Environment Canada Imaging Cover Page

Report N.: 

SKP Box Number: 672572426

CIR - 3772
TEC - 440
12 DEC 62

METEOROLOGICAL BRANCH - DEPARTMENT OF TRANSPORT - CANADA

AERIAL ICE OBSERVING AND RECONNAISSANCE

THE GREAT LAKES - 1962

UDC: 551.311.182(77)

METEOROLOGICAL BRANCH - DEPARTMENT OF TRANSPORT - CANADA

AERIAL ICE OBSERVING AND RECONNAISSANCE

IN

THE GREAT LAKES - 1962

by

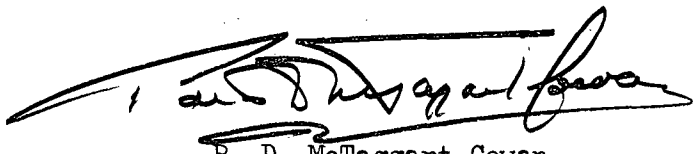
D. C. Archibald, M. N. Monsinger, T. B. Kilpatrick

This is the sixteenth technical report in the series concerning the ice conditions observed by aerial ice reconnaissance conducted by the Meteorological Branch, Department of Transport.

This technical report describes observed ice conditions with regard to ice coverage, age, topography, puddling, snow cover, and water features over the area of Lake Superior, the North Channel, Georgian Bay, Lake Huron, Lake Erie, Lake Ontario and adjacent waterways, during the period December, 1961 to May, 1962 inclusive.

This is the third technical report covering observed ice conditions in the Great Lakes. Observed ice conditions in this area during 1960 were described in CIR-3361, TEC-328, 27 JUNE 1960, in 1961 CIR-3530, TEC-371, 13 SEPT 61.

Approved:



P. D. McTaggart-Cowan,
Director, Meteorological Branch.

CONTENTS

AERIAL ICE OBSERVING AND RECONNAISSANCE

GREAT LAKES - 1962

1. From December 21, 1961 until May 4, 1962, aerial ice reconnaissance was carried out over the Great Lakes, Georgian Bay, St. Mary's River, North Channel, Welland Canal, and the Niagara River. Experimental break-up surveys were conducted over the Seaway from Kingston to Montreal. The area covered by the survey is outlined on Page 7.

2. The ice reconnaissance program was carried out under the direction of the Meteorological Branch, Basic Weather Division. Aircraft chartered by the Meteorological Branch, Department of Transport, were used for all flights.

3. All flights originated at Toronto International Airport (Malton), Ontario. Throughout the period, twenty-eight ice reconnaissance flights were made, totalling 162.3 hours.

4. Dates, duration, and area of coverage of each ice reconnaissance flight are shown in the table on Page 3. Flight times for Ice Observers are shown on Page 5.

5. An Ice Observer was assigned to the Great Lakes Institute vessel C.C.G.S. Porte Dauphine for one cruise during the period of the survey. Shipboard ice reconnaissance and aerial ice reconnaissance were co-ordinated during the survey vessels' cruise. Valuable supplementary data from the shipboard Ice Observer provided information on the relief and ice thickness which is not possible from aerial observations.

6. During the period of this survey, aerial and shipboard observations were supplemented by regular weekly ice thickness observations from Nicolet, P. Q. and South Baymouth, Ontario. Just prior to and during break-up, nineteen stations in the Great Lakes area co-operated in taking daily shore station ice reports. A number of interested agencies co-operated in taking these observations.

7. Ice conditions observed in this area, for the period from December 21, 1961 to May 4, 1962, are described on Pages 8 to 32. The accompanying charts, Figures 1 to 25, graphically summarize ice conditions at the indicated dates. These summaries and charts provide a representative picture of ice conditions in this area during the 1962 ice season.

8. The descriptive terminology and the graphic presentation of ice conditions are in accordance with the procedures, as outlined in the Meteorological Branch publication "MANICE", Manual of Standard Procedures and Practices for Ice Reconnaissance, Second Provisional Edition.

9. We are indebted to Mr. E. Stasyshyn for co-ordinating the data and assembling the charts for printing, and Messrs. R. V. A. Zuar, D. Aston, D. S. Veinot, R. C. Rannard, J. C. Plamondon, L. B. Thiele and J. N. Clarey in the preparation of this publication.

TABLE OF ICE RECONNAISSANCE FLIGHTS

DATE	AREA	FLYING HOURS	ICE OBSERVERS
Dec. 21, 1961	Lake Huron, Lake Superior	8.0	S. A. Lupack J. A. Bourbonnais
Jan. 9, 1962	Lake Huron, Lake Superior	7.8	S. A. Lupack P. V. Connor
Jan. 13, 1962	Lake Ontario	3.0	S. A. Lupack P. V. Connor
Jan. 16, 1962	Lake Ontario, Lake Huron, Lake Erie	4.3	S. A. Lupack P. V. Connor
Jan. 24, 1962	Lake Ontario, Eastern Lake Erie, St. Lawrence River	6.7	R. G. Rannard A. W. Smith
Jan. 30, 1962	Lake Huron, Lake Superior	7.8	R. G. Rannard A. W. Smith
Feb. 11, 1962	Lake Huron, Lake Superior	8.8	S. A. Lupack L. B. Thiele
Feb. 13, 1962	Lake Ontario, Lake Erie	5.1	S. A. Lupack L. B. Thiele
Feb. 21, 1962	Lake Ontario	3.3	T. B. Kilpatrick A. W. Smith
Feb. 23, 1962	Lake Ontario, Lake Erie, Lake Huron	4.7	E. Stasyshyn A. W. Smith
Feb. 25, 1962	Lake Huron	3.3	E. Stasyshyn A. W. Smith
Mar. 6, 1962	Lake Huron, Lake Superior	8.4	T. B. Kilpatrick R. V. Zuar
Mar. 7, 1962	Lake Ontario, St. Lawrence River	4.7	R. V. Zuar J. Y. Lafontaine
Mar. 15, 1962	Lake Huron, Lake Superior	7.6	R. V. Zuar J. Y. Lafontaine
Mar. 16, 1962	Lake Ontario, St. Lawrence River	4.5	J. Y. Lafontaine

TABLE OF ICE RECONNAISSANCE FLIGHTS

DATE	AREA	FLYING HOURS	ICE OBSERVERS
Mar. 23, 1962	Lake Huron, Lake Superior	9.8	A. W. Smith J. Y. Lafontaine
Mar. 26, 1962	Lake Ontario, St. Lawrence River	4.2	A. W. Smith J. Y. Lafontaine
Mar. 28, 1962	Lake Huron, Lake Erie	5.3	A. W. Smith J. Y. Lafontaine
Mar. 31, 1962	Lake Ontario, St. Lawrence River	2.8	R. V. Zuar J. Y. Lafontaine
Apr. 2, 1962	Lake Ontario, St. Lawrence River	4.4	R. V. Zuar J. Y. Lafontaine
Apr. 4, 1962	Lake Huron, Lake Superior	7.8	E. Stasyshyn R. V. Zuar
Apr. 8, 1962	Lake Huron, Lake Erie	3.5	E. Stasyshyn R. V. Zuar
Apr. 11, 1962	Lake Ontario, St. Lawrence River	4.0	E. Stasyshyn R. V. Zuar
Apr. 13, 1962	Lake Huron, Lake Superior	6.9	E. Stasyshyn
Apr. 19, 1962	Lake Huron, Lake Superior	7.8	T. B. Kilpatrick J. Y. Lafontaine
Apr. 26, 1962	Lake Huron, Lake Ontario	9.0	D. Aston J. Clarey
May 3, 1962	Lake Ontario, Lake Erie	3.0	R. G. Rannard
May 4, 1962	Lake Huron, Lake Superior	7.0	R. G. Rannard

ICE RECONNAISSANCE PHASE - SYNOPTIC CRUISE

DATE	AREA	SHIP	ICE OBSERVER
Dec. 10 - 19, 1961	Lake Huron	C.C.G.S. PORT DAUPHINE	J. C. Plamondon

FLIGHT TIMES FOR ICE OBSERVERS

Primary Base: Toronto, Ontario - Aircraft Utilized: Lockheed 14.

Observer	Period	Number of Flights	Total Flying Time	Miles Statute
S. A. Lupack	December - 1961	1	8.0	1,430
	January - 1962	3	15.1	2,605
	February - 1962	2	13.9	2,160
J. A. Bourbonnais	December - 1961	1	8.0	1,430
P. V. Connor	January - 1962	3	15.1	2,605
R. G. Rannard	January - 1962	2	14.5	2,056
	May - 1962	2	10.0	1,633
A. W. Smith	January - 1962	2	14.5	2,056
	February - 1962	3	11.3	1,790
	March - 1962	3	19.3	3,335
L. B. Thiele	February - 1962	2	13.9	2,160
T. B. Kilpatrick	February - 1962	1	3.3	570
	March - 1962	1	8.4	1,355
	April - 1962	1	7.8	1,440
E. Stasyshyn	February - 1962	2	8.0	1,220
	April - 1962	3	15.3	2,486
R. V. Zuar	March - 1962	4	23.5	3,673
	April - 1962	4	19.7	3,136
J. Y. Lafontaine	March - 1962	7	38.9	6,203
	April - 1962	2	12.2	2,190
D. Aston	April - 1962	1	9.0	1,530
J. N. Clarey	April - 1962	1	9.0	1,530

METEOROLOGICAL BRANCH
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KEY TO ICE SYMBOLS

CONCENTRATION

- < 0.1 coverage
- 0.1 to 0.5 coverage
- 0.5 to 0.8 coverage
- 0.8 to 1.0 coverage
- 1.0 coverage (no water)

AGE

A
dominant, secondary

SI - Slush
Y - Young Ice
W - Winter Ice
PI - Polar Ice

Examples: *A* , *A* , etc.
SI,*W* *PI*

ICE OF LAND ORIGIN

- Icebergs (*many*)
- Icebergs (*few*)
- Bergy bits and growlers (*many*)
- Bergy bits and growlers (*few*)

WATER FEATURES

- Crack
- Lead
- Polynya

UNDERCAST

- Limits

CONCENTRATION BY SIZE

$\frac{C_n}{n_1,n_2,n_3}$

n_1 - tenths of slush, brash and block
n_2 - tenths of small and medium floes
n_3 - tenths of giant floes *and field*

PUDDLES

$\frac{Pd}{\text{dominant condition}}$

Tenths of ice covered if not frozen or rotten

F - Frozen
R - Rotten

Examples: $\frac{Pd}{3}$, $\frac{Pd}{F}$, $\frac{Pd}{R}$, etc.

TOPOGRAPHY

- Rafted ice
- Ridged ice
- Hummocks

THICKNESS OF SEA ICE AND SNOW

T,*S*, where *n* - *nearest ft.*
n *n*

Examples: $\frac{T}{5}$,$\frac{S}{2}$, etc.

BOUNDARY

- Known
- Radar
- Assumed
- Limit of Estimated data

Symbols used for Recording the Various Ice, Snow, and Water Features.

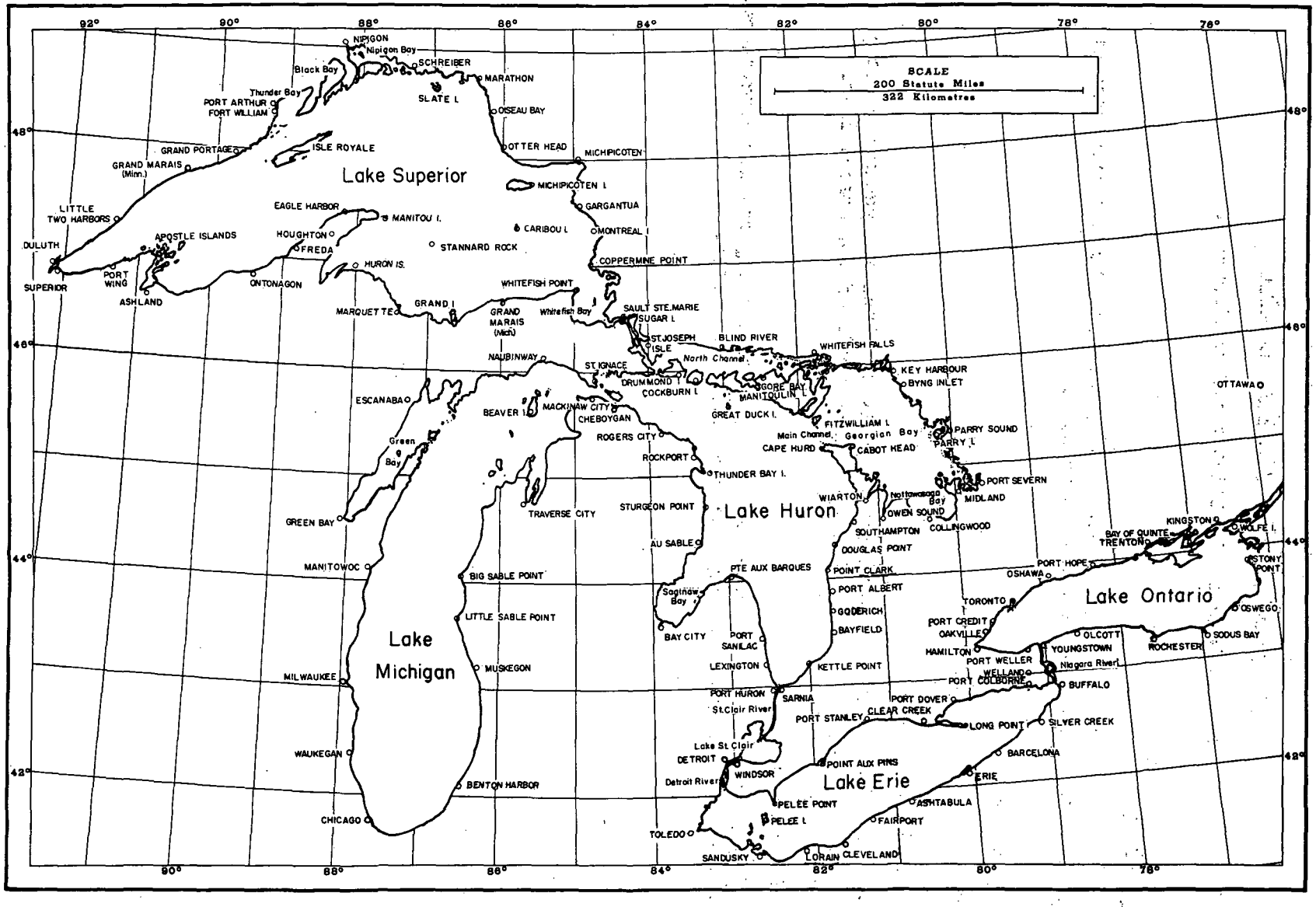

Chart of Place Names - The Great Lakes

CIR - 3772
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ICE CONDITIONS ON DECEMBER 21, 1961

Ice conditions are illustrated in Figure 1.

LAKE HURON:

Open water was observed throughout this area except for a narrow band of fast ice along the coast south of Cape Hurd.

GEORGIAN BAY:

This area was observed to be open water.

NORTH CHANNEL:

Open water was dominant except for some broken slush and young ice along the north shore, and some fast ice observed north of St. Joseph Isle.

LAKE SUPERIOR:

Small amounts of fast ice were observed in Thunder Bay and its approaches. The remainder of the area was observed to be open water.

