Orchard, New York.	85
Olcott, New York	88
Wilson, New York	91
Fort Niagara, New York	94

Subject

Page

GAUGE HISTORY - ST. LAWRENCE RIVER

Brockville, Ontario.	97
Prescott, Ontario.	99
North Channel-CA, Ontario.	101
H-10-CA, Ontario	103
Lock 27, Ontario	105
H-25-CA, Ontario	107
Galop, Ontario	109
Cardinal, Ontario.	111
Iroquois Dam HW, Ontario	113
Iroquois Dam TW, Ontario	115
Iroquois Lock Above, Ontario	117
Iroquois Lock Below, Ontario	119
Lock 25, Ontario	121
Iroquois-CA, Ontario	123
H-1-CA, Ontario.	125
Lock 24, Ontario	127
Morrisburg, Ontario.	129
Morrisburg-CA, Ontario	131
Lock 23, Ontario	133
D-35-CA, Ontario	135
H-23-CA, Ontario	137
Lock 22, Ontario	139
H-2-CA, Ontario.	141
Lock 21, Ontario	143
Dickinson Landing-CA, Ontario.	145
H-22-CA, Ontario	147
H-20-CA, Ontario	149
Saunders HW, Ontario	151
Saunders TW, Ontario	153
International TW, Ontario.	155
Long Sault, Ontario.	157
Cornwall, Ontario.	159
Summerstown, Ontario	163
H-9-CA, Ontario.	165
H-21-CA, Ontario	167
Pollys Gut, New York	169
H-26-CA, New York.	171
Moses TW, New York	173
Moses HW, New York	175
B-3-A, New York.	177
B-2-A, New York.	179
B-1-A, New York.	181
Long Sault Dam HW, New York.	183
H-18-CA, New York.	185
H-17-CA, New York.	187
H-16-CA, New York.	189
Richards Point, New York	191
Louisville Landing, New York	193
H-15-CA, New York.	195
Waddington, New York	197

Subject

Page

GAUGE HISTORY - ST. LAWRENCE RIVER (Continued)

H-12-CA, New York	199
H-11-CA, New York	201
V-CA, New York	203
X-CA, New York	205
Chimney Point-CA, New York	207
Ogdensburg, New York	209
Morristown, New York	213
Alexandria Bay, New York	215
Clayton, New York.	218
Cape Vincent, New York	220

GAUGE HISTORY - LAKE ERIE

Fort Erie, Ontario	223
Port Colborne, Ontario	225
Port Dover, Ontario.	228
Port Stanley, Ontario.	230
Erieau, Ontario.	233
Pelee Point, Ontario	235
Kingsville, Ontario.	237
Bar Point, Ontario	239
Detroit River Light, Michigan.	241
Fermi Power Plant, Michigan.	243
Monroe, Michigan	245
Toledo, Ohio	248
Toledo Harbor Light, Ohio.	252
Port Clinton, Ohio	254
Put-in-Bay, Ohio	257
Marblehead, Ohio	260
Huron, Ohio.	262
Lorain, Ohio	265
Cleveland, Ohio.	268
Fairport, Ohio	272
Ashtabula, Ohio.	275
Comeaut, Ohio	278
Erie, Pennsylvania	281
Barcelona, New York.	284
Dunkirk, New York.	286
Sturgeon Point, New York	289
Lackawanna, New York	291
Buffalo, New York.	294

GAUGE HISTORY - NIAGARA RIVER

Morrison Street Gauge, Ontario	299
Gauge "B", Ontario	301
Gauge "45", Ontario	303

Subject

Page

GAUGE HISTORY - NIAGARA RIVER (Continued)

SAB #2 Intake, Ontario	305
Material Dock, Ontario	307
Slaters Point, Ontario	309
Bayers Creek, Ontario.	311
Black Creek, Ontario	313
Frenchman Creek, Ontario	315
Custom Dock, Ontario	317
Pump House, Ontario.	319
Peace Bridge Below, Ontario.	321
Peace Bridge Above, Ontario.	323
I.B.M. 35, Ontario	325
Black Rock Canal, New York	327
Niagara Intake, New York	329
Conners Island, New York	331
American Falls, New York	333
Ashland Avenue, New York	335
Suspension Bridge, New York.	337
INDEX	339

PLATES

Plate
No.

GAUGE LOCATION AND RECORD PERIODS

1	Lake Ontario: Location of Water Level Gauging Stations	7
2	St. Lawrence River: Location of Water Level Gauging Stations	8
3	Lake Erie: Location of Water Level Gauging Stations	9
4	Niagara River: Location of Water Level Gauging Stations.	10
5	Lower Lakes Water Level Records, Prior to 1860.	11
6	Lake Ontario Water Level Records, 1860-1930	12
7	Lake Ontario Water Level Records, 1930-Date	13
8	Lake Ontario Water Level Records, 1860-Date	14
9	Lake Ontario Water Level Records, 1930-Date	15
10	St. Lawrence River Water Level Records, 1860-1930	16
11	St. Lawrence River Water Level Records, 1930-Date	17
12	St. Lawrence River Water Level Records, 1860-1930	18
13	St. Lawrence River Water Level Records, 1930-Date	19
14	St. Lawrence River Water Level Records, 1860-1930	20
15	St. Lawrence River Water Level Records, 1930-Date	21

GAUGE LOCATION AND RECORD PERIODS (Continued)

16	St. Lawrence River Water Level Records, 1930-Date	22
17	St. Lawrence River Water Level Records, 1860-1930	23
18	St. Lawrence River Water Level Records, 1930-Date	24
19	St. Lawrence River Water Level Records, 1860-1930	25
20	St. Lawrence River Water Level Records, 1930-Date	26
21	Lake Erie Water Level Records, 1860-1930.	27
22	Lake Erie Water Level Records, 1930-Date.	28
23	Lake Erie Water Level Records, 1860-1930.	29
24	Lake Erie Water Level Records, 1930-Date.	30
25	Lake Erie Water Level Records, 1860-1930.	31
26	Lake Erie Water Level Records, 1930-Date.	32
27	Niagara River Water Level Records, 1860-1930.	33
28	Niagara River Water Level Records, 1930-Date.	34
29	Niagara River Water Level Records, 1930-Date.	35

LAKE ONTARIO GAUGES

30	Port Weller, Ontario, 1929 - Date	39
31	Port Dalhousie, Ontario, 1849 - 1956.	42
32	Hamilton, Ontario, 1960 - 1970.	44
33	Burlington, Ontario, 1970 - Date.	46
34	Toronto, Ontario, 1861 - 1916	49
35	Toronto, Ontario, 1917 - 1926	50
36	Toronto, Ontario, 1926 - Date	51
37	Oshawa, Ontario, 1970 - 1978.	53
38	Cobourg, Ontario, 1956 - Date	55
39	Brighton, Ontario, 1908 - 1909.	57
40	Point Petre, Ontario, 1969 - 1978	59
41	Kingston, Ontario, 1895 - Date.	62
42	Tibbetts Point, New York, 1899 - 1915	64
43	Sackets Harbor, New York, 1859 - 1979	67
44	Port Ontario, New York, 1948 - 1979	70
45	Oswego, New York, 1837 - Date	73
46	Little Sodus Bay, New York, 1935 - 1979	76
47	Sodus Bay, New York, 1935 - 1979.	79
48	Rochester, New York, 1859 - 1961.	83
49	Rochester, New York, 1961 - Date.	84
50	Oak Orchard, New York, 1948 - 1979.	87
51	Olcott, New York, 1899 - Date	90
52	Wilson, New York, 1948 - 1979	93
53	Fort Niagara, New York, 1815 - 1979	96

