

# Seasonal Outlook Great Lakes

Winter 2023-2024



Issued by the North American Ice Service

1<sup>st</sup> December 2023

## **Lake Superior**

### **Winter temperature and ice forecasts.**

Above normal temperatures are forecast for December. Near to slightly above normal temperatures forecast for January and February. Below normal ice conditions are forecast for Lake Superior.

### **Thunder Bay.**

Outlook for December...

December 1-25: Open water.

December 26-31: Open water except 4-6 tenths new lake ice along the northern shore.

Outlook for January...

January 1-6: Open water except 4-6 tenths new and thin lake ice along the shores.

January 7-12: 7-8 tenths new and thin lake ice.

January 13-20: 9-9+ tenths thin lake ice.

January 21-31: 9-9+ tenths thin lake ice. Consolidated thin and medium lake ice along parts of the shore.

Outlook for February...

February 1-13: 9-9+ tenths thin lake ice. Consolidated medium lake ice along parts of the shore.

February 14-21: 9+ tenths thin and medium lake ice. Consolidated medium lake ice along the shore.

February 22-29: 9+ tenths medium and thick lake ice. Consolidated thick lake ice along parts of the shore.

### **Nipigon and Black Bays.**

Outlook for December...

December 1-12: Open water except 1-3 tenths new ice in Black Bay.

December 13-23: 7-8 tenths new and thin lake ice except 9-9+ tenths thin lake ice in eastern Black Bay.

December 24-31: 9 tenths new and thin lake ice except 9-9+ tenths thin lake ice in Black Bay. Consolidated thin lake ice in northern Black Bay.

Outlook for January...

January 1-9: 9+ tenths thin lake ice except consolidated thin lake ice in northern and eastern Black Bay.

January 10-17: 9+ tenths thin lake ice except consolidated medium lake ice in northeastern Black Bay and in western Nipigon Bay.

January 18-24: Consolidated medium lake ice.

January 25-31: Consolidated medium and thick lake ice.

Outlook for February...

February 1-29: Consolidated thick lake ice.

**From Grand Marais Minnesota to the entrance to Nipigon Bay.**

Outlook for December...

December 1-31: Open water.

Outlook for January...

January 1-10: Open water except 1-3 tenths new lake ice near Black Bay.

January 11-31: 4-6 tenths new lake ice except 7-8 tenths new and thin lake ice along the shore from Thunder Bay to Black Bay.

Outlook for February...

February 1-10: 4-6 tenths new and thin lake ice except 7-8 tenths new and thin lake ice along the shore from Thunder Bay to Black Bay.

February 11-20: 4-6 tenths new and thin lake ice except 7-8 tenths thin lake ice along the shore from Thunder Bay to Black Bay. 1-3 tenths thin lake ice along the north shore of Isle Royal.

February 21-29: 4-6 tenths new and thin lake ice except 7-8 tenths thin and medium lake ice from Thunder Bay to Black Bay. 4-6 tenths thin and medium lake ice along parts of the north shore of Isle Royal.

**From Grand Marais to Duluth.**

Outlook for December...

December 1-31: Open water.

Outlook for January...

January 1-9: Open water except 1-3 tenths new lake ice near Duluth.

January 10-17: Open water except 7-8 tenths new and thin lake ice near Duluth.

January 18-31: Open water except 9-9+ tenths thin lake ice near Duluth.

Outlook for February...

February 1-15: Open water except 9-9+ tenths thin lake ice near Duluth.

February 16-20: Open water except 9-9+ tenths thin and medium lake ice near Duluth.

February 21-29: 1-3 tenths new lake ice except 9-9+ tenths thin and medium lake ice near Duluth.

**Southern Lake Superior west of Keweenaw Peninsula.**

Outlook for December...

December 1-10: Ice free except open water in Chequamegon Bay and the Apostle Islands.

December 11-20: Open water except 1-3 tenths new ice in Chequamegon Bay.

December 21-27: Open water except 9-9+ tenths new lake ice along the shores in Chequamegon Bay.

December 28-31: Open water except 9-9+ tenths new lake ice in Chequamegon Bay.

Outlook for January...

January 1-7: 1-3 tenths new ice except 9-9+ tenths new and thin lake ice in Chequamegon Bay.

January 8-16: 7-8 tenths new and thin lake ice along the shore except 9+ thin lake ice in Chequamegon Bay.

January 17-31: 7-8 tenths thin lake ice near the shore except consolidated thin lake ice in Chequamegon Bay and along the Apostle islands.