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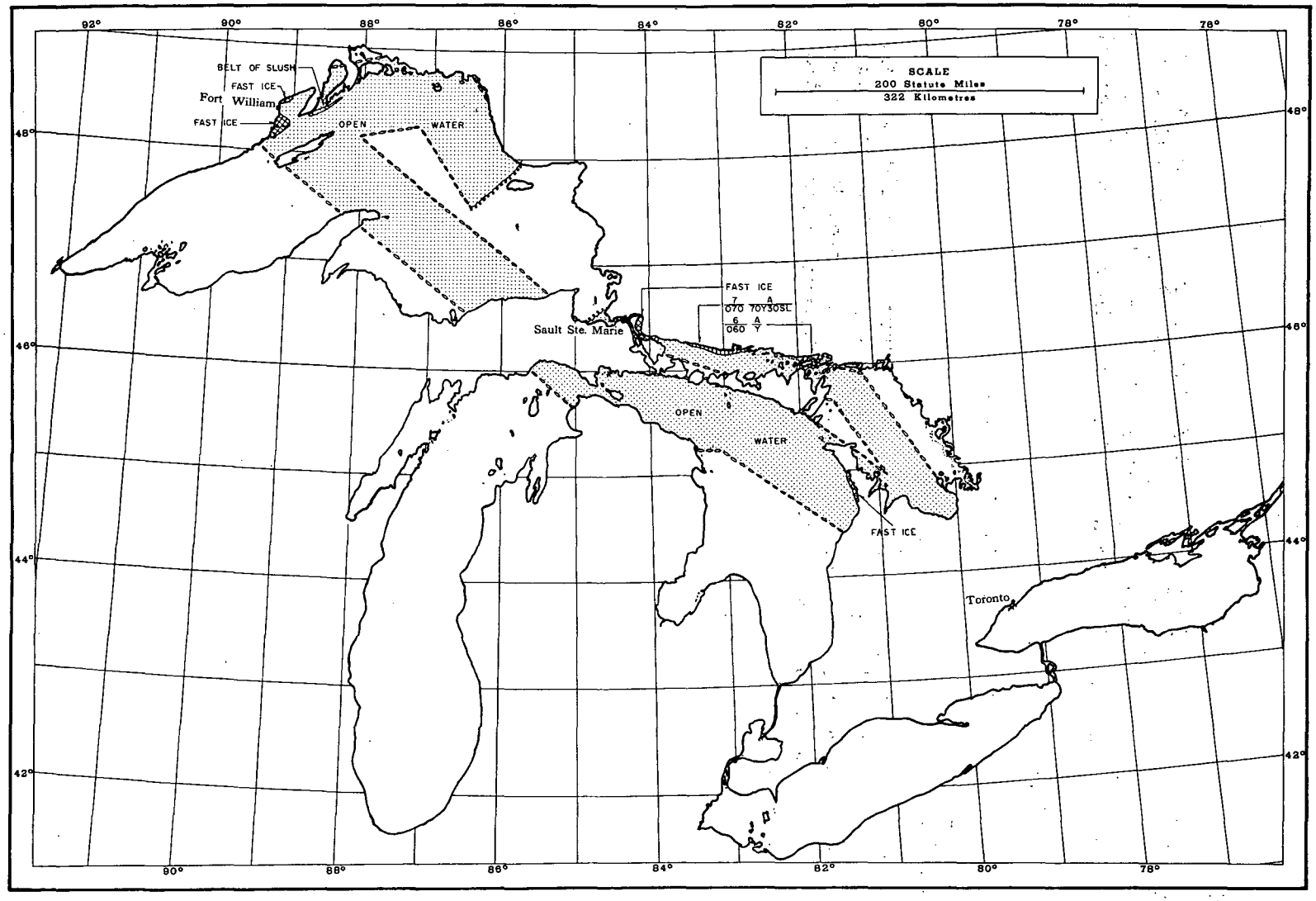

FIG. 1 — OBSERVED ICE CONDITIONS, DECEMBER 21, 1961.

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ICE CONDITIONS ON JANUARY 7, 1962

Ice conditions are illustrated in Figure 2.

GEORGIAN BAY:

Fast ice was observed along the coast in the vicinity of Midland and Parry Sound, with open water to the west, south of latitude 44° 40' N. The remainder of the observed area along the north shore was scattered to broken winter ice with some slush ice noted in the central sector.

NORTH CHANNEL:

Fast ice was observed throughout this area.

LAKE SUPERIOR:

A small area of scattered pancake ice was observed in Whitefish Bay. The western half of Thunder Bay, and the entrance to Black Bay was fast ice. The eastern half of Thunder Bay was observed to be broken winter and slush ice. The remainder of the observed portion of the lake was open water.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

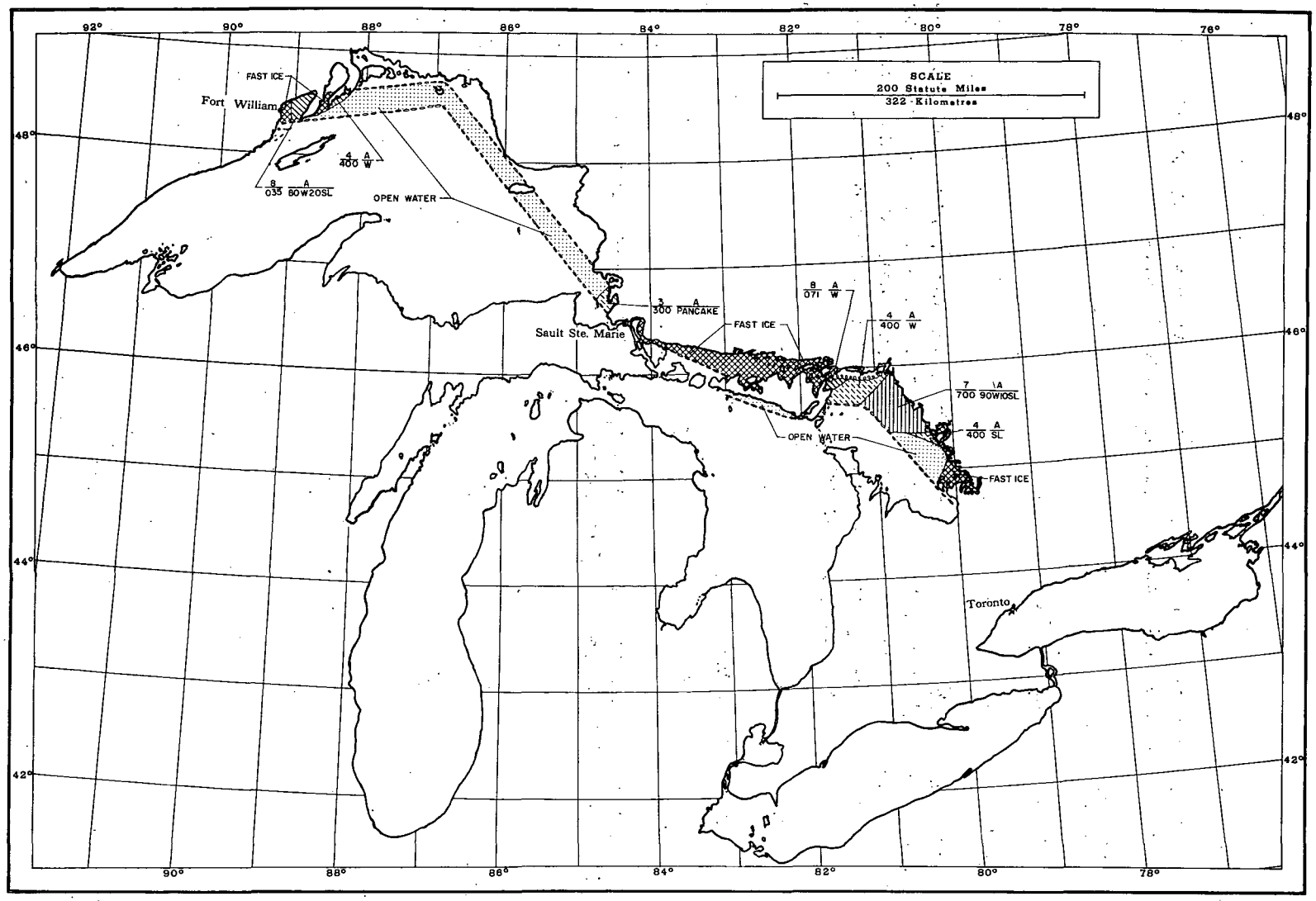

FIG. 2 — OBSERVED ICE CONDITIONS, JANUARY 7, 1962.

ICE CONDITIONS ON JANUARY 13 - 16, 1962

Ice conditions are illustrated in Figure 3.

LAKE ONTARIO:

Fast ice was observed along most of the coastal area. Broken ice in the formation stages was noted south of Wolfe Island.

NIAGARA RIVER:

Refer to note on Figure 3.

LAKE ERIE:

Along the coast between Long Point and Port Colborne, fast ice was predominant. East of Port Colborne to Buffalo was mostly close winter ice. The remainder of the observed area east of Long Point was open water. The remaining observed portion of the lake was mostly broken to close winter ice with some young ice noted.

LAKE ST. CLAIR:

Refer to note on Figure 3.

LAKE HURON:

The observed portion of this area was open water except for some fast ice between Goderich and Douglas Point.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

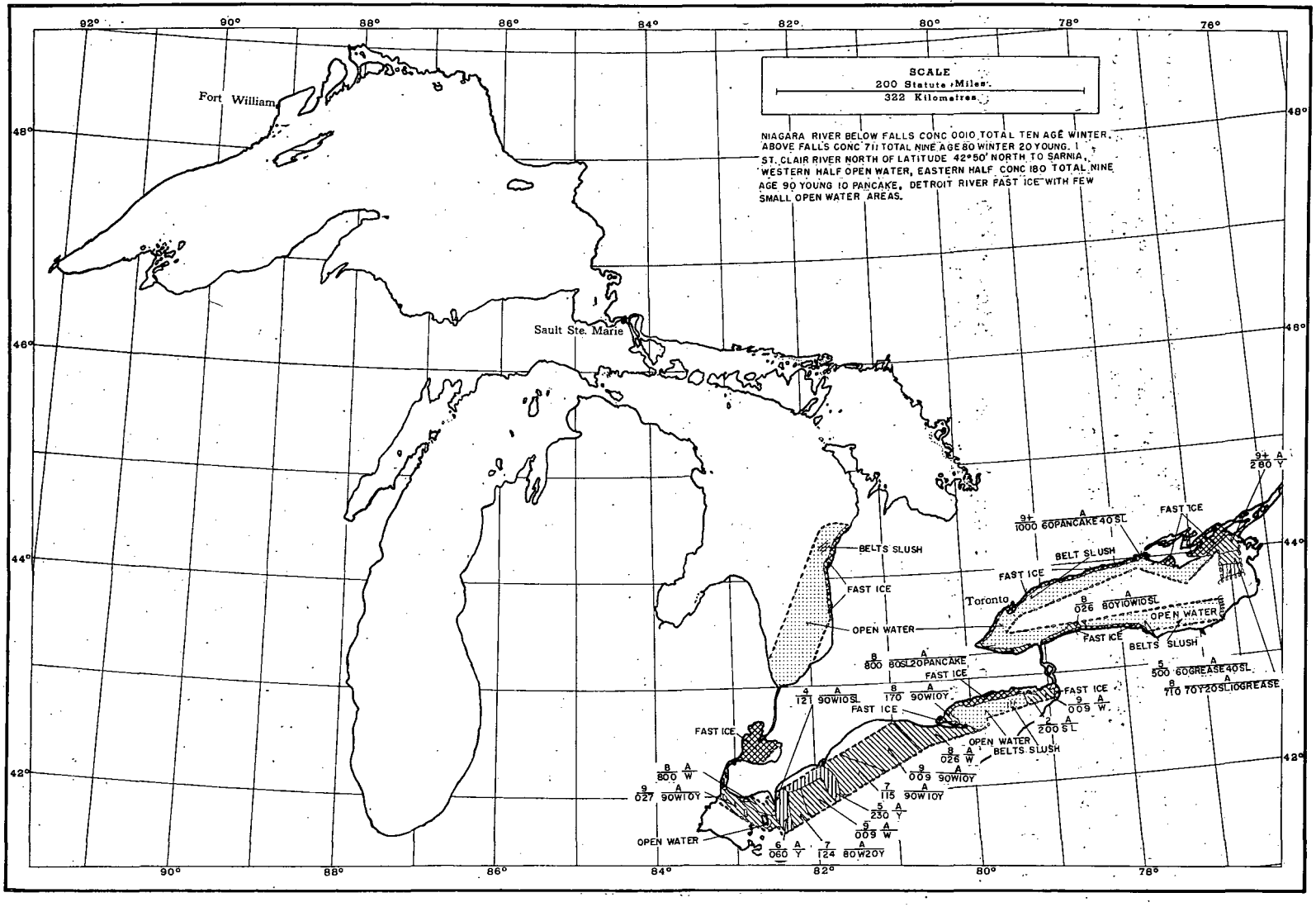

FIG. 3 — OBSERVED ICE CONDITIONS, JANUARY 13, 1962.

ICE CONDITIONS ON JANUARY 24, 1962

Ice conditions are illustrated in Figure 4.

LAKE ONTARIO:

In the northeastern sector of the lake, the coastal areas were fast ice, while the central sector across the entrance of the St. Lawrence River was mostly consolidated young ice. The remainder of the lake was open water except for a few belts of slush near the Niagara River.

ST. LAWRENCE RIVER:

The entire observed area was close to consolidated winter and young ice with a few small areas of open water noted in the narrow portions of the river.

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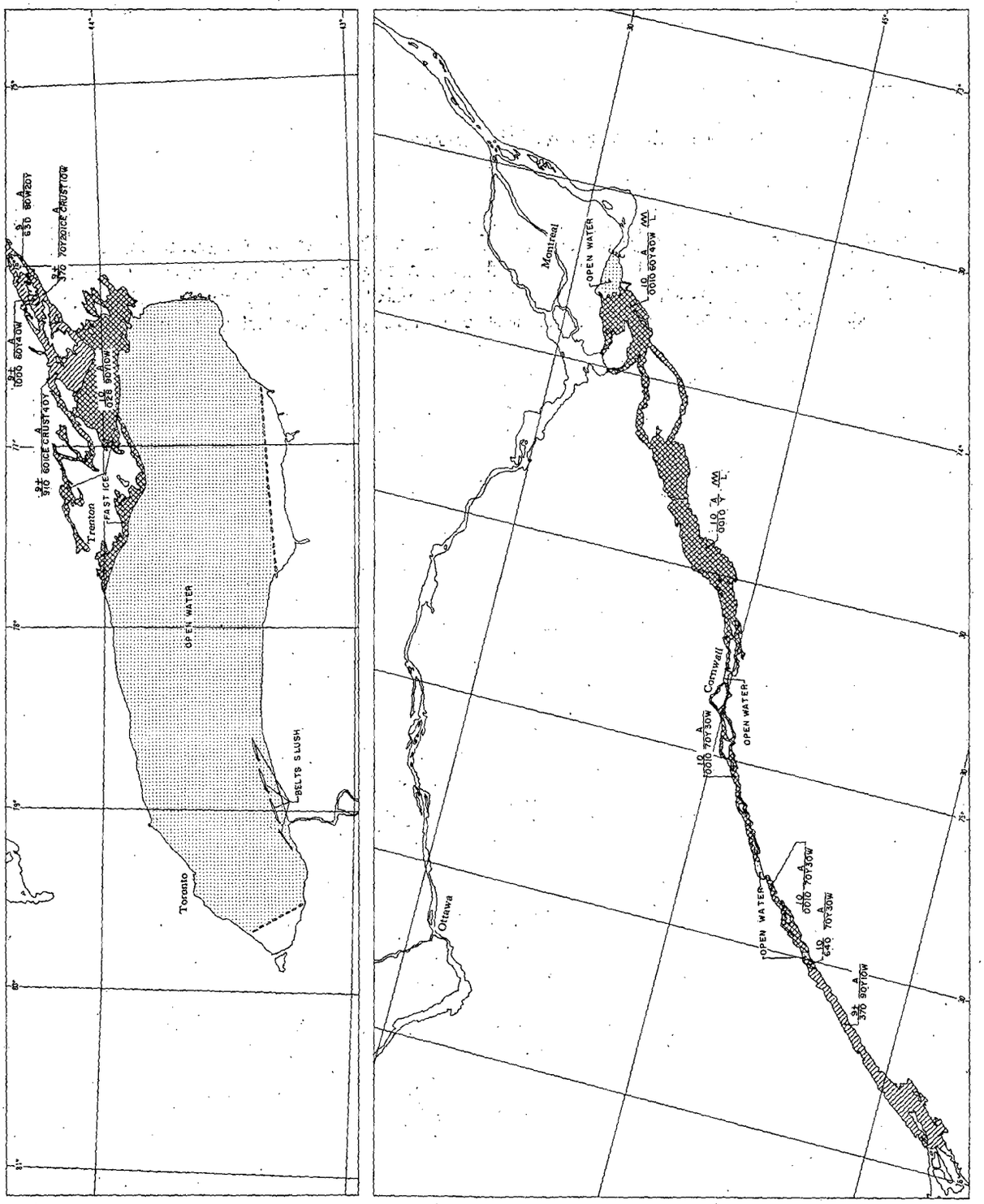

FIG. 4 — OBSERVED ICE CONDITIONS, JANUARY 24, 1962.