ST. LAWRENCE RIVER GAUGES

54	Brockville, Ontario, 1933 - Date.	98
55	Prescott, Ontario, 1919 - 1977.	100

ST. LAWRENCE RIVER GAUGES (Continued)

56	North Channel-CA, Ontario, 1954 - 1962.	102
57	H-10-CA, Ontario, 1954 - 1958	104
58	Lock 27, Ontario, 1857 - 1958	106
59	H-25-CA, Ontario, 1954 - 1958	108
60	Galop, Ontario, 1954 - Date	110
61	Cardinal, Ontario, 1954 - Date.	112
62	Iroquois Dam HW, Ontario, 1958 - Date	114
63	Iroquois Dam TW, Ontario, 1958 - Date	116
64	Iroquois Lock Above, Ontario, 1959 - Date	118
65	Iroquois Lock Below, Ontario, 1959 - Date	120
66	Lock 25, Ontario, 1860 - 1958	122
67	Iroquois-CA, Ontario, 1954 - 1958	124
68	H-1-CA, Ontario, 1954 - 1958.	126
69	Lock 24, Ontario, 1860 - 1958	128
70	Morrisburg, Ontario, 1958 - Date.	130
71	Morrisburg-CA, Ontario, 1954 - 1958	132
72	Lock 23, Ontario, 1852 - 1958	134
73	D-35-CA, Ontario, 1954 - 1958	136
74	H-23-CA, Ontario, 1954 - 1958	138
75	Lock 22, Ontario, 1860 - 1956	140
76	H-2-CA, Ontario, 1954 - 1958.	142
77	Lock 21, Ontario, 1860 - 1958	144
78	Dickinson Landing-CA, Ontario, 1954 - 1958.	146
79	H-22-CA, Ontario, 1954 - 1958	148
80	H-20-CA, Ontario, 1954 - 1958	150
81	Saunders HW, Ontario, 1958 - Date	152
82	Saunders TW, Ontario, 1958 - Date	154
83	International TW, Ontario, 1959 - Date.	156
84	Long Sault; Ontario, 1962 - 1977.	158
85	Cornwall, Ontario, 1860 - Date.	161
86	Cornwall, Ontario, 1860 - Date.	162
87	Summerstown, Ontario, 1920 - Date	164
88	H-9-CA, Ontario, 1954 - 1962.	166
89	H-21-CA, Ontario, 1954 - 1965	168
90	Pollys Gut, New York, 1954 - Date	170
91	H-26-CA, New York, 1954 - 1965.	172
92	Moses TW, New York, 1958 - Date	174
93	Moses HW, New York, 1958 - Date	176
94	B-3-A, New York, 1954 - 1959.	178
95	B-2-A, New York, 1954 - 1959.	180
96	B-1-A, New York, 1954 - 1958.	182
97	Long Sault Dam HW, New York, 1958 - Date.	184
98	H-18-CA, New York, 1954 - 1958.	186
99	H-17-CA, New York, 1955 - 1958.	188
100	H-16-CA, New York, 1954 - 1958.	190
101	Richards Point, New York, 1958 - 1962	192
102	Louisville Landing, New York, 1936 - 1939	194
103	H-15-CA, New York, 1954 - 1958.	196

ST. LAWRENCE RIVER GAUGES (Continued)

104	Waddington, New York, 1936 - Date	198
105	H-12-CA, New York, 1954 - 1958.	200
106	H-11-CA, New York, 1954 - 1958.	202
107	V-CA, New York, 1954 - 1958	204
108	X-CA, New York, 1954 - 1958	206
109	Chimney Point-CA, New York, 1954 - 1958	208
110	Ogdensburg, New York, 1868 - Date	212
111	Morristown, New York, 1954 - 1980	214
112	Alexandria Bay, New York, 1954 - Date	217
113	Clayton, New York, 1954 - 1980.	219
114	Cape Vincent, New York, 1898 - Date	222

LAKE ERIE GAUGES

115	Fort Erie, Ontario, 1958 - Date	224
116	Port Colborne, Ontario, 1860 - Date	227
117	Port Dover, Ontario, 1958 - Date.	229
118	Port Stanley, Ontario, 1908 - Date.	232
119	Erieau, Ontario, 1957 - Date.	234
120	Pelee Point, Ontario, 1964 - 1980	236
121	Kingsville, Ontario, 1961 - Date.	238
122	Bar Point, Ontario, 1966 - Date	240
123	Detroit River Light, Michigan, 1928 - 1963.	242
124	Fermi Power Plant, Michigan, 1962 - Date.	244
125	Monroe, Michigan, 1859 - Date	247
126	Toledo, Ohio, 1877 & 1935 - Date.	250
127	Toledo, Ohio, 1906 - 1939	251
128	Toledo Harbor Light, Ohio, 1904 - 1964.	253
129	Port Clinton, Ohio, 1912 - 1979	256
130	Put-in-Bay, Ohio, 1909 - 1979	259
131	Marblehead, Ohio, 1959 - Date	261
132	Huron, Ohio, 1935 - 1979.	264
133	Lorain, Ohio, 1902 - 1979	267
134	Cleveland, Ohio, 1838 - 1963.	270
135	Cleveland, Ohio, 1964 - Date.	271
136	Fairport, Ohio, 1888 - Date	274
137	Ashtabula, Ohio, 1872 - 1979.	277
138	Conneaut, Ohio, 1893 - 1979	280
139	Erie, Pennsylvania, 1859 - Date	283
140	Barcelona, New York, 1948 - Date.	285
141	Dunkirk, New York, 1875 - 1979.	288
142	Sturgeon Point, New York, 1969 - Date	290
143	Lacawanna, New York, 1836 - 1979.	293
144	Buffalo, New York, 1819 - 1851.	296
145	Buffalo, New York, 1859 - Date.	297

NIAGARA RIVER GAUGES

146	Morrison Street Gauge, Ontario, 1922 - 1957	300
147	Gauge "B", Ontario, 1942 - 1964	302
148	Gauge "45", Ontario, 1929 - 1961.	304
149	SAB #2 Intake, Ontario, 1964 - Date	306
150	Material Dock, Ontario, 1926 - Date	308
151	Slaters Point, Ontario, 1928 - Date	310
152	Bayer's Creek, Ontario, 1967 - 1971	312
153	Black Creek, Ontario, 1958 - Date	314
154	Frenchman Creek, Ontario, 1958 - Date	316
155	Custom Dock, Ontario, 1971 - Date	318
156	Pump House, Ontario, 1967 - 1975.	320
157	Peace Bridge Below, Ontario, 1967 - Date.	322
158	Peace Bridge Above, Ontario, 1970 - 1977.	324
159	I.B.M. 35, Ontario, 1976 - Date	326
160	Black Rock Canal, New York, 1932 - 1975	328
161	Niagara Intake, New York, 1962 - Date	330
162	Conners Island, New York, 1920 - 1958	332
163	American Falls, New York, 1955 - Date	334
164	Ashland Avenue, New York, 1957 - Date	336
165	Suspension Bridge, New York, 1906 - 1931.	338

HISTORY OF WATER LEVEL GAUGES
LOWER GREAT LAKES
AND
INTERNATIONAL SECTION OF THE
ST. LAWRENCE RIVER

INTRODUCTION

Requirement for internationally coordinated hydraulic and hydrologic data. The Great Lakes-St. Lawrence River system extends southerly and easterly from the headwaters of tributary streams in northern Minnesota and western Ontario some 2,000 miles to the Gulf of St. Lawrence in the Atlantic Ocean. The system drains a great interior basin of more than 295,000 square miles to the outlet of Lake Ontario, reaches almost halfway across the North American continent, and borders upon eight states of the United States and two provinces of Canada. This vast series of lakes and rivers is shared by the United States and Canada. The joint use of these waters poses numerous international problems in the solution of which the two countries need coordinated basic data.