Outlook for February...

February 1-12: 9-9+ tenths thin lake ice along the shore except consolidated medium lake ice in Chequamegon Bay and between the shore and the Apostle islands.

February 13-29: 7-8 tenths new and thin lake ice except 9-9+ tenths thin lake ice along the shore. Consolidated medium lake ice in Chequamegon Bay, between the shore and the Apostle islands and along parts of the shore east of Chequamegon Bay.

**Southern Lake Superior east of the Keweenaw Peninsula.**

Outlook for December...

December 1-24: Open water.

December 25-31: Open water except 1-3 tenths new lake ice in sheltered bays.

Outlook for January...

January 1-19: Open water except 1-3 tenths thin lake ice in sheltered bays. 7-8 tenths thin lake ice in sheltered bays.

January 20-31: Open water except 7-8 tenths thin lake ice along parts of the shore. 9+ tenths thin lake ice in sheltered bays.

Outlook for February...

February 1-10: Open water except 7-8 tenths thin lake ice along parts of the shore. 9+ tenths thin lake ice in sheltered bays.

February 11-29: Open water except 9-9+ tenths thin lake ice along the shore. Consolidated medium lake ice in sheltered bays.

**Whitefish Bay.**

Outlook for December...

December 1-24: Open water.

December 25-31: Open water except 7-8 tenths new ice along parts of the shore.

Outlook for January...

January 1-15: Open water except 4-6 tenths new and thin lake ice along the shore. 9-9+ tenths thin lake ice along parts of the shore.

January 16-22: 1-3 tenths new lake ice except 9-9+ tenths thin lake ice along the shores and in Batchawana Bay.

January 23-31: 7-8 tenths new and thin lake ice except 9-9+ tenths thin lake ice along the shores. Consolidated thin lake ice in Batchawana Bay.

Outlook for February...

February 1-14: 7-8 tenths new and thin lake ice except 9-9+ tenths thin lake ice along the shores. Consolidated thin lake ice in Batchawana Bay.

February 15-23: 9-9+ tenths thin lake ice except consolidated medium lake ice along parts of the shore.

February 24-29: 9-9+ tenths medium and thick lake ice except consolidated medium and thick lake ice along parts of the shore.

**From Whitefish Bay northwards to Michipicoten Bay.**

Outlook for December...

December 1-17: Ice free.

December 18-31: Open water.

Outlook for January...

January 1-31: Open water.

Outlook for February...

February 1-10: Open water except 1-3 tenths new lake ice along the shore.

February 11-29: 4-6 tenths new and thin lake ice except 7-8 tenths thin lake ice along the shore in Michipicoten Bay.

**From Michipicoten Bay to the entrance to Nipigon Bay.**

Outlook for December...

December 1-31: Open water.

Outlook for January...

January 1-20: 1-3 tenths new lake ice.

January 21-31: 1-3 tenths new lake ice along parts of the shore except 4-6 tenths thin lake ice from Marathon to Nipigon Bay.

Outlook for February...

February 1-29: 1-3 tenths new lake ice along parts of the shore except 4-6 tenths thin lake ice from Marathon to Nipigon Bay.

**Elsewhere in Lake Superior.**

Outlook for December...

December 1-31: Ice free.

Outlook for January...

January 1-31: Ice free to open water.

Outlook for February...

February 1-29: Ice free to open water.

## **Lake Michigan.**

### **Winter temperature and ice forecasts.**

Above normal temperatures are forecast for December. Near to slightly above normal temperatures forecast for January and February. Below normal ice conditions are forecast for Lake Michigan.

### **Green Bay.**

Outlook for December...

December 1-20: Open water.

December 21-31: Open water except 1-3 tenths new lake ice near Green Bay and in the Bays de Noc.

Outlook for January...

January 1-6: Open water except 7-8 tenths new and thin lake ice in the southern section and in Bays de Noc.

January 7-14: 1-3 tenths new lake ice except 7-8 tenths new and thin lake ice in the southern section and in Bays de Noc. Consolidated thin lake ice in the northern section of Bays de Noc.

January 15-20: 7-8 tenths thin lake ice except 9+ tenths thin lake ice in the southern section and near Bays de Noc. Consolidated medium lake ice near Green Bay and in the Bays de Noc.

January 21-31: 9-9+ tenths thin and medium lake ice except consolidated medium lake ice in the southern section and in the Bays de Noc.

Outlook for February...