ICE CONDITIONS ON JANUARY 24, 1962

Ice conditions are illustrated in Figure 5.

NIAGARA RIVER:

Fast ice was observed throughout this area.

LAKE ERIE:

Throughout the observed portion of the area the coastal areas were generally fast ice, with a flaw lead extending along the south shore. The remainder was generally close to consolidated young ice. Ridging and some rafting were evident in the central portion of the observed area.

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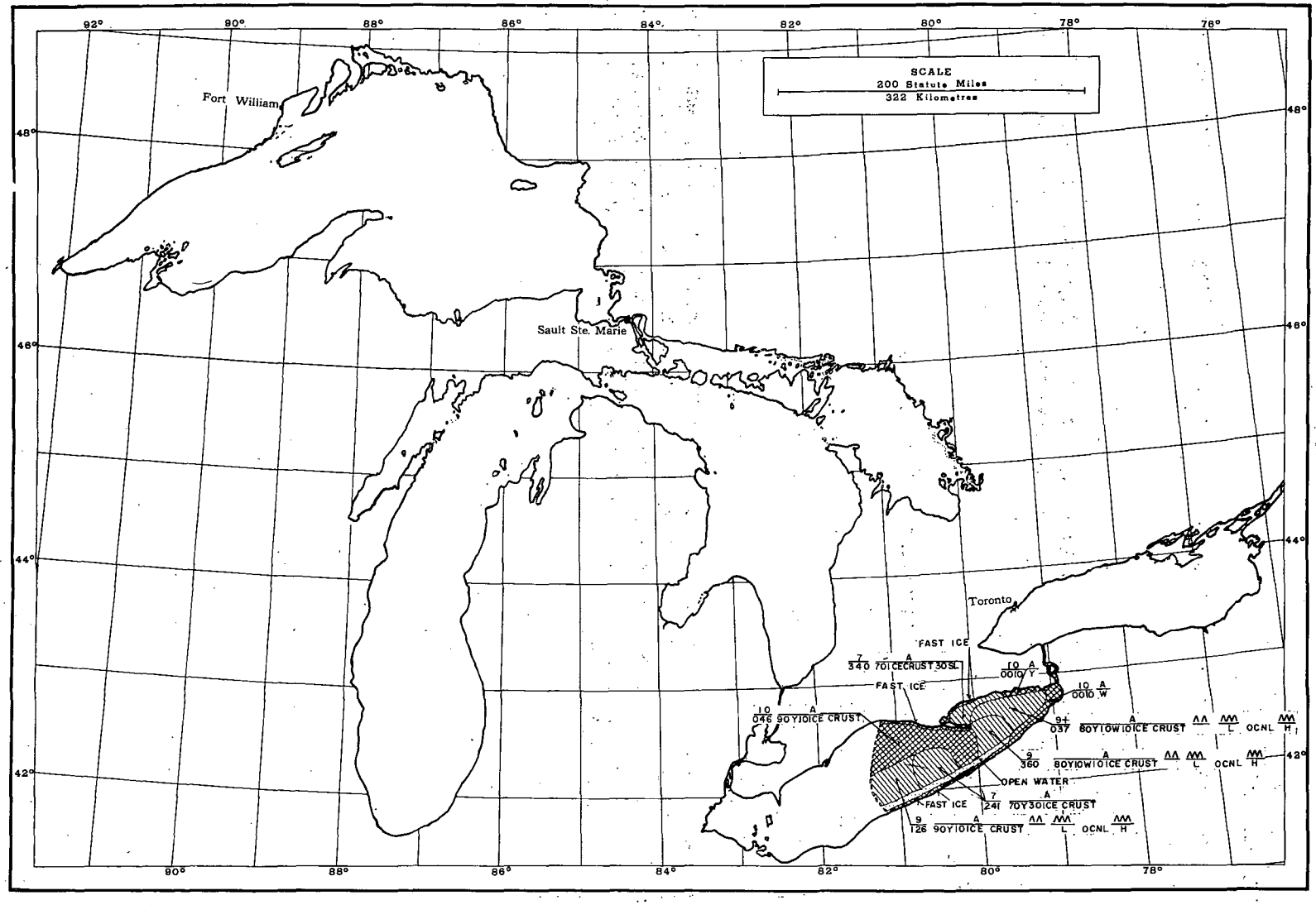

FIG. 5 — OBSERVED ICE CONDITIONS, JANUARY 24, 1962.

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ICE CONDITIONS ON JANUARY 30, 1962

Ice conditions are illustrated in Figure 6.

LAKE HURON:

The observed portion of this area near Rogers City was broken ice in the formation stages.

GEORGIAN BAY:

The northeastern half of this area was generally close to consolidated ice crust and young ice. Fast ice was observed in the inner bay near Midland.

NORTH CHANNEL:

Fast ice was observed throughout this area.

ST. MARY'S RIVER:

Fast ice was observed throughout this area.

LAKE SUPERIOR:

Whitefish Bay was generally fast ice with a small area of close pancake and young ice at the mouth of the bay. Fast ice was also observed in Thunder Bay, Black Bay, and along the north shore of Isle Royale. The remainder of the observed area was open water with a few belts of slush noted around Isle Royale.

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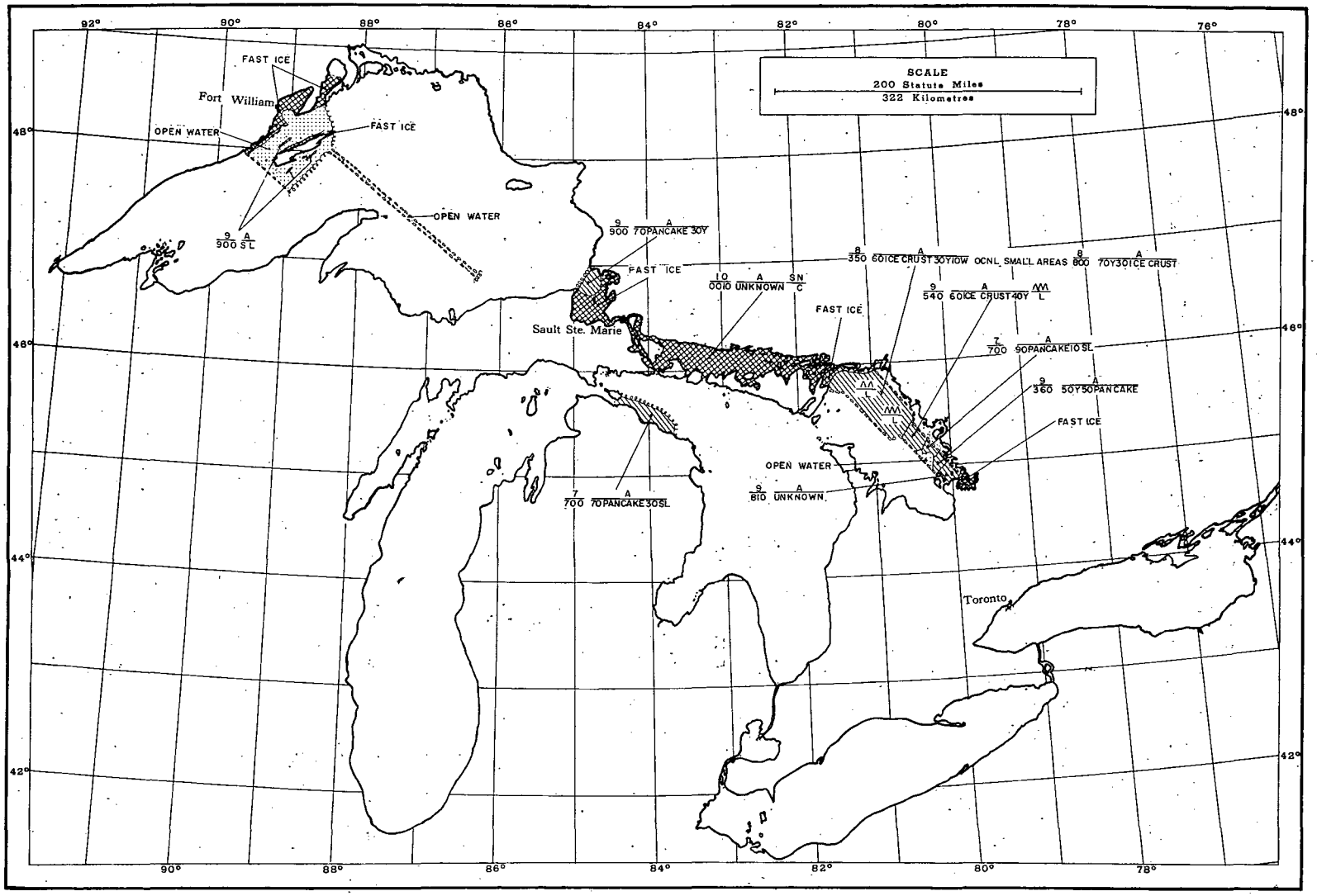

FIG. 6 — OBSERVED ICE CONDITIONS, JANUARY 30, 1962.

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ICE CONDITIONS ON FEBRUARY 10 - 13, 1962

Ice conditions are illustrated in Figure 7.

LAKE ONTARIO:

The northeastern sector of the lake was consolidated, snow covered winter ice. An area of open water was observed in the western end of the lake, extending south and west from Toronto. The remainder of the area was mostly broken to close young ice and ice crust, except for a large amount of winter ice noted in the northern half.

LAKE ERIE:

The observed portion of this area was consolidated winter ice, with a small percentage of young ice noted east of Long Point.

LAKE ST. CLAIR:

The lake region was consolidated winter ice, while the adjoining rivers were close winter ice.

LAKE HURON:

Fast ice was noted along the eastern shore. The region of the lake south of Port Albert was consolidated winter ice, snow covered and lightly ridged. The northern sector south of Manitoulin Island and west and south of Cape Hurd was mostly close winter ice. An area of open water was observed in the central sector, with broken to close young ice and ice crust extending southward of the open water to the latitude of Port Albert.

GEORGIAN BAY:

Fast ice was noted in the observed coastal regions of this area. The central sector of the observed portion was close winter ice with a small amount of young ice noted.

NORTH CHANNEL:

The entire area was covered with consolidated winter ice, with light ridging and drifted snow cover.

ST. MARY'S RIVER:

Consolidated, snow covered winter ice was observed throughout this area.

LAKE SUPERIOR:

The region south of Michipicoten Island, including Whitefish Bay, was mostly consolidated winter ice. Consolidated winter ice also extended north of Isle Royale into Thunder and Black Bay. With the exception of a small area of open water along the west side of Michipicoten Island, the remainder of the observed portion of the area was generally close winter ice, almost completely snow covered.

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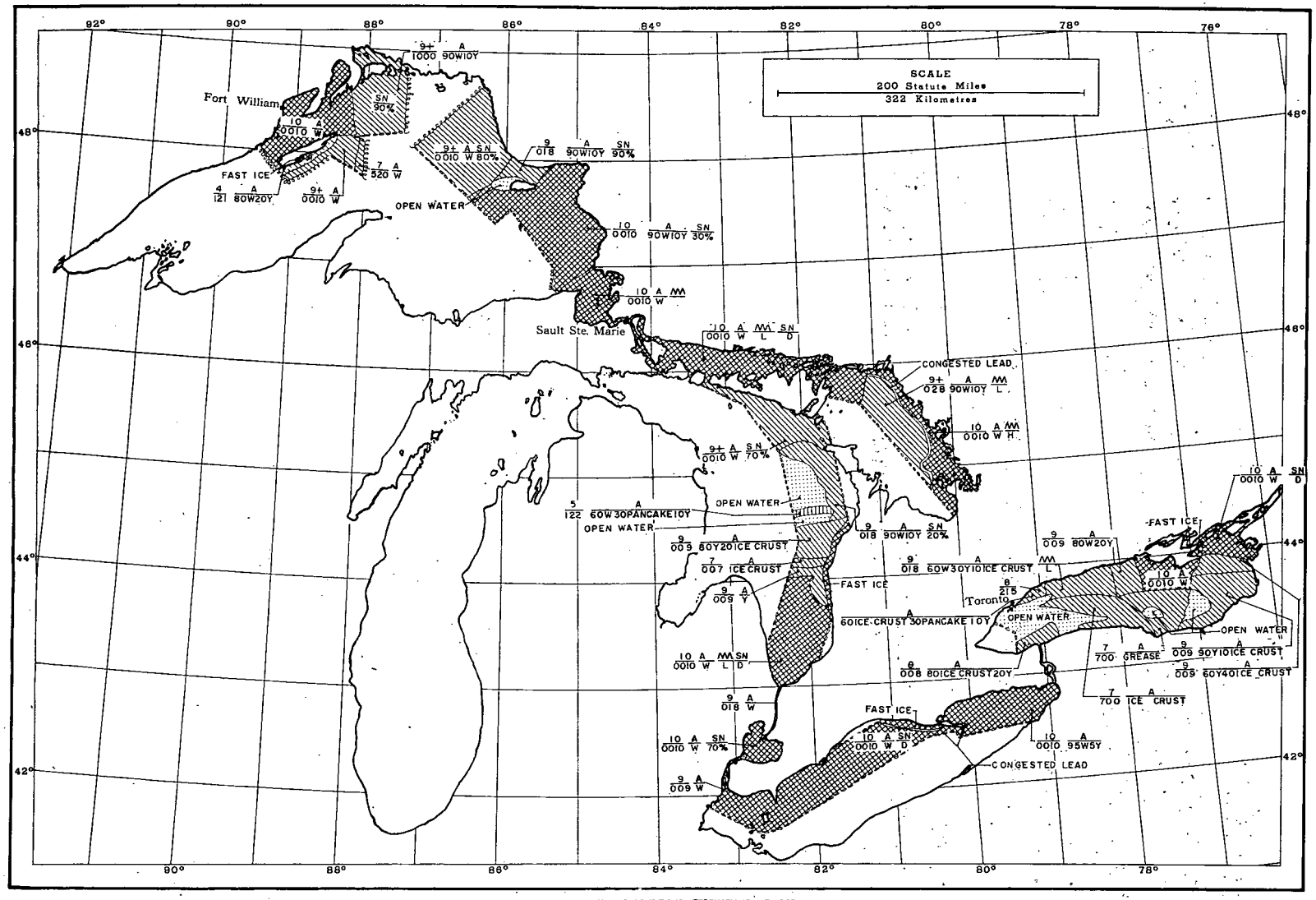

FIG. 7 — OBSERVED ICE CONDITIONS, FEBRUARY 10–13, 1962.

ICE CONDITIONS ON FEBRUARY 21, 1962

Ice conditions are illustrated in Figure 8.

LAKE ONTARIO:

The coastal regions of the northeastern sector of the lake was mostly fast ice. The southeastern sector of the lake was open water. The remainder of the observed portion of the area was generally broken ice crust and young ice.

NIAGARA RIVER:

Open water was observed throughout this area.

LAKE ERIE:

Observations in this area were confined to the north shore east of Port Stanley. Fast ice was prevalent throughout this area.