Prior to 1953, data pertaining to the hydraulic and hydrologic factors of the Great Lakes and St. Lawrence River were collected and compiled independently by the responsible federal agencies in Canada and the United States, with only superficial and informal correlation of some of the data. As a consequence, the data in many instances were developed on different bases and datum planes and were divergent in many respects. This situation resulted in a large volume of study and evaluation by each country of the data used by the other in the solutions of international problems.

Establishment of international study. The quantity and scope of the international problems were greatly increased by the advent of extremely high lake levels in 1952 and by the imminent power and navigation development in the St. Lawrence River system. Recognizing that continued independent development of the basic data was illogical under the circumstances and that early agreement upon the hydraulic and hydrologic factors was of paramount importance, the Corps of Engineers, United States Army, and the Departments of Transport, Mines and Technical Surveys, and Resources and Development, Canada, opened negotiations early in 1953 for the purpose of establishing a basis for development and acceptance by both countries of identical data. The negotiations culminated in a meeting of representatives of the interested agencies at Ottawa on 7 May 1953.

At the meeting, the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data was formed to study the problem and to establish a basis of procedure. This Committee was established advisory to the agencies of the United States and Canada who are charged with the responsibility for collecting and compiling the Great Lakes hydraulic and hydrologic data. The Committee was constituted as follows:

CANADA

T. M. Patterson
Water Resources Division
Department of Resources
and Development
Chairman

J. E. R. Ross
Geodetic Survey of Canada
Department of Mines and
Technical Surveys

D. M. Ripley
Special Projects Branch
Department of Transport

UNITED STATE

G. A. Hathaway
Corps of Engineers
Department of the Army
Chairman

E. W. Nelson
Corps of Engineers
Department of the Army

W. T. Laidly
Corps of Engineers
Department of the Army

The present membership of the Coordinating Committee is as follows:

CANADA

D. F. Witherspoon
Inland Waters Directorate
Environmental Conservation Service
Ontario Region, Environment Canada
Chairman

B. J. Tait
Ocean and Aquatic Sciences
Fisheries and Oceans, Canada

P. P. Yee
Inland Waters Directorate
Environmental Conservation Service
Ontario Region, Environment Canada
Secretary

UNITED STATES

D. J. Leonard
Corps of Engineers
Department of the Army
Chairman

P. C. Morris
National Oceanic and Atmospheric
Administration
Department of Commerce

R. E. Wilshaw
Corps of Engineers
Department of the Army
Secretary

Messrs. C. M. Cross, A. T. Prince, R. H. Smith, and W. D. Forrester have also served as Canadian members of the Committee while Messrs. L. D. Kirshner, F. F. Snyder, H. F. Lawhead, F. A. Blust, B. G. DeCooke, and C. I. Thurlow have served as United States members of the Committee.

Four working groups, designated the River Flow Subcommittee, the Vertical Control Subcommittee, the Lake Levels Subcommittee, and the Physical Data Subcommittee, were formed to assist the Coordinating Committee in its work. These subcommittees were directed to conduct the required technical studies through collaboration of the appropriate agencies of Canada and the United States. In September 1969, the Vertical Control and the Lake Levels Subcommittees were combined into one body known as the Vertical Control-Water Levels

Subcommittee. The Subcommittee was normally composed of three members from Canada and three from the United States. The following persons served as members at various times during the progress of the work reported herein:

CANADA

G. C. Dohler
L. P. Robertson
B. E. Russell
E. A. MacDonald
J. M. Mirakami
M. H. Quast
B. J. Tait
F. W. Young
R. Gareau
D. A. St. Jacques

UNITED STATES

B. G. De Cooke
C. F. Feldscher
C. F. Ellingwood
R. M. Berry
D. R. Rondy
H. A. Lippincott
R. E. Wilshaw
C. T. Whalen

Authority. The Committee instructed its Vertical Control-Water Level Subcommittee to prepare a report in detail on all gauges used in obtaining water levels of Lakes Erie and Ontario, and their outflow channels.

Purpose and Scope. The purpose of this report is to document the history of the operation of water level gauges on the lower two Great Lakes and their outflow rivers. Detailed information about the water levels available is given for each gauging station. This report supercedes and updates information on water level gauges published earlier in two volumes by the Coordinating Committee.

Acknowledgements. The Coordinating Committee acknowledges and expresses its appreciation of the cooperation received from the Canadian Hydrographic Service, Department of Fisheries and Oceans; the Water Survey of Canada, Department of the Environment; the Detroit District, U. S. Army Corps of Engineers and the National Ocean Survey, (National Ocean Survey reorganized as National Ocean Service in November 1982) National Oceanic and Atmospheric Administration of the United States. The information used in compiling this report has been taken from the files of the two principal agencies concerned, the Canadian Hydrographic Service and the National Ocean Survey. The operation and records of Great Lakes water level gauging stations were transferred from the United States Lake Survey (U.S.L.S.), U.S. Army Corps of Engineers, to the National Ocean Survey in October 1970. The individual efforts of Robert A. Mace, Frank M. Sullivan, James S. Moore, Leonard T. Schutze, and Harry A. Lippincott are gratefully acknowledged by the Committee in researching and compiling the information in this report. In addition, the Committee is particularly grateful to Brenda S. Vostreys for typing revisions of the manuscript.

PRESENTATION OF DATA

Presented herein are the histories of all Canadian and United States gauging stations that the Committee considered have provided useful water level data on the lower Great Lakes, the International Section of the St. Lawrence River and the Niagara River for various periods of time through December 1982. For each station the following data are given:

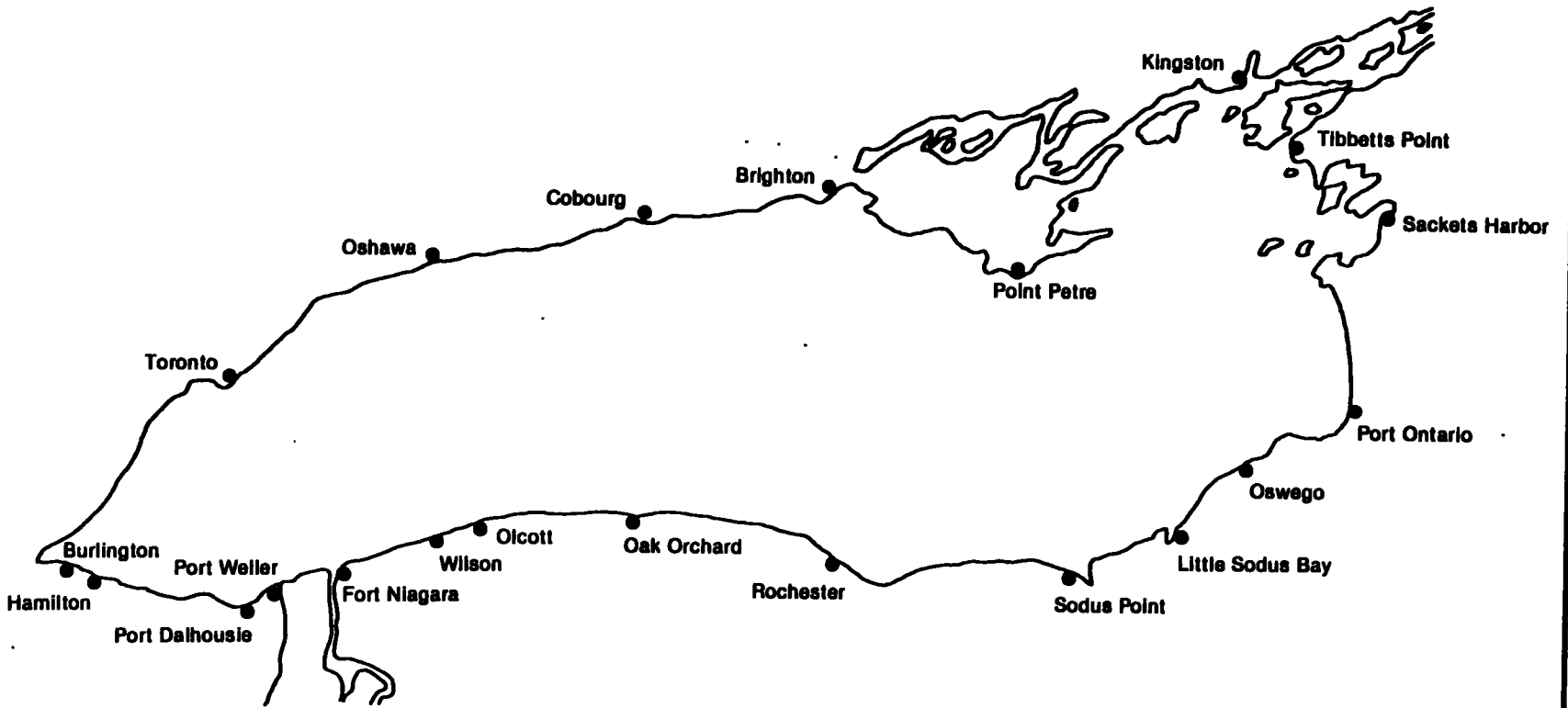
1. A comprehensive statement as to how datums were established.
2. A chronological table listing the period when water level observations were made, the controlling bench mark and its elevation, the type of record, and the abbreviation for the operating agency during each observation period. See Plates for the periods of operation of water level gauging stations. The following agency abbreviations have been used in the text.

C.H.S.	- Canadian Hydrographic Service
D.W.C.	- Deep Waterways Commission
D. of R. and C.	- Department of Railways and Canals
D.O.T.	- Department of Transport
D.P.W.	- Department of Public Works
D.W.P.B.	- Dominion Water and Power Bureau
W.R.B.	- Water Resources Branch
O.P. Co.	- Ontario Power Company
H.E.P.C.O.	- Hydro-Electric Power Commission of Ontario
O.H.E.	- Ontario Hydro-Electric
P.A.S.N.Y.	- Power Authority of the State of New York
Shipldg. Co.	- Kingston Shipbuilding Company
T.H.C.	- Toronto Harbour Commission
L.C.A.	- Lake Carriers Association
U.S.C. & G.S.	- United States Coast and Geodetic Survey
U.S.E.O.	- United States Engineering Office
U.S.L.S.	- United States Lake Survey
N.O.S.	- National Ocean Service

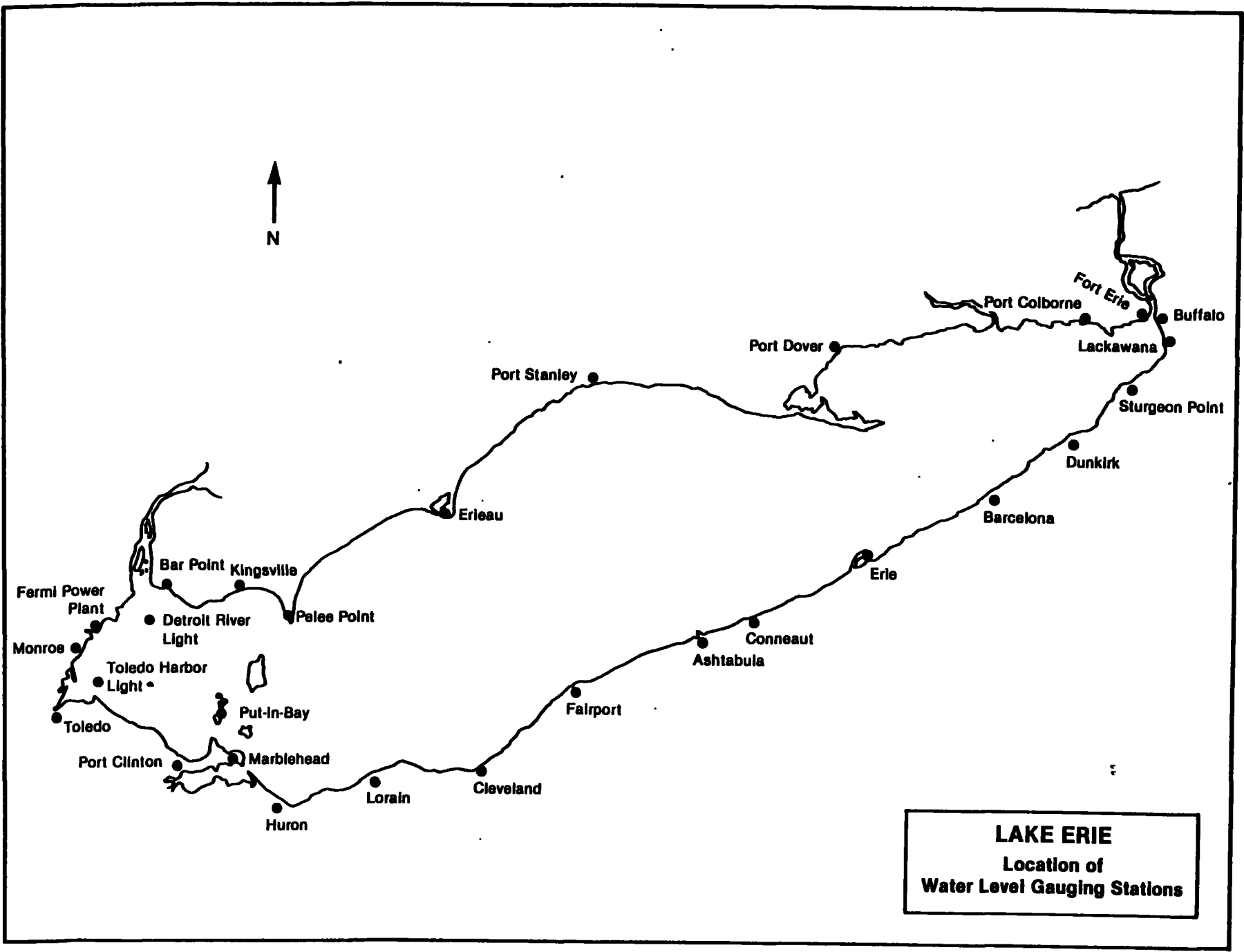
3. Elevation of the controlling bench mark on International Great Lakes Datum, IGLD (1955). Elevations in this publication are shown in the measurement unit accepted during each period of water level observations. The conversion to the equivalent customary or metric unit is shown in parenthesis. National and agency policies in the United States and Canada for conversion to the exclusive use of the metric unit are different. At present, United States policy is to plan increasing use and to coordinate the voluntary conversion to the metric system. Canada policy was to investigate, plan, schedule and implement a metric conversion program to be completed by 1980. This target date was achieved.