February 1-18: 9-9+ tenths thin and medium lake ice except consolidated medium lake ice in the southern section and in the Bays de Noc.

February 19-29: 9-9+ tenths thin and medium lake ice except consolidated medium and thick lake ice in the southern section and in the Bays de Noc.

### **Northeastern Lake Michigan.**

Outlook for December...

December 1-20: Ice free.

December 21-31: Open water.

Outlook for January...

January 1-9: Open water except 1-3 tenths new lake ice along parts of the northern shore and near the Straits of Mackinac.

January 10-19: Open water except 7-8 tenths new and thin lake ice along the northern shore and near the Straits of Mackinac.

January 20-31: 4-6 tenths new and thin lake ice except 9 tenths thin lake ice along the northern shore and near the Straits of Mackinac. Consolidated thin lake ice along parts of the shore near the Straits of Mackinac.

Outlook for February...

February 1-12: 4-6 tenths new and thin lake ice except 9 tenths thin and medium lake ice along the northern shore and near the Straits of Mackinac. Consolidated thin and medium lake ice along parts of the shore near the Straits of Mackinac.

February 13-29: 7-8 tenths thin lake ice except 9-9+ tenths thin and medium lake ice north and east of Beaver Island. Consolidated medium lake ice along parts of the northeast shore and near the Straits of Mackinac.

### **Elsewhere in Lake Michigan.**

Outlook for December...

December 1-31: Ice free except open water along parts of the shore.

Outlook for January...

January 1-10: Ice free except open water along parts of the shore.

January 11-21: Open water except 4-6 tenths new lake ice along parts of the southern and western shores.

January 22-31: Open water except 7-8 tenths new and thin lake ice along parts of the southern and western shores.

Outlook for February...

February 1-14: Open water except 7-8 tenths new and thin lake ice along parts of the shore.

February 15-29: Open water except 4-6 tenths new and thin lake ice along parts of the shore.

### **Lake Huron and Georgian Bay.**

#### **Winter temperature and ice forecasts.**

Slightly above normal temperatures are expected over Lake Huron and Georgian Bay from December to February. Slightly below normal ice conditions are forecast.

#### **North Channel.**

Outlook for December...

December 1-20: Open water.

December 21-31: Open water except 4-6 tenths new lake ice along parts of the shore.

Outlook for January...

January 1-9: Open water except 7-8 tenths new and thin lake ice along parts of the shore.

January 10-18: 4-6 tenths new lake ice except 9-9+ tenths thin lake ice along the shore. Consolidated thin lake ice in sheltered bays.

January 19-26: 9-9+ tenths thin lake ice except consolidated thin lake ice along the shore.

January 27-31: 9-9+ tenths thin and medium lake ice except consolidated medium lake ice in the eastern section and in the extreme western section.

Outlook for February...

February 1-14: 9-9+ tenths thin and medium lake ice except consolidated medium lake ice in the eastern section and consolidated medium and thick lake ice in the extreme western section.

February 15-29: 9+ medium lake ice except consolidated thick and medium lake ice in the eastern and in the extreme western sections.

**St Mary's River.**

Outlook for December...

December 1-15: Open water.

December 16-25: Open water except 4-6 tenths new lake ice in sheltered bays.

December 26-31: 7-8 tenths new and thin lake ice except 9+ tenths thin lake ice along parts of the shore.

Outlook for January...

January 1-12: 9-9+ tenths thin lake ice except consolidated thin lake ice in sheltered bays.

January 13-21: Consolidated thin and medium lake ice.

January 22-31: Consolidated medium lake ice.

Outlook for February...

February 1-7: Consolidated medium lake ice.

February 8-29: Consolidated medium and thick lake ice.

**South of Manitoulin Island westward to North-western Lake Huron.**

Outlook for December...

December 1-31: Open water.

Outlook for January...

January 1-22: Open water.

January 23-31: Open water except 7-8 tenths new and thin lake ice in sheltered bays along the shore.

Outlook for February...

February 1-7: Open water except 4-6 tenths new and thin lake ice along the shore.

February 8-18: Open water except 7-8 tenths new and thin lake ice along the shore. 9-9+ tenths thin lake ice along the shore near Marquette Island.

February 19-29: 4-6 tenths new lake ice except 7-8 tenths thin lake ice along the shores.

**North-western Lake Huron near the Straits of Mackinac.**

Outlook for December...

December 1-31: Open water.

Outlook for January...