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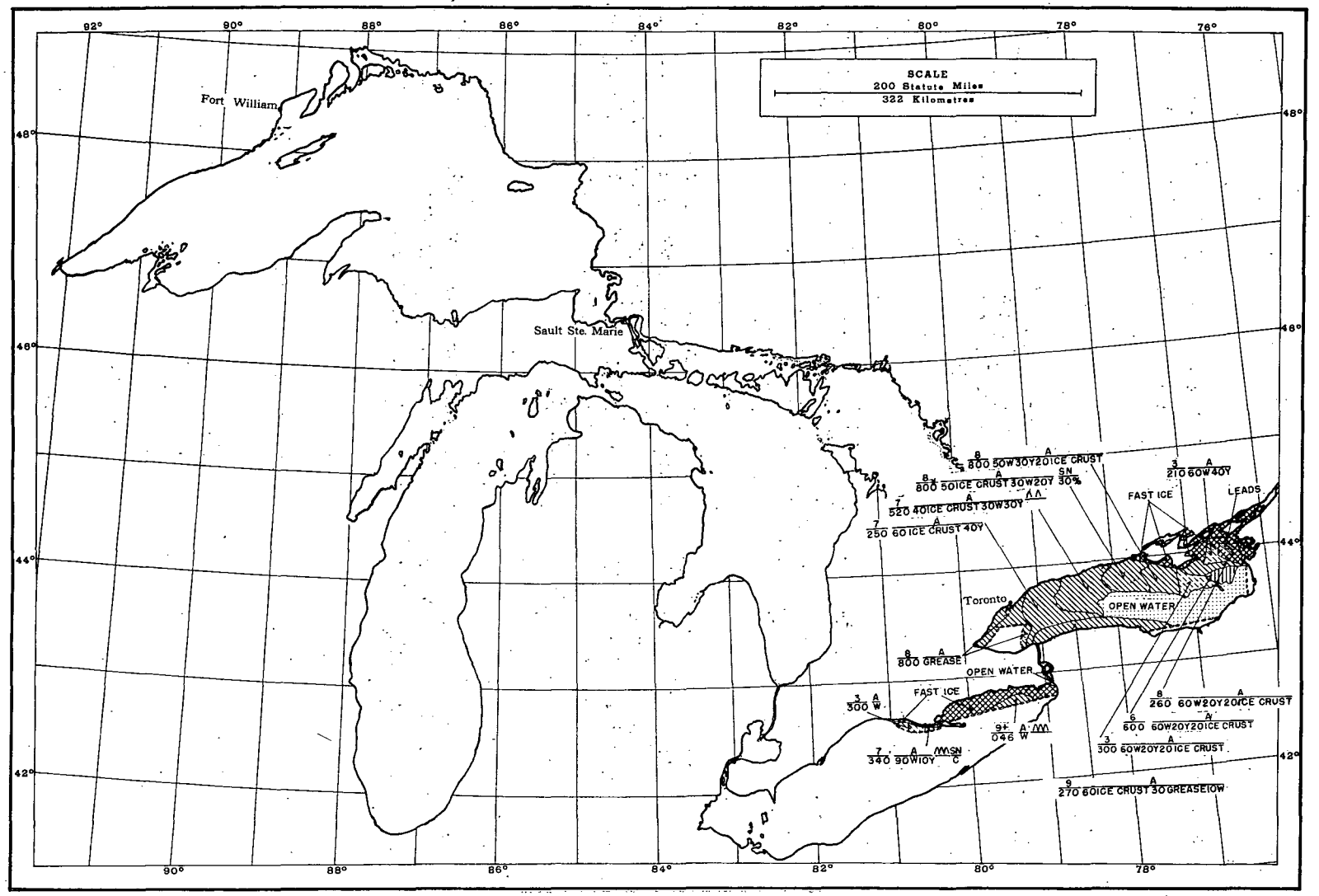

FIG. 8— OBSERVED ICE CONDITIONS, FEBRUARY 21, 1962.

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ICE CONDITIONS ON FEBRUARY 23, 1962

Ice conditions are illustrated in Figure 9.

LAKE ONTARIO:

A narrow band of close ice crust and young ice lay along the coast near Toronto. The remaining area extending across the lake to the Niagara River was observed to be open water.

LAKE ERIE:

Fast ice lay along the coastal regions of the observed portions of this area. The eastern end of the lake was consolidated winter ice with light ridging. The remainder of the observed area was mostly close winter and young ice.

LAKE ST. CLAIR:

The lake region was covered by consolidated winter ice. The adjoining rivers contained broken to close ice of various ages. Small areas of open water were noted at both ends of the Detroit River.

LAKE HURON:

Fast ice was noted along the observed coastal regions of this area south of latitude 44° 30' N. An area of open water was noted in the central sector of the lake west of Douglas Point. The area south of this open water to Sarnia was close winter ice with light to moderate ridging and was completely snow covered. North of the open water area, previously mentioned, was broken pancake and slush ice.

GEORGIAN BAY:

Fast ice was noted along all observed coast regions of this area. The entrance to the bay contained consolidated winter ice with moderate ridging. The remainder of the observed area was close winter ice, with moderate to heavy ridging.

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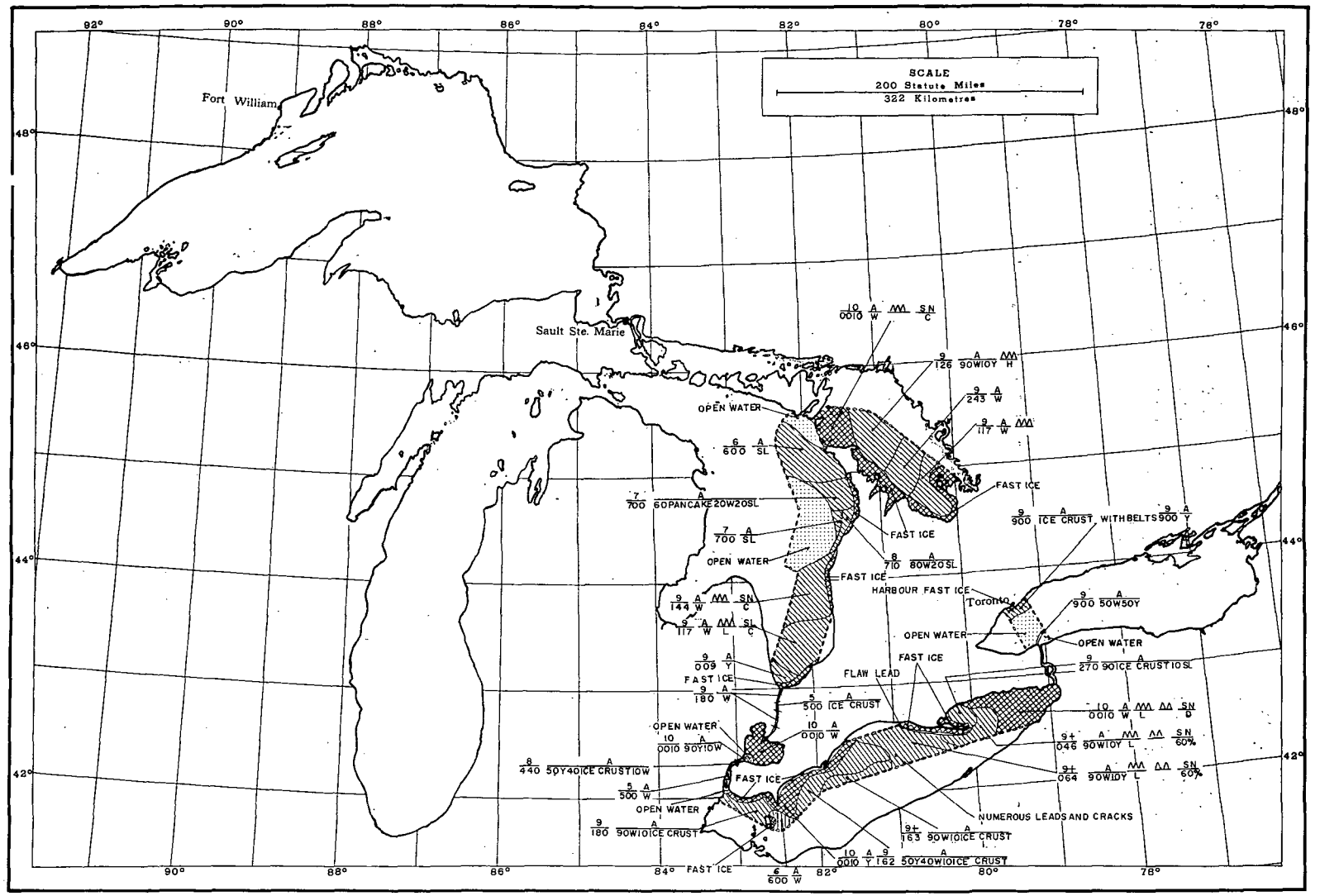

FIG. 9 — OBSERVED ICE CONDITIONS, FEBRUARY 23, 1962.

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ICE CONDITIONS ON FEBRUARY 25, 1962

Ice conditions are illustrated in Figure 10.

GEORGIAN BAY:

Fast ice lay along all observed coastal regions of this area. The remainder of the area was mostly close to broken winter ice except for a large amount of ice crust noted in the northern sector near Manitoulin Island.

NORTH CHANNEL:

Fast ice was noted throughout the observed portion of this area.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

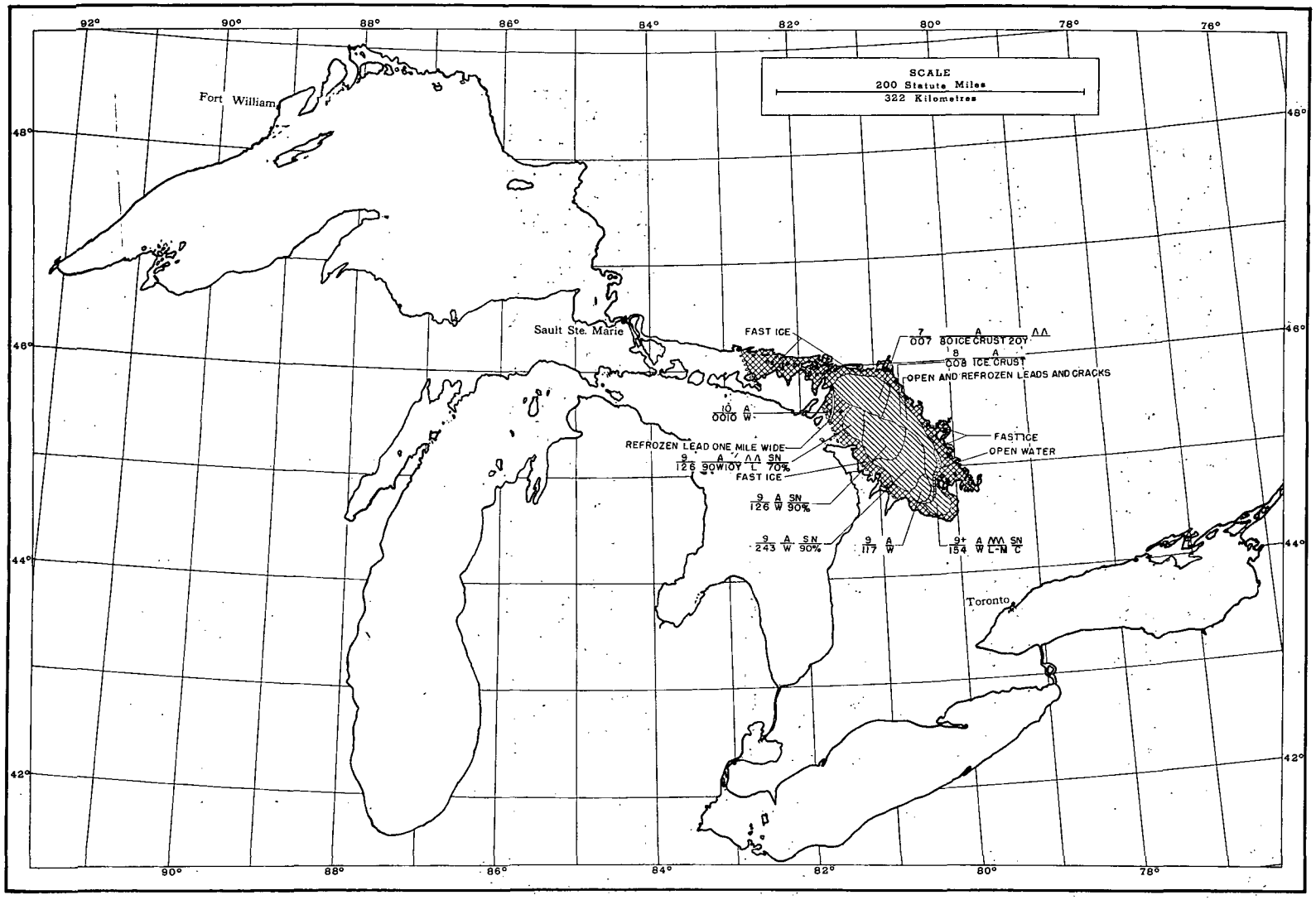

FIG.10 – OBSERVED ICE CONDITIONS, FEBRUARY 25, 1962.

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ICE CONDITIONS ON MARCH 6, 1962

Ice conditions are illustrated in Figure 11.

LAKE HURON:

An area of open water was noted along the eastern shore north of Point Clark. Fast ice was prevalent throughout the northwest sector near Mackinaw City. The remainder of the observed area was mostly close winter and young ice.

GEORGIAN BAY:

The entire area was observed to be consolidated winter ice. A few cracks and leads were noted in the central sector of this area.

NORTH CHANNEL:

Fast ice was observed throughout this area.

ST. MARY'S RIVER:

Fast ice was observed throughout this area.

LAKE SUPERIOR:

Fast ice was noted north of Isle Royale, in Thunder Bay, Black Bay, Nipigon Bay, Whitefish Bay, and a narrow band along the shore in all observed coastal regions. Areas of open water were noted in the eastern sector of the lake, near Michipicoten Island, and along the northern shore east of Black Bay. The remainder of the observed area was generally close winter ice with light to moderate ridging.

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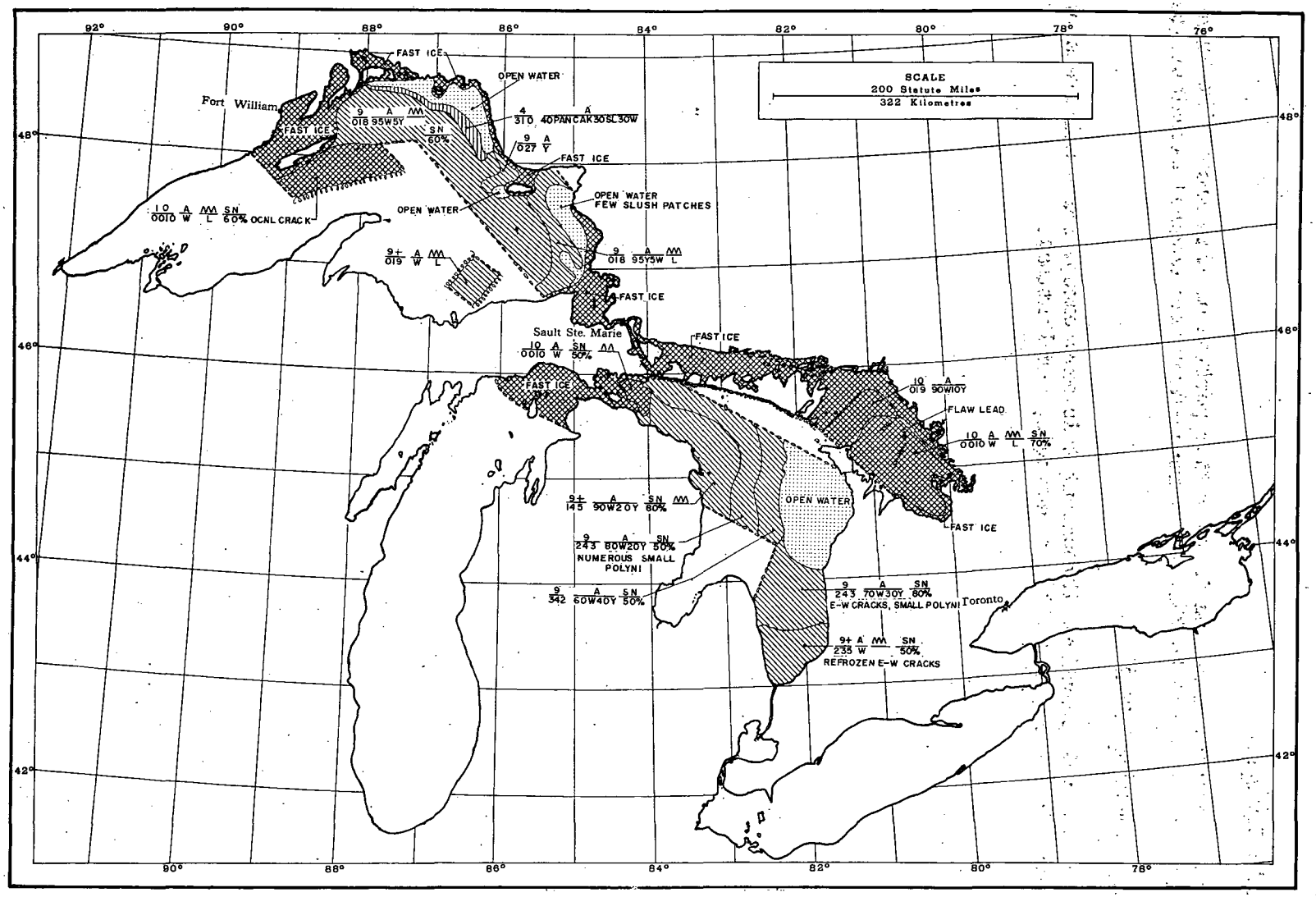

FIG. II – OBSERVED ICE CONDITIONS, MARCH 6, 1962.