4. Description and location of the gauging station sites for which adequate information is available. See Plates 1-4 for general location and Plates 30-165 for detailed location.

For more detailed information regarding these gauges and their records consult the Canadian Hydrographic Service in Ottawa, Ontario, for gauges in Canada, and the National Ocean Service in Rockville, Maryland, for gauges in the United States.

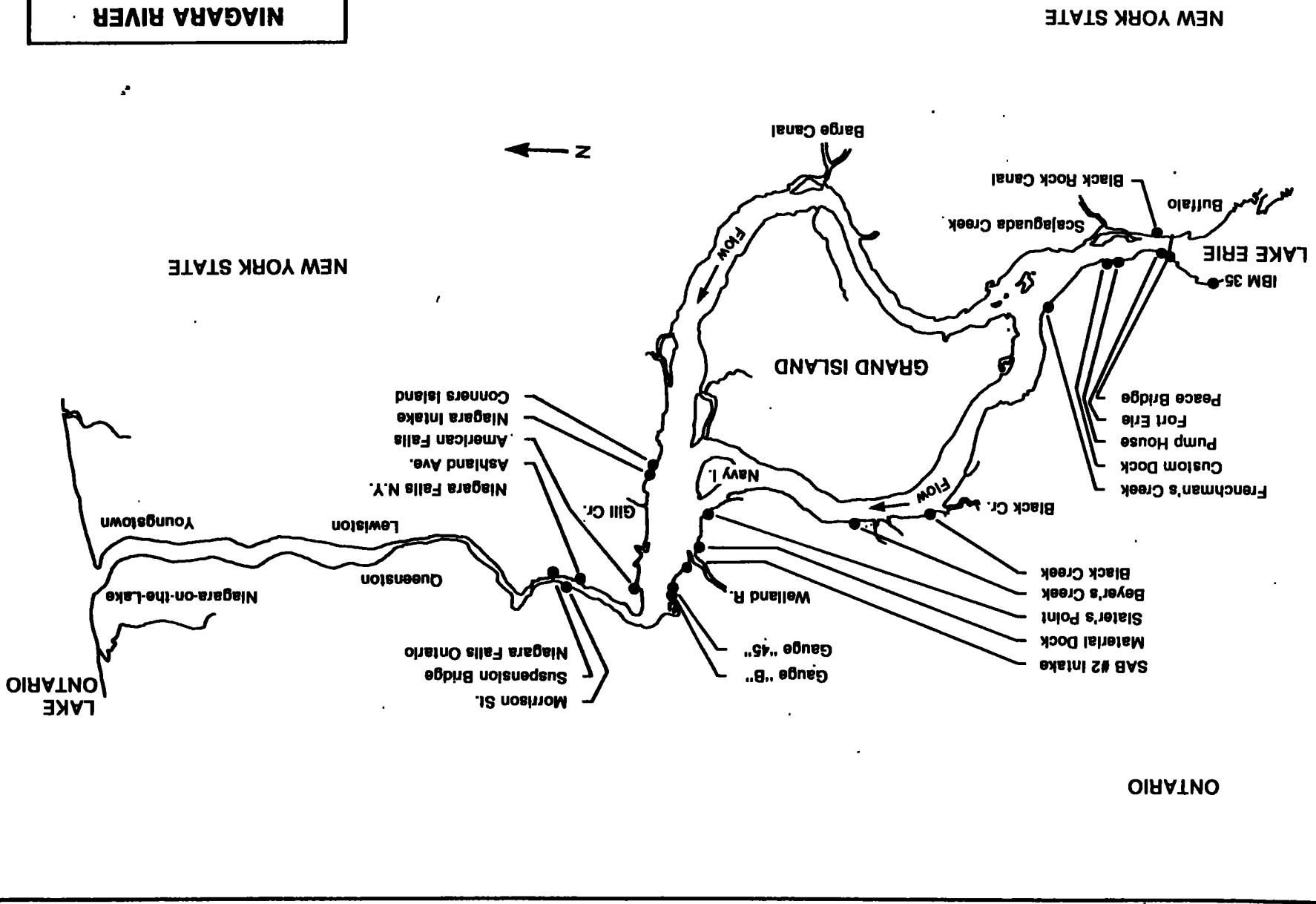