January 1-8: Open water except 4-6 tenths new and thin lake ice along the northern shores.

January 9-18: Open water except 7-8 tenths new and thin lake ice along the northern shores and 1-3 tenths new lake ice along the southern shores.

January 19-31: 7-8 tenths new and thin lake ice except consolidated thin lake ice along parts of the north shore.

Outlook for February...

February 1-12: 7-8 tenths thin lake ice except 9-9+ tenths thin lake along the shores. Consolidated thin and medium lake ice along the shore in the northern section.

February 13-23: 9-9+ tenths thin and medium lake ice except consolidated medium lake ice along the shores.

February 24-29: 7-8 tenths thin lake ice except consolidated medium lake ice along the shores.



### **From north-western Lake Huron to Saginaw Bay.**

Outlook for December...

December 1-31: Open water.

Outlook for January...

January 1-12: Open water except patches of 1-3 tenths new and thin lake ice along the shore south of Alpena.

January 13-25: 1-3 tenths new lake ice along the shore except 7-8 tenths thin lake ice along the shore south of Alpena..

January 26-31: 1-3 tenths new lake ice along the shore except 9-9+ tenths thin lake ice along the shore south of Alpena..

Outlook for February...

February 1-12: 7-8 tenths new and thin lake ice except consolidated thin lake ice along parts of the north shore.

February 13-22: 9-9+ tenths thin lake ice along the shores.

February 23-29: 4-6 tenths thin lake ice along parts of the shores.

### **Saginaw Bay.**

Outlook for December...

December 1-15: Open water.

December 16-31: Open water except 4-6 tenths new lake ice in along the shore in the southern section.

Outlook for January...

January 1-10: 7-8 tenths new lake ice except 9-9+ tenths thin lake ice along parts of the shore.

January 11-20: 9-9+ tenths thin lake ice except consolidated thin lake ice along parts of the shore.

January 21-31: 9-9+ tenths medium lake ice except consolidated medium lake ice along parts of the shore.

Outlook for February...

February 1-29: 9-9+ tenths medium lake ice except consolidated medium lake ice along parts of the shore.

### **The southern and eastern shore of Lake Huron.**

Outlook for December...

December 1-31: Open water.

Outlook for January...

January 1-7: Open water except occasional patches of 1-3 tenths new and thin lake ice along the eastern shore.

January 8-15: Open water except 4-6 tenths new in lake ice along parts of the eastern shore. 7-8 tenths thin lake ice along the Bruce Peninsula.

January 16-25: Open water except 9 tenths thin lake ice along parts the eastern shore. Consolidated thin lake ice along the Bruce Peninsula.

Outlook for February...

February 1-13: Open water except 7-8 tenths thin lake ice along the eastern shore. Consolidated thin lake ice along the Bruce Peninsula.

February 14-20: 9-9+ tenths thin lake ice along the eastern and southern shores. Consolidated medium lake ice along the Bruce Peninsula.

February 21-29: 9-9+ tenths thin and medium lake ice along the eastern and southern shores. Consolidated medium lake ice along the Bruce Peninsula.

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### **Georgian Bay.**

#### Outlook for December...

December 1-25: Open water.

December 26-25: Open water except 4-6 tenths new lake ice along parts of the shore.

#### Outlook for January...

January 1-8: Open water except 7-8 tenths new and thin lake ice along parts of the northeastern shore.

January 9-17: Open water except 9-9+ tenths thin lake ice along the northeastern shore. Consolidated thin lake ice in sheltered bays.

January 18-24: Open water except 9-9+ tenths thin lake ice in the northeastern section. Consolidated thin lake ice along the northeastern shore.

January 25-31: Open water except 9-9+ tenths thin lake ice in the northeastern section. Consolidated thin and medium lake ice along the northeastern shore.

#### Outlook for February...

February 1-14: Open water except 9+ tenths thin lake ice in the northeastern section. Consolidated medium lake ice along the northeastern shore.

February 15-29: Open water except 9+ tenths thin and medium lake ice near the shores in the northern and eastern sections. Consolidated medium lake ice along the northeastern shore.

### **Elsewhere in Lake Huron.**

#### Outlook for December...

December 1-31: Ice free.

#### Outlook for January...

January 1-31: Open water to ice free.

#### Outlook for February...

February 1-29: Open water except ice free in central Lake Huron.

## **Lake Erie and Lake St. Clair**

### **Winter temperature and ice forecasts.**

Slightly above normal temperatures are expected over Lake Erie from December to February. Below normal ice conditions are forecast.