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ICE CONDITIONS ON MARCH 7, 1962

Ice conditions are illustrated in Figure 12.

LAKE ONTARIO:

Open water was observed in the major portion of this area. The Quinte area and entrance to the St. Lawrence River was covered with fast ice.

ST. LAWRENCE RIVER:

Fast ice was prevalent throughout this area except for small areas of open water near Cornwall, Beauharnois, and Montreal.

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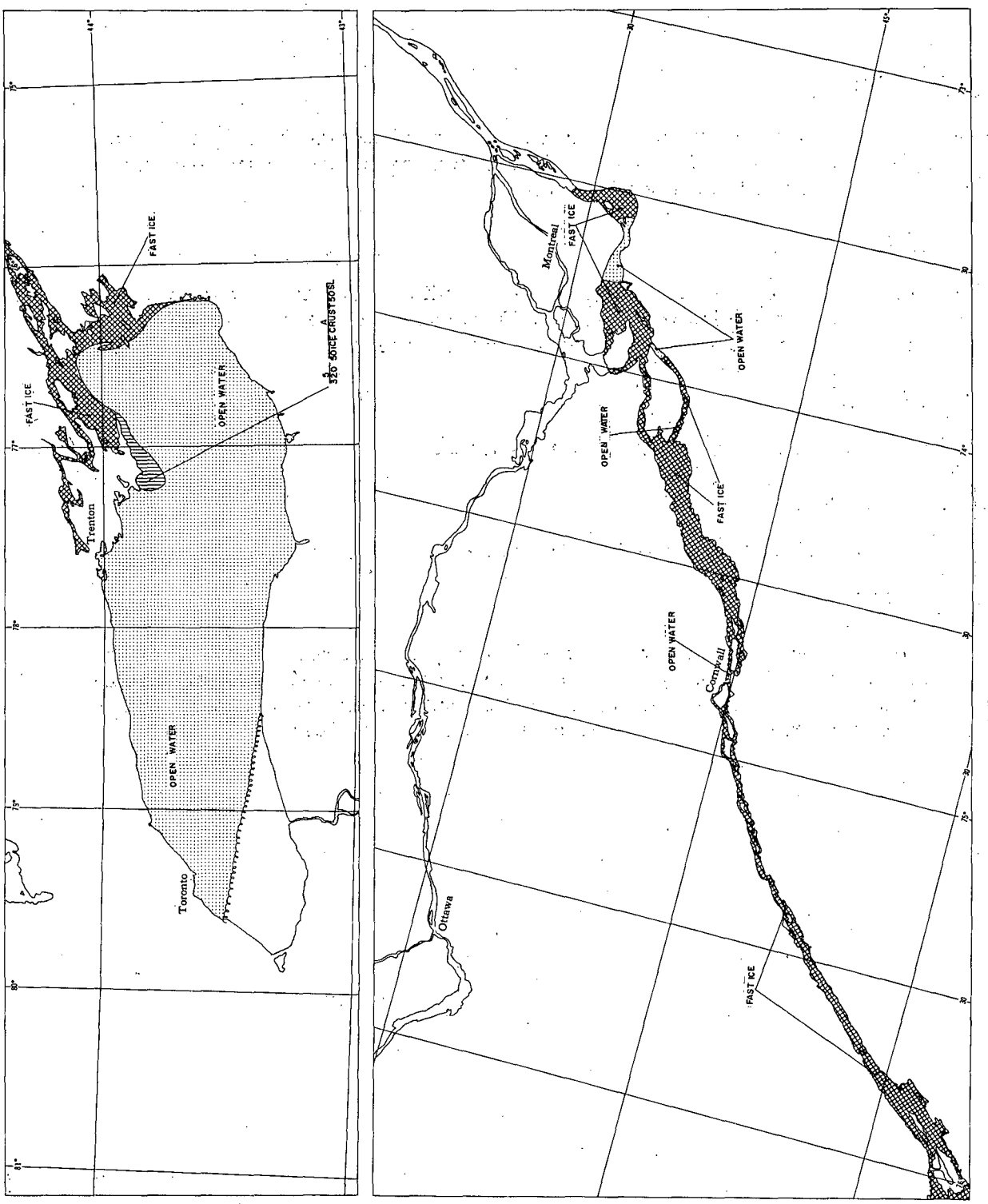

FIG. 12 — OBSERVED ICE CONDITIONS, MARCH 7, 1962.

ICE CONDITIONS ON MARCH 15, 1962

Ice conditions are illustrated in Figure 13.

LAKE HURON:

Fast ice was observed along the south coast of Manitoulin Island and through the Straits of Mackinac. The remainder of the observed area was close to consolidated winter ice.

GEORGIAN BAY:

Fast ice was observed along the coastal regions of this area. The remainder of the observed area was mostly broken winter ice except for two areas of open water noted in the central sector.

NORTH CHANNEL:

Fast ice was observed throughout this area.

ST. MARY'S RIVER:

Fast ice was observed throughout this area.

LAKE SUPERIOR:

Fast ice was observed north of Isle Royale, in Whitefish Bay, Thunder Bay, Black Bay, Nipigon Bay, and in the lee of Slate Island and Michipicoten Island. The northeastern sector was mainly open water, while the southwestern sector was generally close winter ice.

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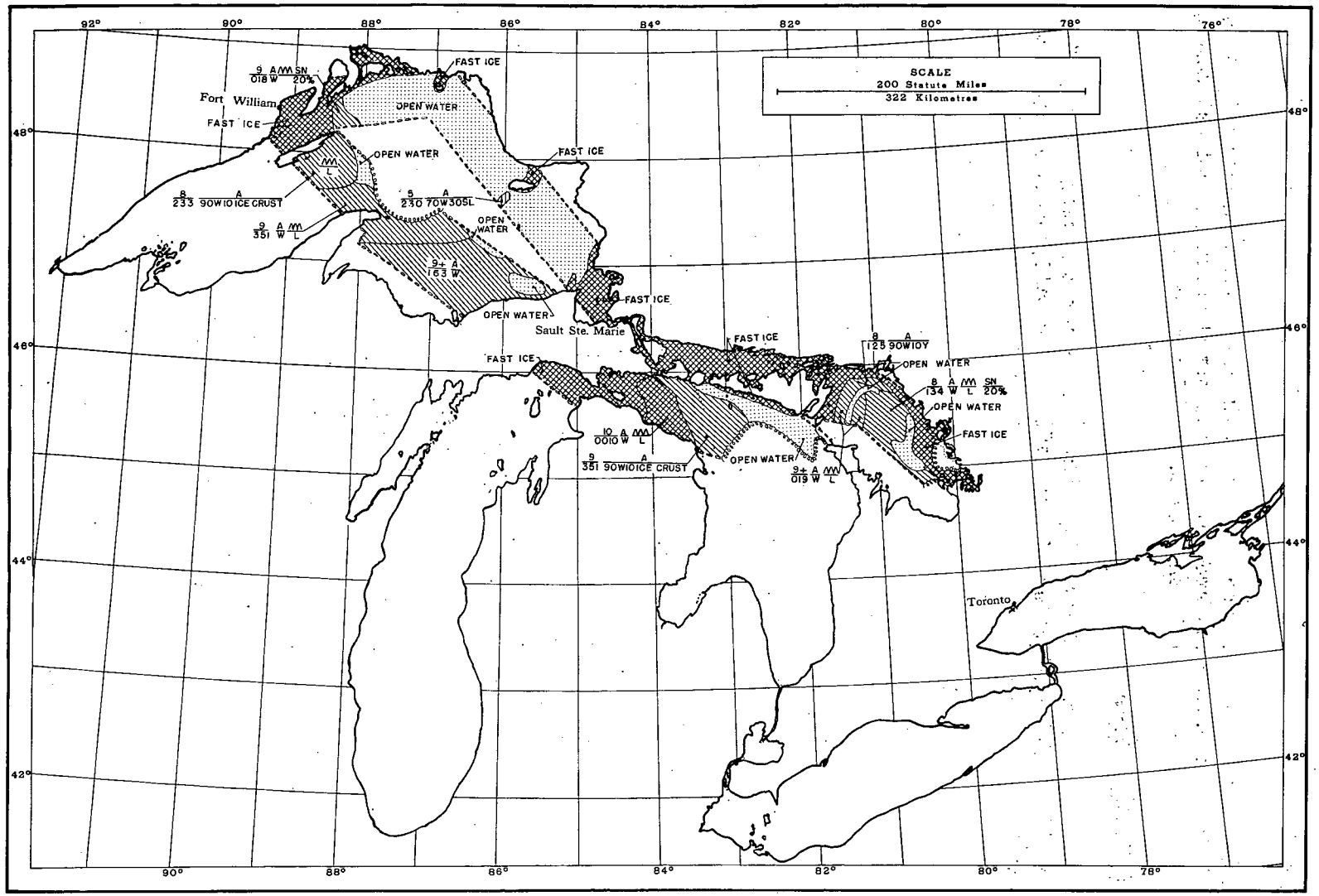

FIG. 13—OBSERVED ICE CONDITIONS, MARCH 15, 1962.

CIR - 3772
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ICE CONDITIONS ON MARCH 16, 1962

Ice conditions are illustrated in Figure 14.

LAKE ONTARIO:

The Quinte area and entrance to the St. Lawrence River was mostly fast ice, with an area of scattered winter ice noted south of Amherst Island. Open water was observed in the remainder of the area.

ST. LAWRENCE RIVER:

The area was almost predominantly fast ice except for small areas of open water in the vicinities of Brockville, Cornwall, Valleyfield and Montreal.

CIR - 3772
TEC - 440
12 DEC 62

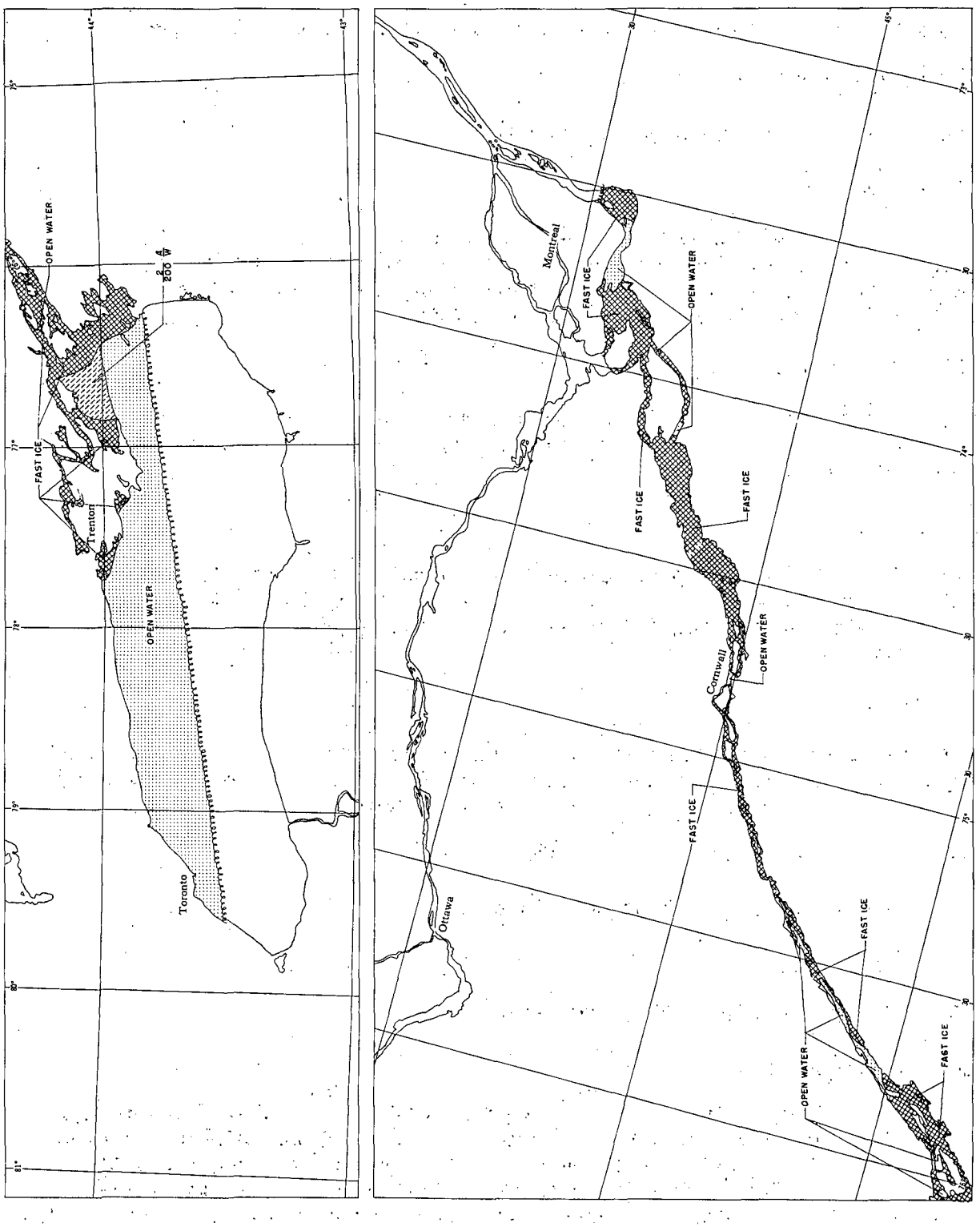

FIG. 14 — OBSERVED ICE CONDITIONS, MARCH 16, 1962.

ICE CONDITIONS ON MARCH 23, 1962

Ice conditions are illustrated in Figure 15.

LAKE ONTARIO:

Open water was noted throughout the observed portion of this area.

NIAGARA RIVER:

Open water was observed throughout this area.

LAKE ERIE:

Fast ice was noted along the north coast east of Long Point. The central sector of the observed portion and an area around Pelee Island were close to broken winter and young ice. The eastern end of the lake was close to consolidated winter ice.

LAKE ST. CLAIR:

Open water was observed in the central portion of the lake. The remainder of the lake and the adjoining rivers were mostly broken to close winter ice.

LAKE HURON:

Fast ice was noted through the Mackinac Straits and along the eastern shore. Open water was observed in the central portion of the lake. The southern sector and the coastal area near Rogers City was broken to close winter ice.

GEORGIAN BAY:

The western sector and northeastern shore were observed to be fast ice. Open water lay in the central sector, while an area of close winter and young ice was noted along the southwestern shore.

NORTH CHANNEL:

Fast ice was observed throughout this area.

ST. MARY'S RIVER:

Fast ice was observed throughout this area.