LAKE ONTARIO
Location of
Water Level Gauging Stations



LAKE ERIE
Location of
Water Level Gauging Stations

NIAGARA RIVER
Location of
Water Level Gauging Stations



WATER LEVEL RECORDS PRIOR TO 1860

1815 1820 1825 1830 1835 1840 1845 1850 1855 1860

PORT COLBORNE, ONTARIO

MONROE, MICHIGAN

CLEVELAND, OHIO

ERIE, PENNSYLVANIA

11

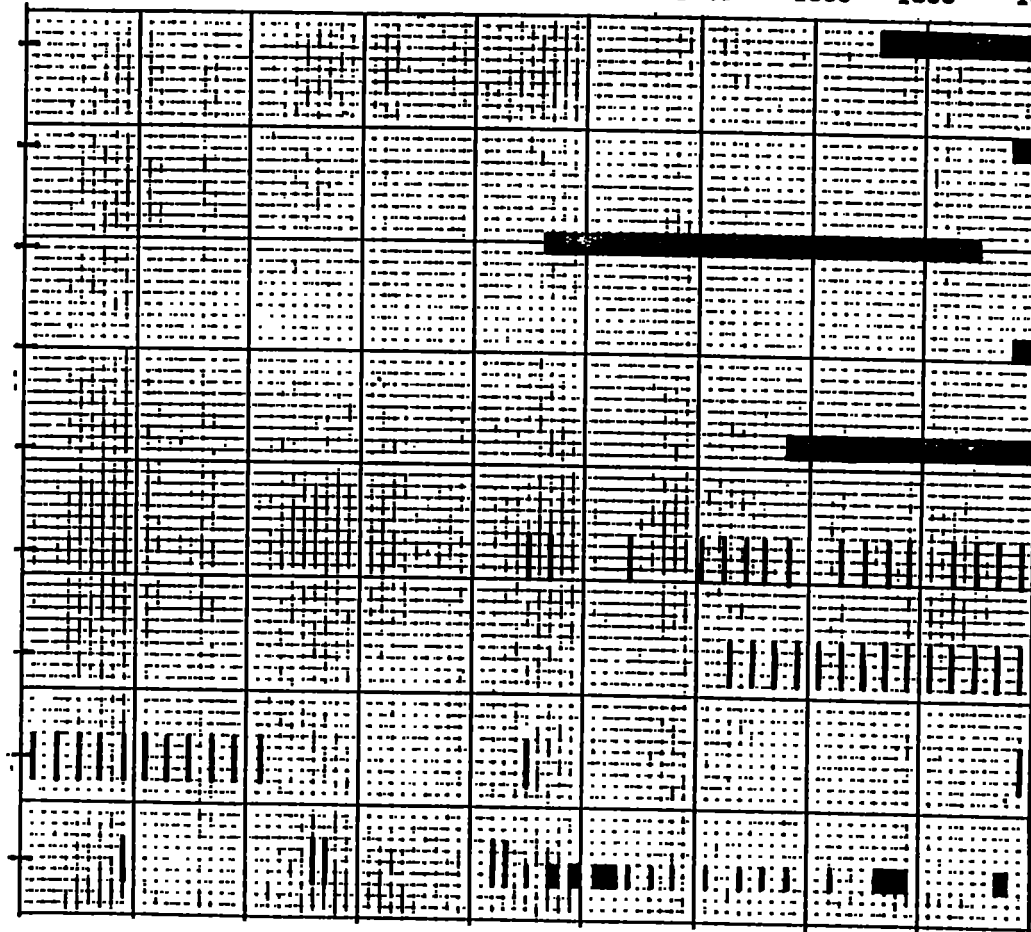
PORT DALHOUSIE, ONTARIO

OSWEGO, NEW YORK

ROCHESTER, NEW YORK

FORT NIAGARA, NEW YORK