LAKE SUPERIOR:

Fast ice was noted in Whitefish Bay, north of Isle Royale, Thunder Bay, Black Bay, Nipigon Bay, and in the lee of Slate Island and Michipicoten Island. A large area of open water was observed in the central sector of the lake. The northeast sector was mostly close ice in the formation stages of the ice crust and young ice. The southwestern sector was mostly close winter ice, with a small percentage of young ice.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

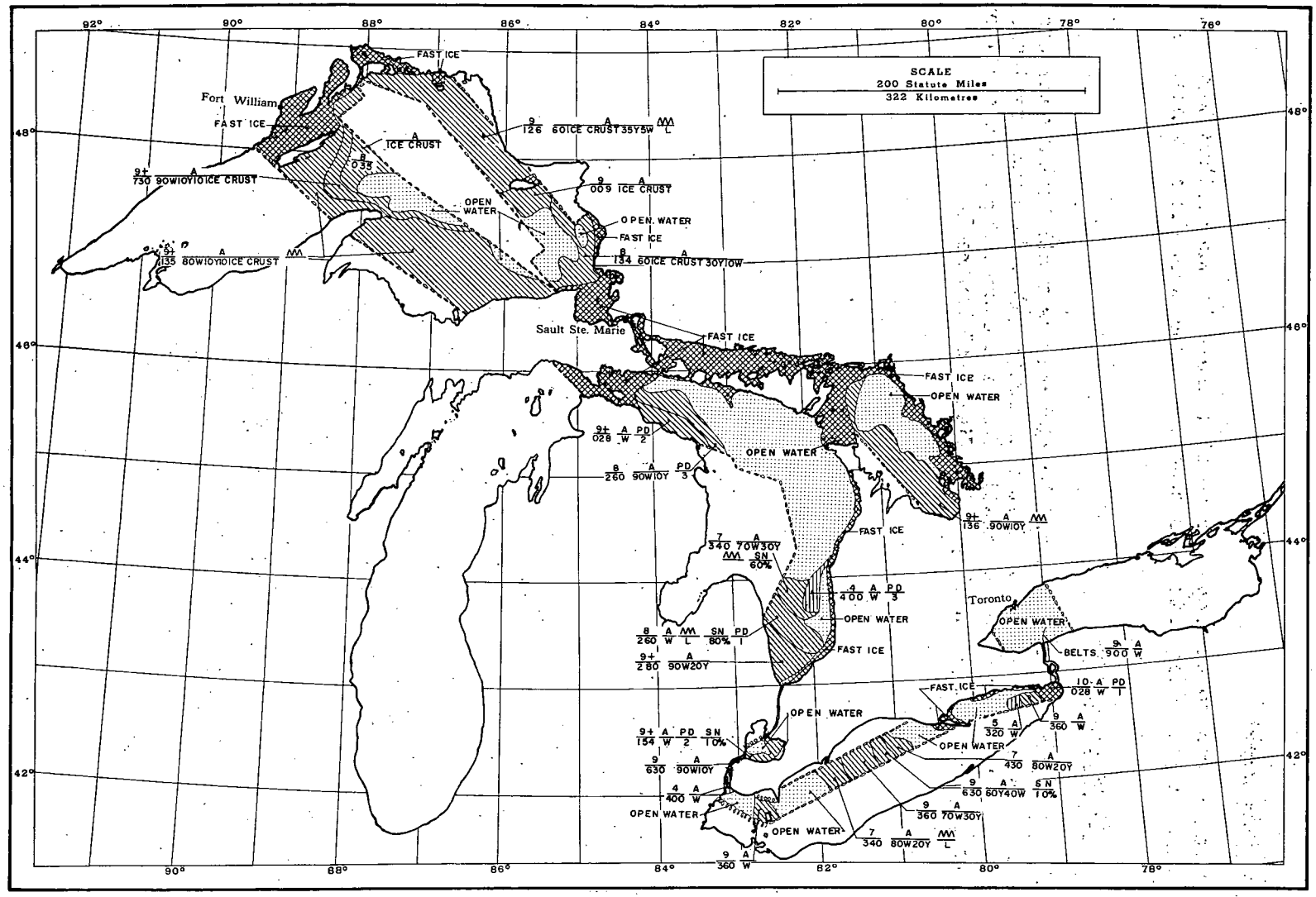

FIG. 15—OBSERVED ICE CONDITIONS, MARCH 23, 1962.

CIR - 3772
TEC - 440
12 DEC 62

ICE CONDITIONS ON MARCH 26, 1962

Ice conditions are illustrated in Figure 16.

LAKE ONTARIO:

Fast ice was noted along the coastal areas in the northeastern sector of the lake. Open water was observed throughout the remainder of the area.

ST. LAWRENCE RIVER:

The area between Kingston and Morrisburg was mostly open water except for a few narrow bands of fast ice along isolated coastal regions. The remainder of the area was mostly fast ice except for a few small open water areas near Cornwall, Valleyfield and Montreal.

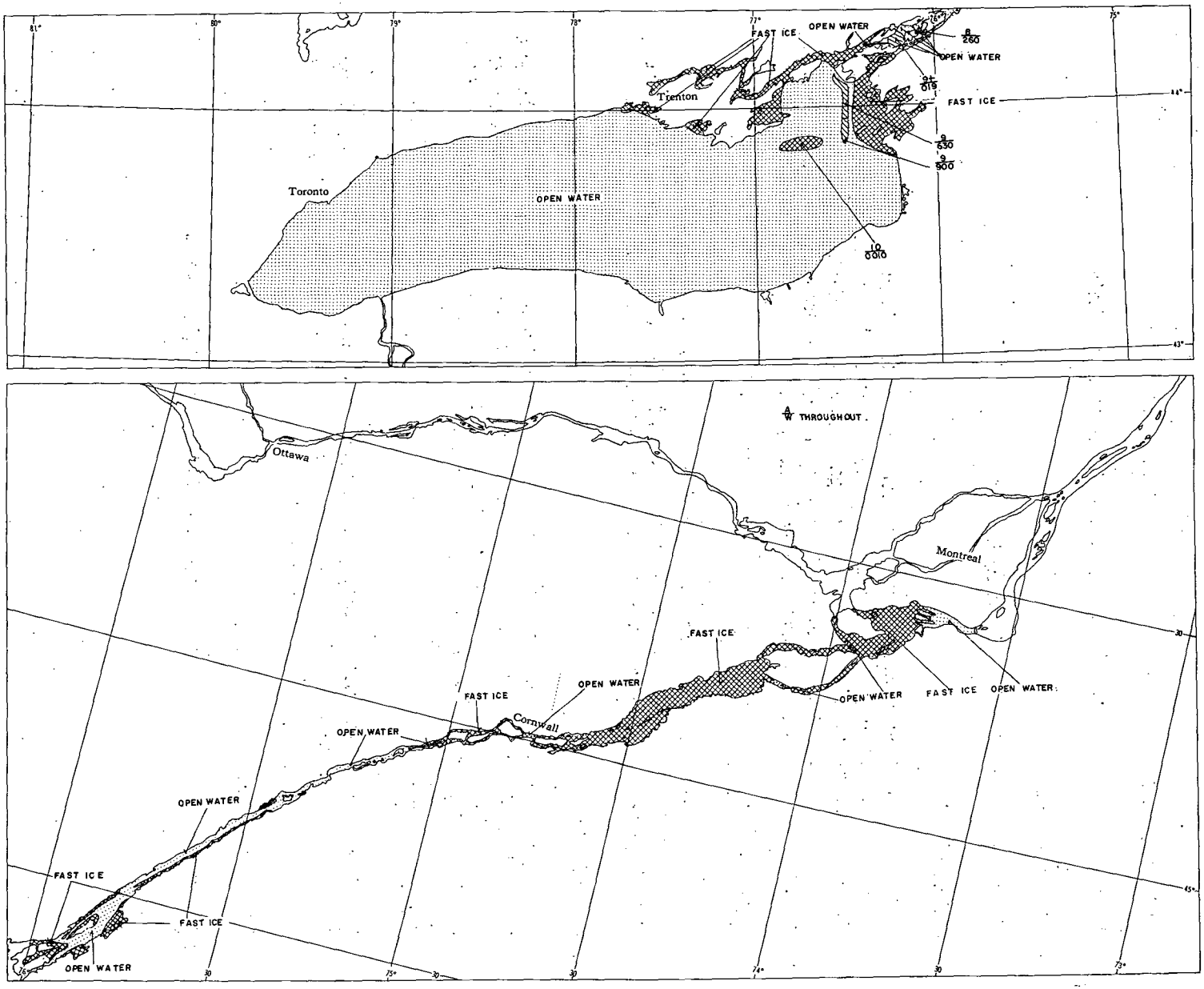

FIG. 16—OBSERVED ICE CONDITIONS, MARCH 26, 1962.

CIR - 3772
TEC - 440
12 DEC 62

ICE CONDITIONS ON MARCH 28, 1962

Ice conditions are illustrated in Figure 17.

LAKE ONTARIO:

Open water was noted in the observed portion of this area.

NIAGARA RIVER:

Open water was observed throughout this area.

LAKE ERIE:

Fast ice was observed in the eastern end of the lake. Open water was noted along the north shore in the vicinity of Long Point, and in the western sector of the lake except for an area of close winter ice around Pelee Island. The central sector of the lake was also observed to be close winter ice with rotten puddling.

LAKE ST. CLAIR:

The outer perimeter of the lake was open water, while the central portion was close winter ice. The Detroit River was scattered winter ice, and the St. Clair River was broken winter ice.

LAKE HURON:

Some fast ice was observed along the eastern shore of the lake. In the extreme southern sector consolidated winter ice was noted with an area of close ice and ice crust just to the north of it. The remainder of the area was mainly open water.

GEORGIAN BAY:

Fast ice still remained along the eastern shore, with open water noted in the central sector of the observed area. The remainder was observed to be close winter ice and ice crust.

NORTH CHANNEL:

Fast ice was noted in the observed portion of this area.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

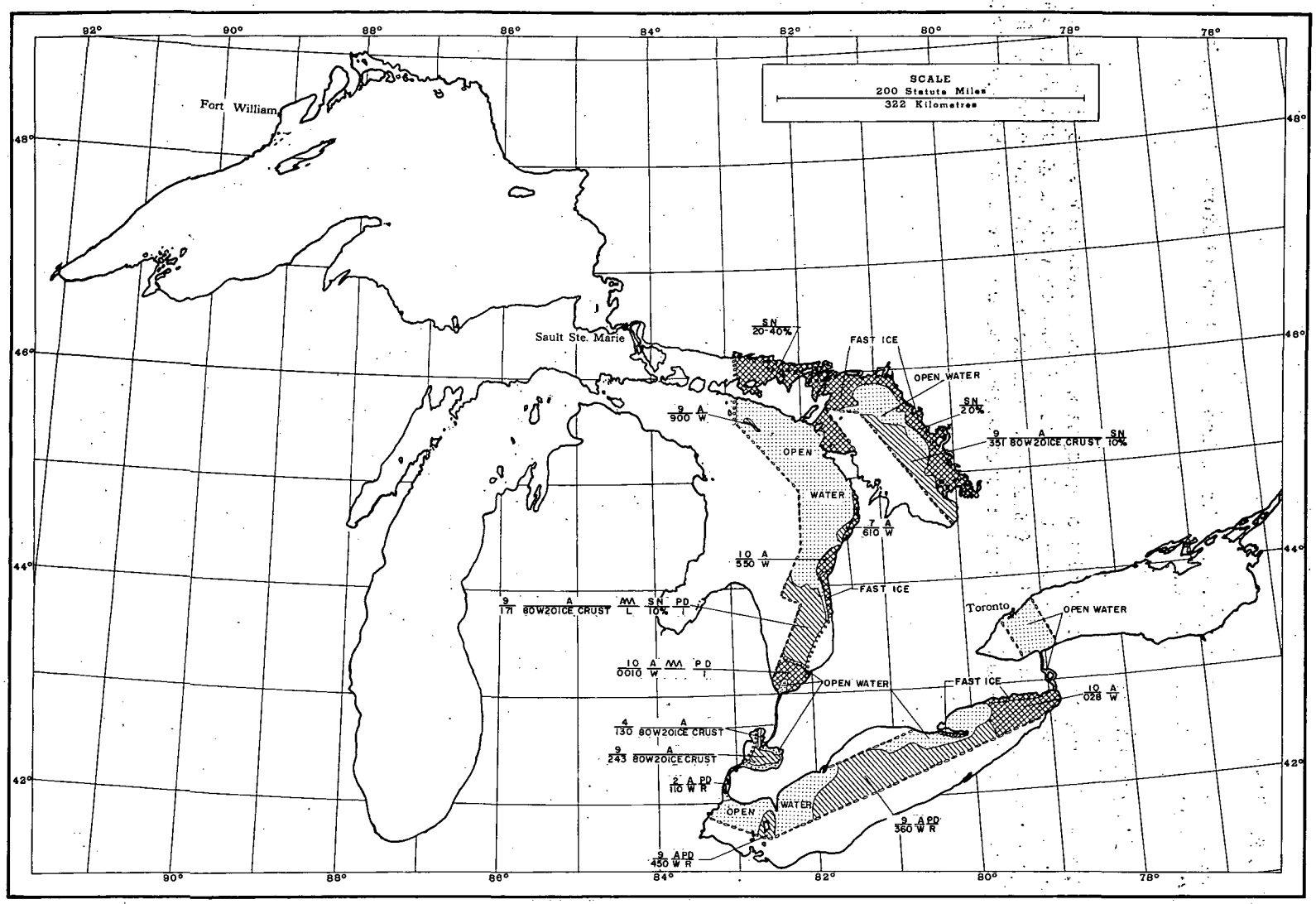

FIG. 17—OBSERVED ICE CONDITIONS, MARCH 28, 1962.

CIR - 3772
TEC - 440
12 DEC 62

ICE CONDITIONS ON APRIL 2, 1962

Ice conditions are illustrated in Figure 18.

LAKE ONTARIO:

Observations were confined to the extreme eastern sector of the lake in which open water was noted.

ST. LAWRENCE RIVER:

Open water was prevalent between Kingston and Lancaster except for occasional small isolated areas of fast ice. Fast ice was also noted in Lake St. Francis, Lake St. Louis, Central Beauharnois Canal and east of Heron Island. The remainder of this latter area was observed to be open water.

CIR - 3772
TEC - 440
12 DEC 62

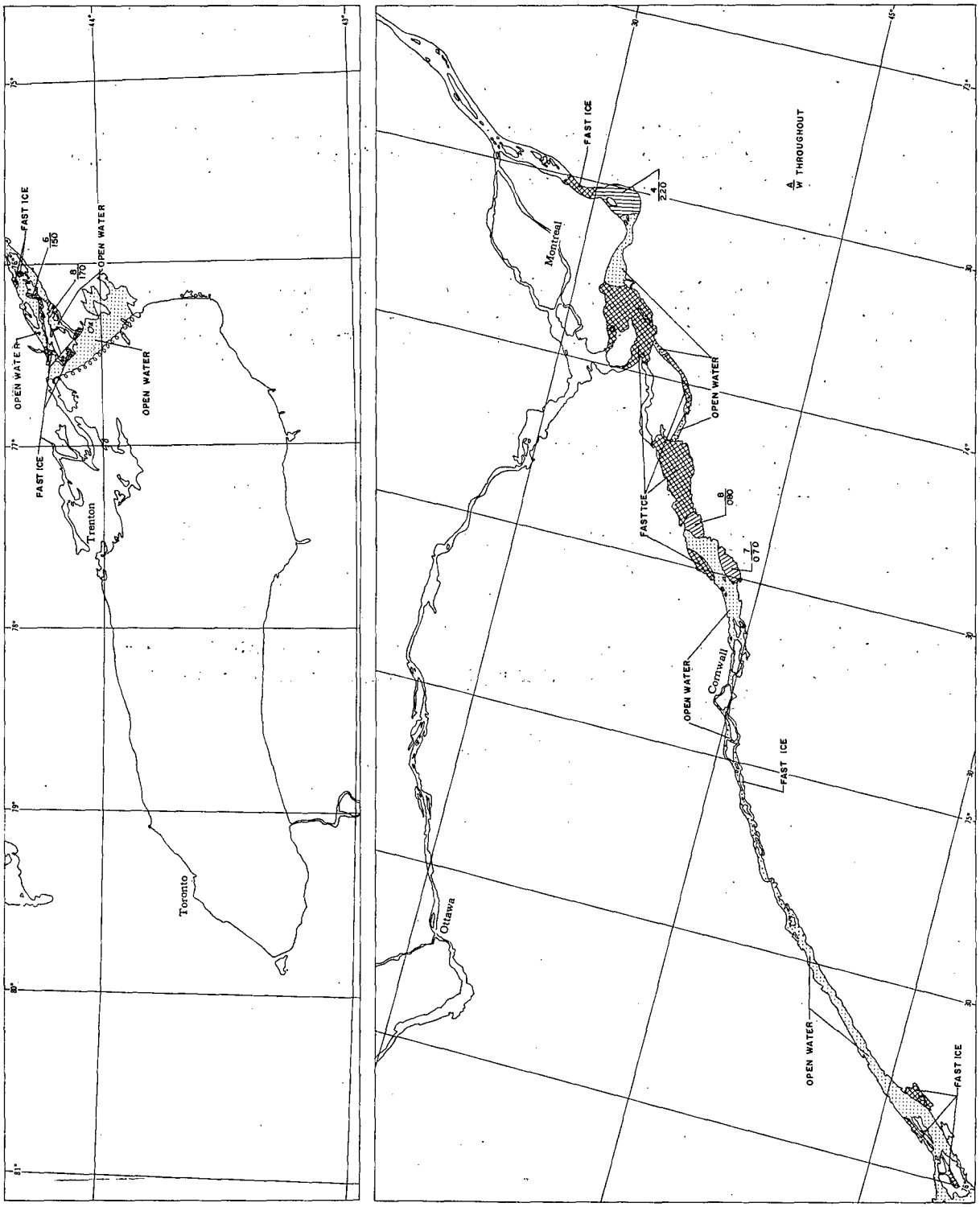

FIG. 18—OBSERVED ICE CONDITIONS, APRIL 2, 1962.

ICE CONDITIONS ON APRIL 2, 1962

Ice conditions are illustrated in Figure 19.

LAKE HURON:

Fast ice was noted in the coastal area near St. Ignace. An area of broken winter ice was observed just north of Rockport. The remainder of the observed area was open water.

GEORGIAN BAY:

Fast ice persisted in the coastal regions of the observed area. The greater part of the remainder of the Bay was open water, while some broken and close winter ice lingered in the southeastern sector.

NORTH CHANNEL:

Fast ice was observed throughout this area.

ST. MARY'S RIVER:

Fast ice was observed throughout this area.

LAKE SUPERIOR:

Fast ice still remained north of Isle Royale, in Thunder Bay, Black Bay, Nipigon Bay and Whitefish Bay. The remainder of the observed area was mainly open water.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

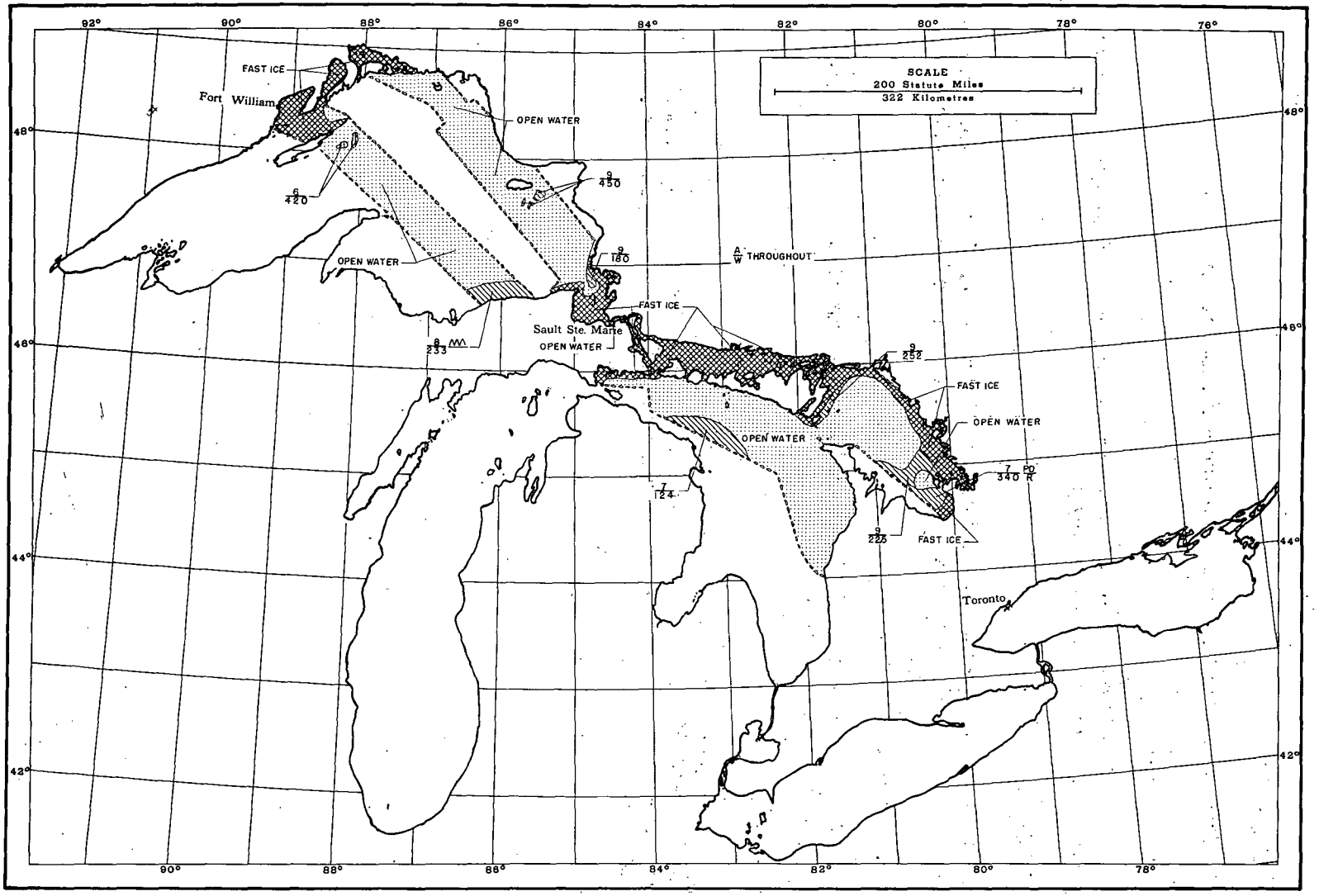

FIG. 19— OBSERVED ICE CONDITIONS, APRIL 4, 1962.

CIR - 3772
TEC - 440
12 DEC 62

ICE CONDITIONS ON APRIL 8, 1962

Ice conditions are illustrated in Figure 20.

LAKE ONTARIO:

Open water was noted in the observed portion of this area.

NIAGARA RIVER:

Numerous areas of scattered winter ice were observed in narrow channels and areas of slow water movement.

LAKE ERIE:

With the exception of a small area of close winter ice in the extreme eastern end of the lake, the area was observed to be open water.

LAKE ST. CLAIR:

The Detroit River and Lake St. Clair were observed to be open water. St. Clair River contained scattered winter ice.

LAKE HURON:

In the observed portion of the area a band of broken winter ice lay along the eastern shore. The central sector contained scattered winter ice, while to the north and south of this area, open water was observed.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

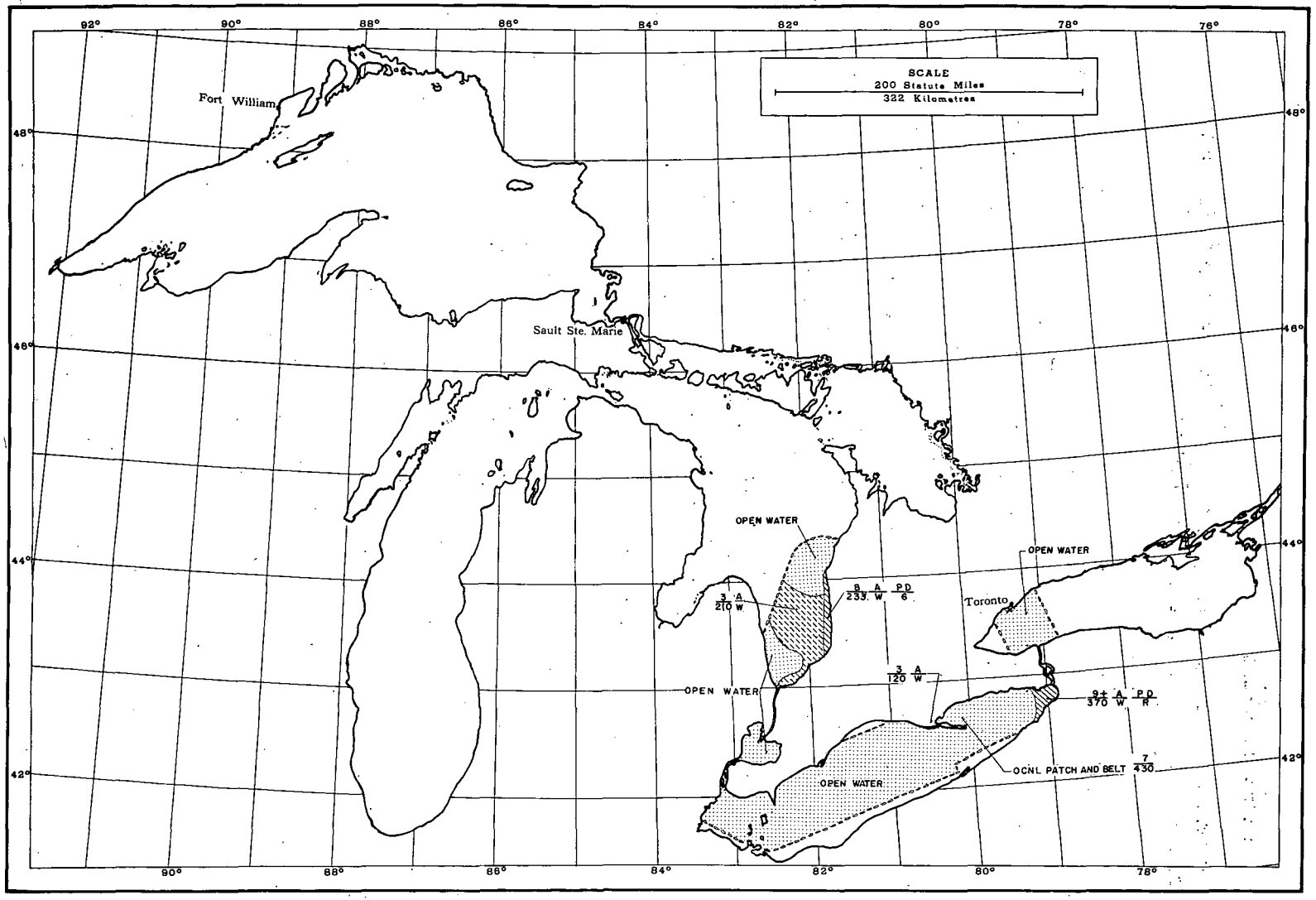

FIG. 20—OBSERVED ICE CONDITIONS, APRIL 8, 1962.

CIR - 3772
TEC - 440
12 DEC 62

ICE CONDITIONS ON APRIL 11, 1962

Ice conditions are illustrated in Figure 21.

ST. LAWRENCE RIVER:

The entire area was mainly open water except for a few small areas of fast ice near Valleyfield and Montreal.

CIR - 3772
TEC - 440
12 DEC 62

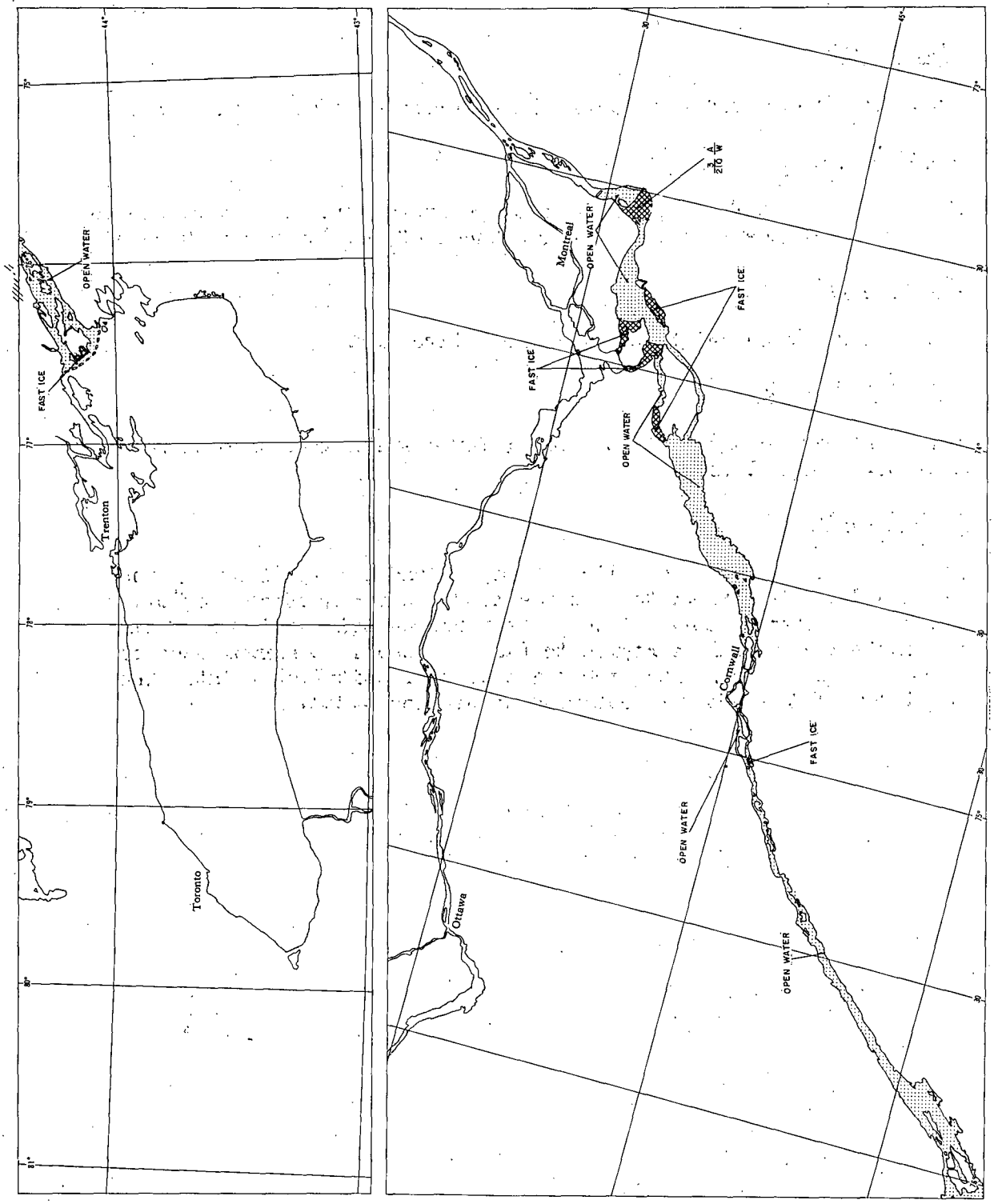

FIG. 21—OBSERVED ICE CONDITIONS, APRIL 11, 1962.

ICE CONDITIONS ON APRIL 12 - 13, 1962

Ice conditions are illustrated in Figure 22.

LAKE HURON:

Open water was noted throughout the observed portion of the area.

GEORGIAN BAY:

Fast ice was observed along the eastern shore, with a band of broken winter ice adjacent to it. The remainder of the Bay was open water.

NORTH CHANNEL:

Fast ice was observed throughout the entire area.

ST. MARY'S RIVER:

This area was mostly fast ice except for a small area of open water near St. Joseph Isle.

LAKE SUPERIOR:

Fast ice was observed in Whitefish Bay, Thunder Bay, Black Bay and Nipigon Bay. Broken winter ice was noted in the northern sector, around Isle Royale, and extending as a narrow belt southward from the eastern tip of Isle Royale to Eagle Harbour. A narrow band of close winter ice lay along the coast west of Whitefish Point. The remainder of the lake was observed to be open water.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

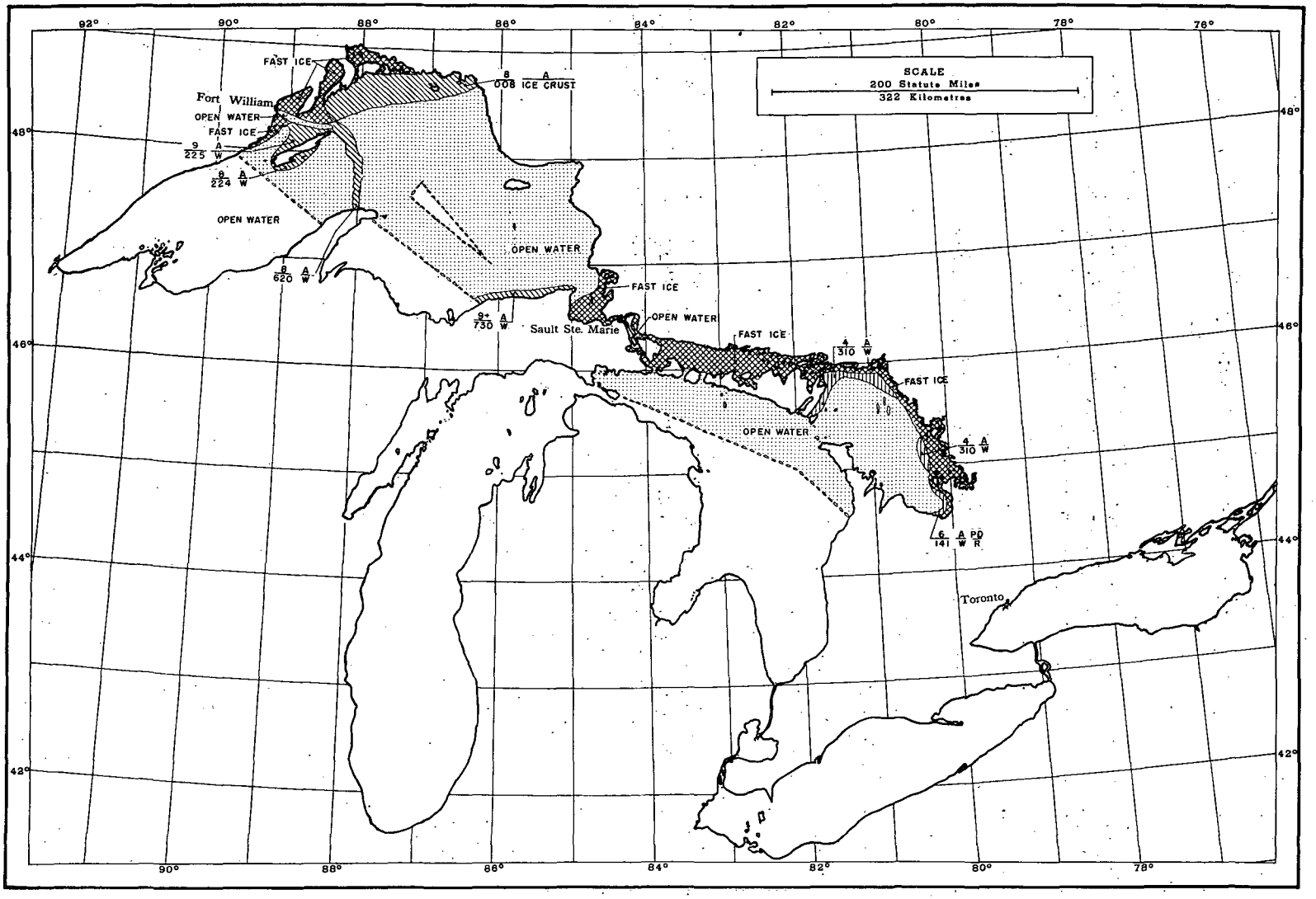

FIG. 22—OBSERVED ICE CONDITIONS, APRIL 12–14, 1962

CIR - 3772
TEC - 440
12 DEC 62

ICE CONDITIONS ON APRIL 19, 1962

Ice conditions are illustrated in Figure 23.