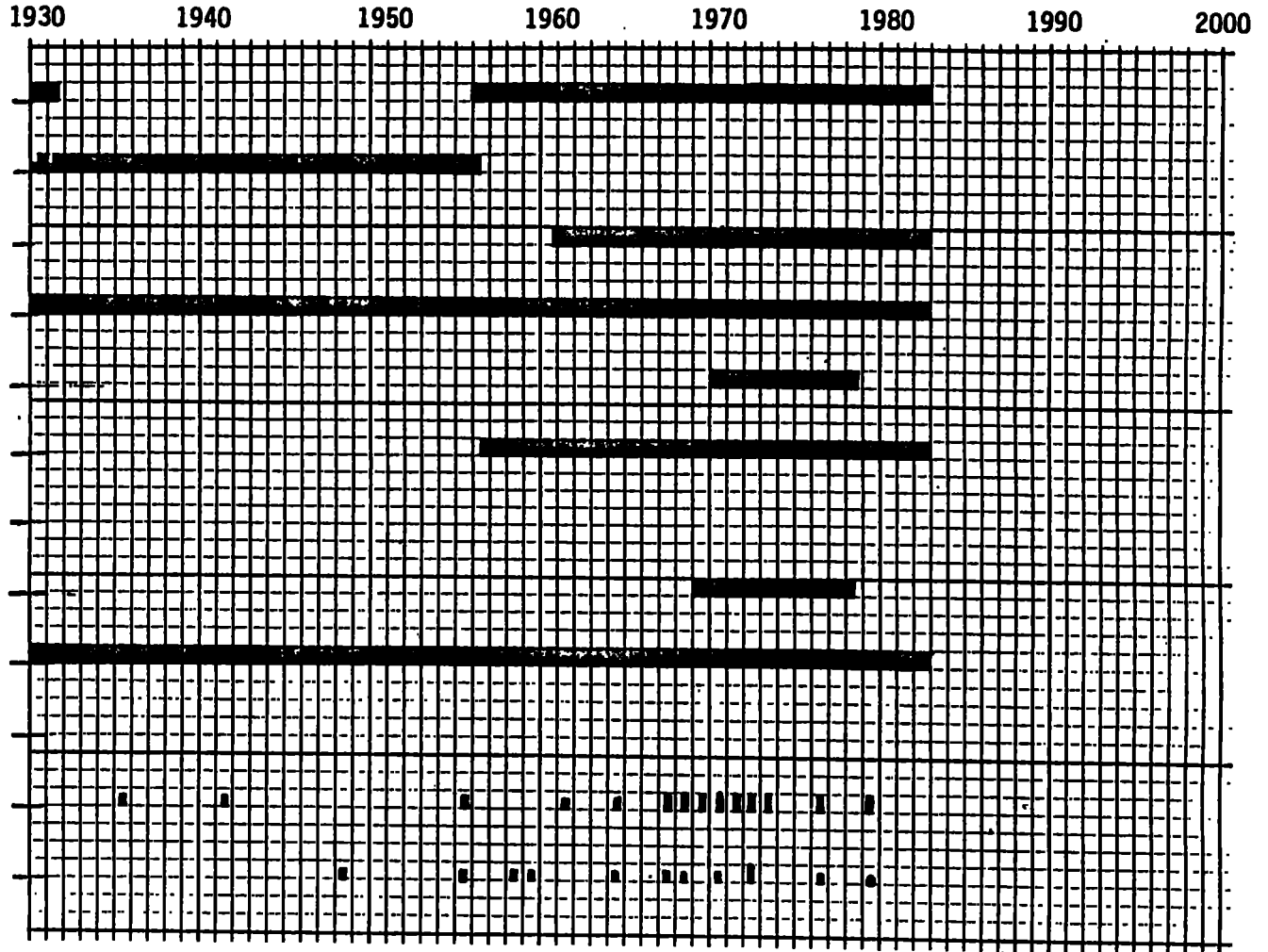
BUFFALO, NEW YORK



FEWER THAN ONE READING PER DAY 

GENERALLY ONE OR MORE READINGS PER DAY 

LAKE ONTARIO
WATER LEVEL RECORDS 1930- TO DATE



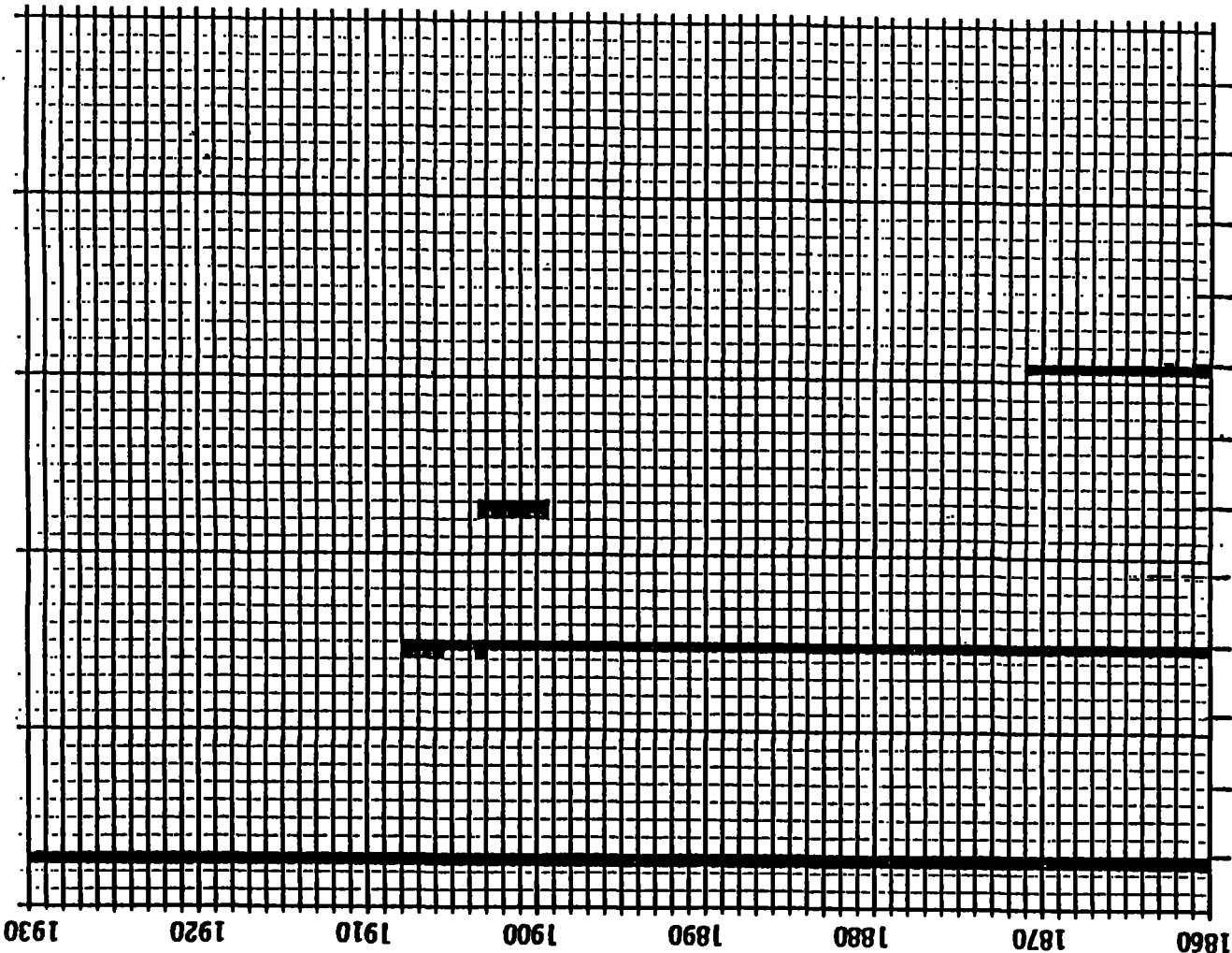
RECORDING GAUGE

STAFF GAUGE

13

LAKE ONTARIO

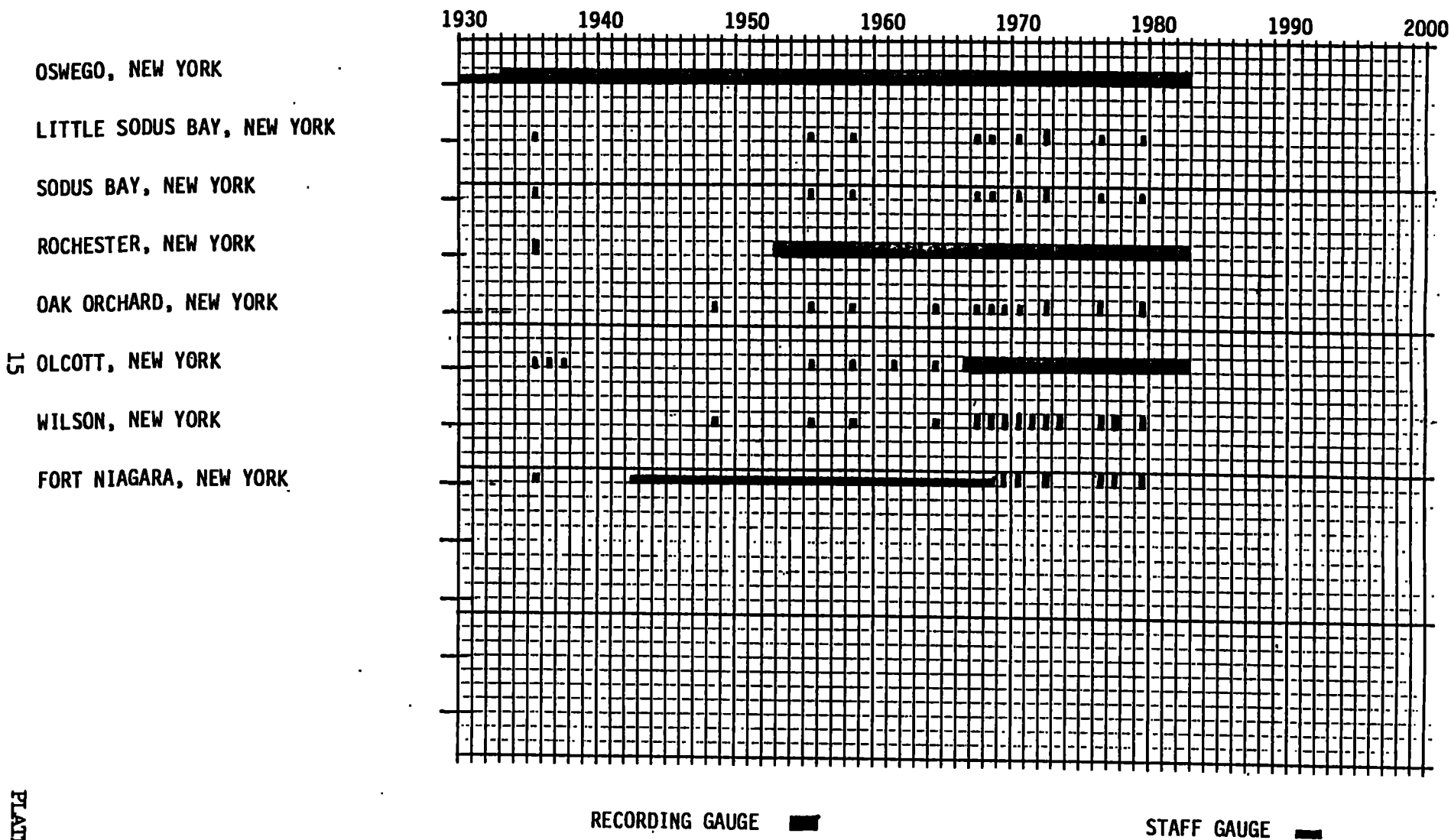
WATER LEVEL RECORDS 1860-1930



STAFF GAUGE

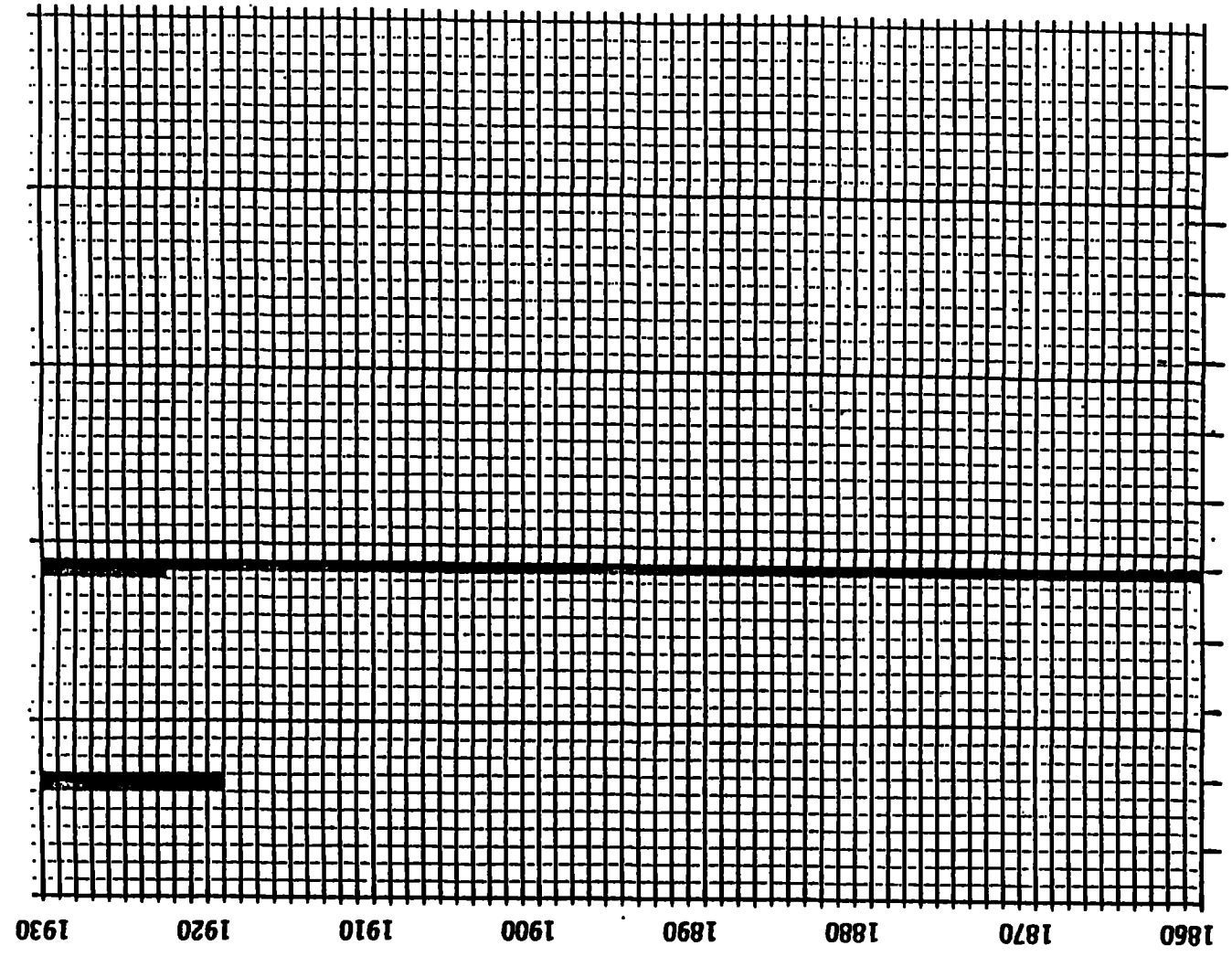
RECORDING GAUGE

LAKE ONTARIO
WATER LEVEL RECORDS 1930- TO DATE



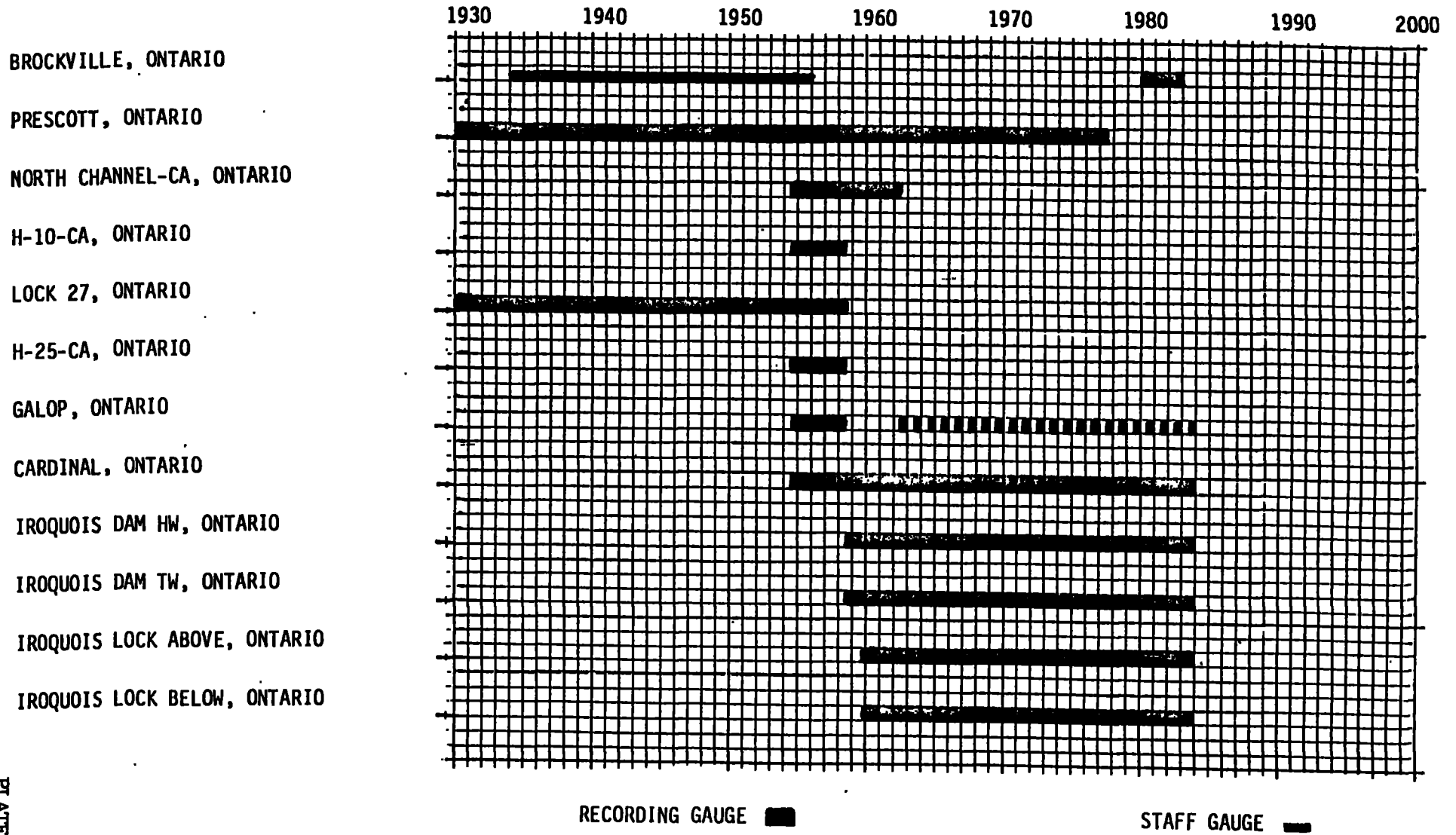
ST. LAWRENCE RIVER

WATER LEVEL RECORDS 1860-1930



- BROCKVILLE, ONTARIO
- PRESCOTT, ONTARIO
- NORTH CHANNEL-CA, ONTARIO
- H-10-CA, ONTARIO
- LOCK 27, ONTARIO
- H-25-CA, ONTARIO
- GALOP, ONTARIO
- CARDINAL, ONTARIO
- IROQUOIS DAM HM, ONTARIO
- IROQUOIS DAM TM, ONTARIO
- IROQUOIS LOCK ABOVE, ONTARIO
- IROQUOIS LOCK BELOW, ONTARIO

ST. LAWRENCE RIVER
WATER LEVEL RECORDS 1930 - TO DATE



17

PLATE 11