LAKE HURON:

Open water was noted in the observed portion of this area.

GEORGIAN BAY:

Some close to broken winter ice with rotten puddling still remained in the extreme southeastern sector of the Bay. Open water was noted in the remainder of the observed portion of the area.

NORTH CHANNEL:

Fast ice with rotten puddling was noted throughout the observed portion of the area.

ST. MARY'S RIVER:

The observed portion of this area was mainly open water with fast ice in the narrow channels.

LAKE SUPERIOR:

Fast ice was noted in Whitefish Bay, Thunder Bay, Black Bay and Nipigon Bay. Close winter ice was observed around Isle Royale and along the coast west of Whitefish Point. Open water was noted in the remainder of the observed portion of the area.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

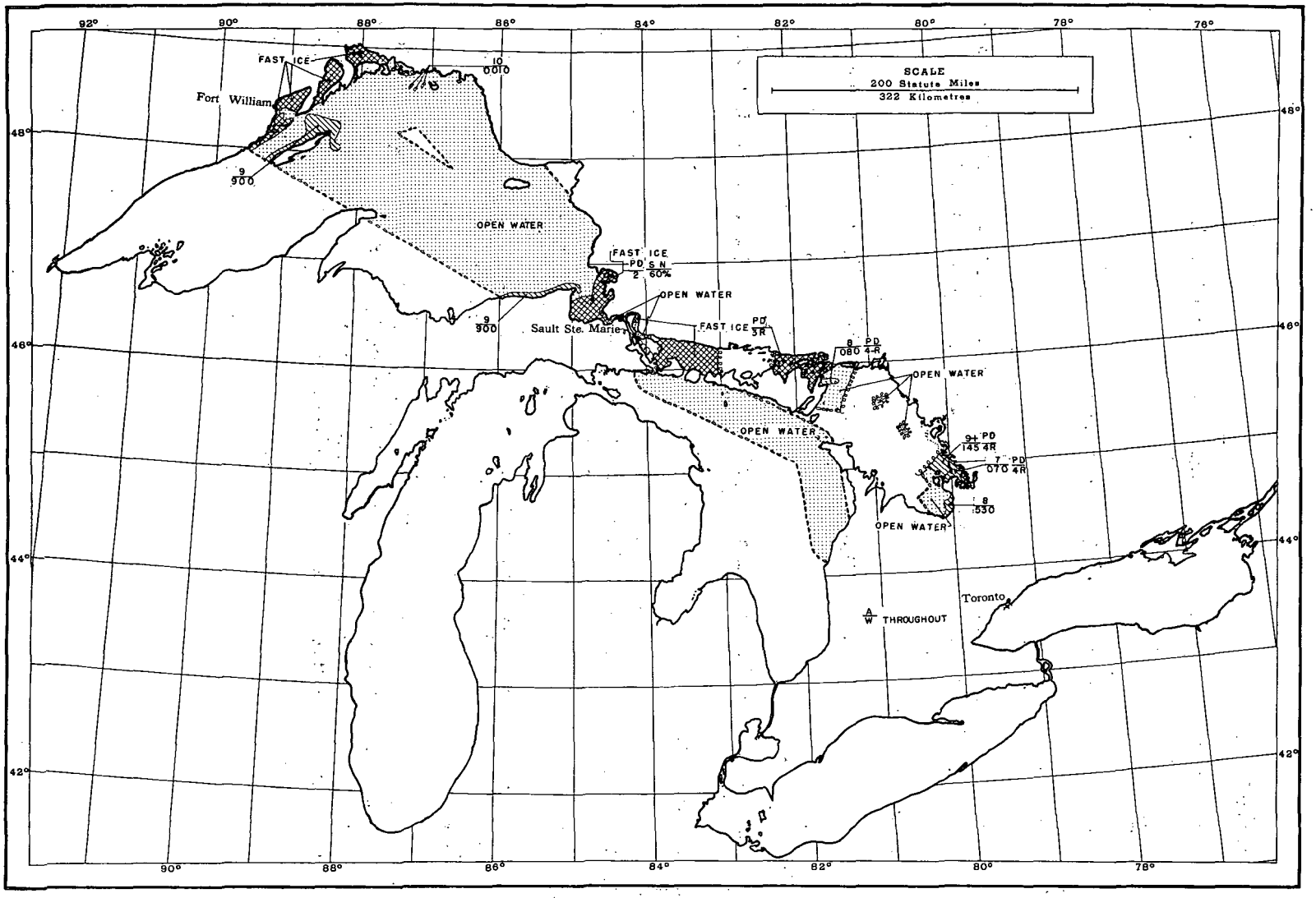

FIG. 23—OBSERVED ICE CONDITIONS, APRIL 19, 1962.

ICE CONDITIONS ON APRIL 26, 1962

Ice conditions are illustrated in Figure 24.

LAKE ONTARIO:

Open water was noted in the observed portion of this area.

NIAGARA RIVER:

The entire area was generally open water.

LAKE ERIE:

A small area of broken winter ice still existed near Buffalo. Open water was noted throughout the remainder of the observed area.

LAKE HURON:

Open water was noted throughout the observed portion of this area.

GEORGIAN BAY:

Open water was noted throughout the observed portion of this area.

NORTH CHANNEL:

An area of broken winter ice was noted in the central sector of the area. The remainder was observed to be open water.

ST. MARY'S RIVER:

Open water was observed throughout this area.

LAKE SUPERIOR:

Fast ice still persisted in Black Bay and Nipigon Bay. Thunder Bay and mostly close to consolidated winter ice with rotten puddling. A belt of broken winter ice still remained near the coast west of Whitefish Point. The remainder of the observed portion of the lake was open water.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

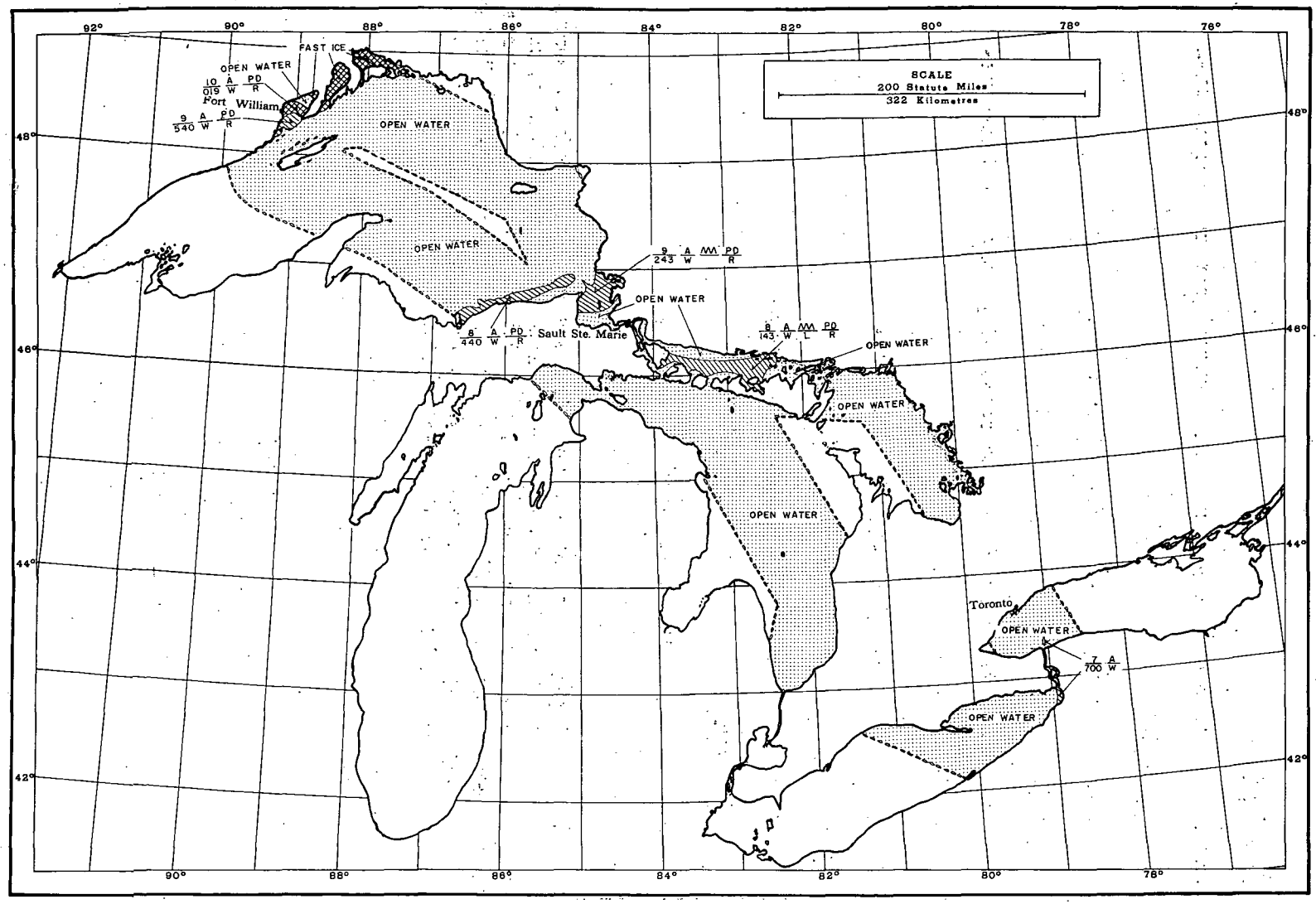

FIG.24—OBSERVED ICE CONDITIONS, APRIL 26, 1962.

CIR - 3772
TEC - 440
12 DEC 62

ICE CONDITIONS ON MAY 4, 1962

Ice conditions are illustrated in Figure 25.

LAKE ONTARIO:

Open water was noted throughout the observed portion of this area.

NIAGARA RIVER:

Open water was observed throughout this area.

LAKE ERIE:

Open water was noted throughout the observed portion of this area.

GEORGIAN BAY:

Open water was observed throughout this area.

NORTH CHANNEL:

Open water was observed throughout this Channel.

ST. MARY'S RIVER:

Open water was observed throughout this area.

LAKE SUPERIOR:

Fast ice still persisted in Black Bay and the extreme northern portion of Thunder Bay. A small area of broken winter ice was noted in the western entrance to Thunder Bay. Nipigon Bay was mostly close winter ice. Close winter ice still persisted in the southern half of Whitefish Bay and along the coast west of Whitefish Point. Open water was noted in the remainder of the observed portion of the lake.

METEOROLOGICAL BRANCH – DEPARTMENT OF TRANSPORT – CANADA.

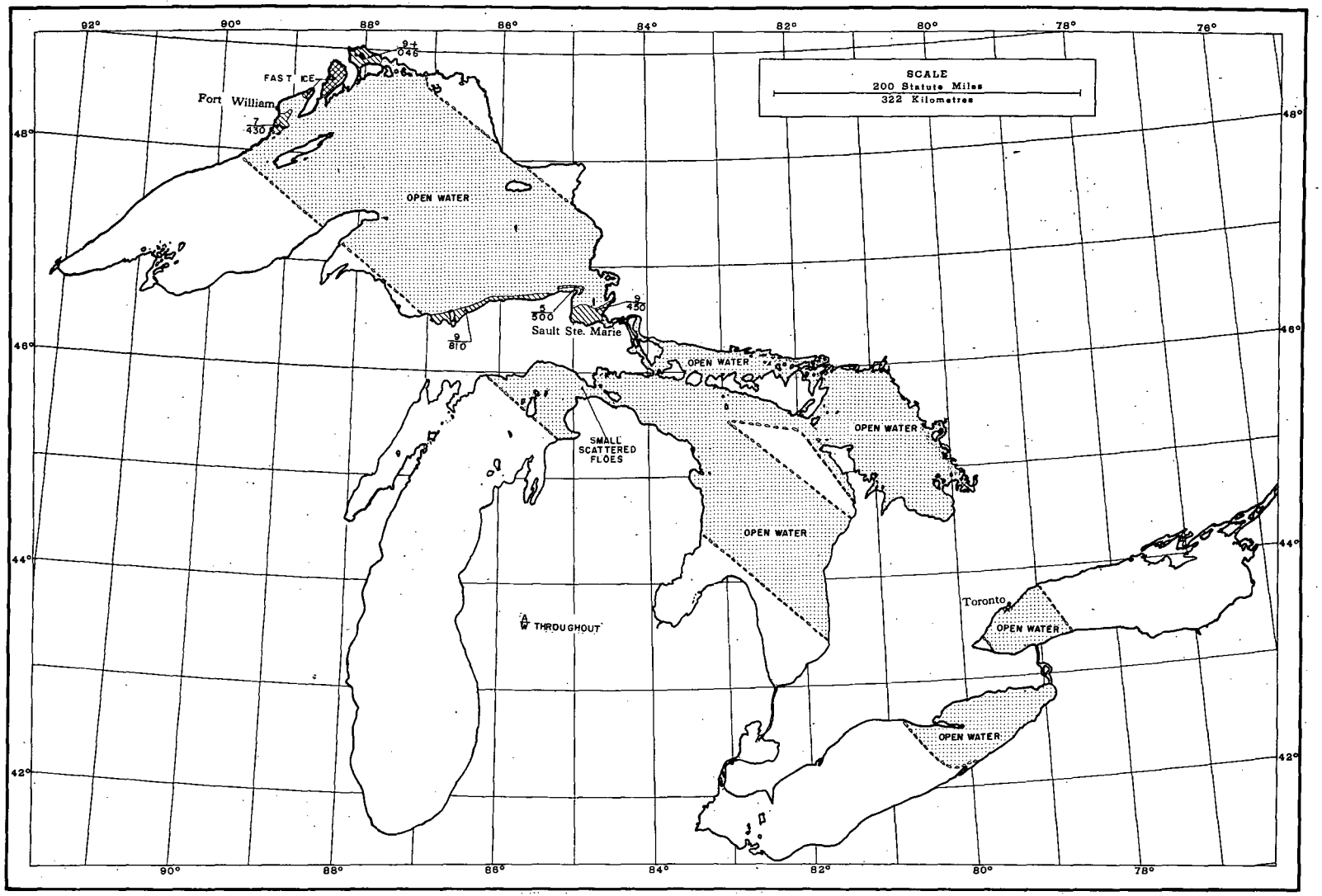

FIG. 25—OBSERVED ICE CONDITIONS, MAY 4, 1962.

CIR - 3772
TEC - 440
12 DEC 62