### **Lake St Clair and the Western Basin.**

#### Outlook for December...

December 1-22: Ice free except open water along the shore and in Lake St. Clair.

December 23-31: Open water.

#### Outlook for January...

January 1-8: Open water except 4-6 tenths new lake ice along parts of the shore. 7-8 tenths new lake ice in eastern Lake St. Clair.

January 9-14: Open water except 7-8 tenths new and thin lake ice along parts of the shore. 9-9+ tenths thin lake ice in eastern and southern Lake St. Clair

January 15-22: 7-8 tenths thin lake ice except 9-9+ tenths thin lake ice in eastern Lake St Clair.

January 23-31: 9-9+ tenths thin lake ice except 9-9+ tenths thin and medium lake ice in eastern Lake St Clair.

Outlook for February...

February 1-7: 9-9+ tenths thin lake ice except 9-9+ tenths thin and medium lake ice in eastern Lake St Clair.

February 8-18: 9-9+ tenths thin and medium lake ice.

February 19-29: 7-8 tenths medium lake ice except consolidated medium lake ice in eastern lake St. Clair.

### **The rest of Lake Erie.**

Outlook for December...

December 1-31: Ice free except open water along the shore.

Outlook for January...

January 1-12: Open water except 7-8 tenths new lake along the eastern shore of Long Point and in Sandusky Bay.

January 13-20: Open water except 9-9+ tenths new lake ice along the eastern shore of Long Point. Consolidated thin lake ice in Sandusky Bay.

January 21-31: Open water except 9-9+ tenths thin lake ice near the western basin and along the eastern shore of Long Point. 4-6 tenths thin ice along parts of the shores. Consolidated thin and medium lake ice in Sandusky Bay.

Outlook for February...

February 1-29: Open water except 1-3 tenths thin and medium lake ice in the western section. 7-8 tenths thin and medium lake ice near the western basin. Consolidated medium lake ice in Sandusky Bay.

## **Lake Ontario.**

### **Winter temperature and ice forecasts.**

Slightly above normal temperatures are expected over Lake Ontario from December to February. Below normal ice conditions are forecast.

### **Northeastern Lake Ontario.**

Outlook for December...

December 1-26: Ice free except open water along the shore.

December 27-31: Open water except 7-8 tenths new lake ice in sheltered bays.

Outlook for January...

January 1-10: Open water except 7-8 tenths new and thin lake ice in sheltered bays.

January 11-19: Open water except 9-9+ thin lake ice in sheltered bays.

January 20-25: Open water except 9-9+ thin and medium lake ice in sheltered bays.

January 26-31: Open water except 9-9+ thin and medium lake ice along parts of the shore.

Outlook for February...

February 1-14: Open water except consolidated medium lake ice along parts of the shore.

February 15-22: 7-8 tenths new and thin lake ice except consolidated thin and medium lake ice along parts of the shore.

February 23-29: 7-8 tenths thin and medium lake ice except consolidated thin and medium lake ice along the shore.

**Bay of Quinte.**

Outlook for December...

December 1-15: Ice free except open water along the shore.

December 16-31: Open water except 7-8 tenths new lake ice.

Outlook for January...

January 1-7: Open water except 9-9+ tenths new lake ice.

January 8-16: 9-9+ new and thin lake ice.

January 17-25: 9-9+ tenths thin and medium lake ice. Consolidated medium lake ice in sheltered bays.

January 26-31: Consolidated thin and medium lake ice.

Outlook for February...

February 1-29: Consolidated medium lake ice.

**Elsewhere in Lake Ontario.**

Outlook for December...

December 1-20: Ice free.

December 21-31: Ice free except open water along parts of the shore.

Outlook for January...

January 1-18: Open water.

January 19-31: Open water except 1-3 tenths thin lake ice along parts of the shore east of Cobourg. Consolidated thin and medium lake ice in sheltered bays east of Cobourg.

Outlook for February...

February 1-14: Open water except 1-3 tenths thin lake ice along parts of the shore east of Cobourg. Consolidated medium lake ice along parts of the shore east of Cobourg.

February 15-23: Open water except 7-8 tenths new and thin ice along parts of the shores. Consolidated medium lake ice along parts of the shore east of Cobourg.

February 24-29: Open water except 4-6 tenths new and thin ice along parts of the shores. Consolidated medium lake ice along parts of the shore east of Cobourg.

### Early January 2024 Forecast

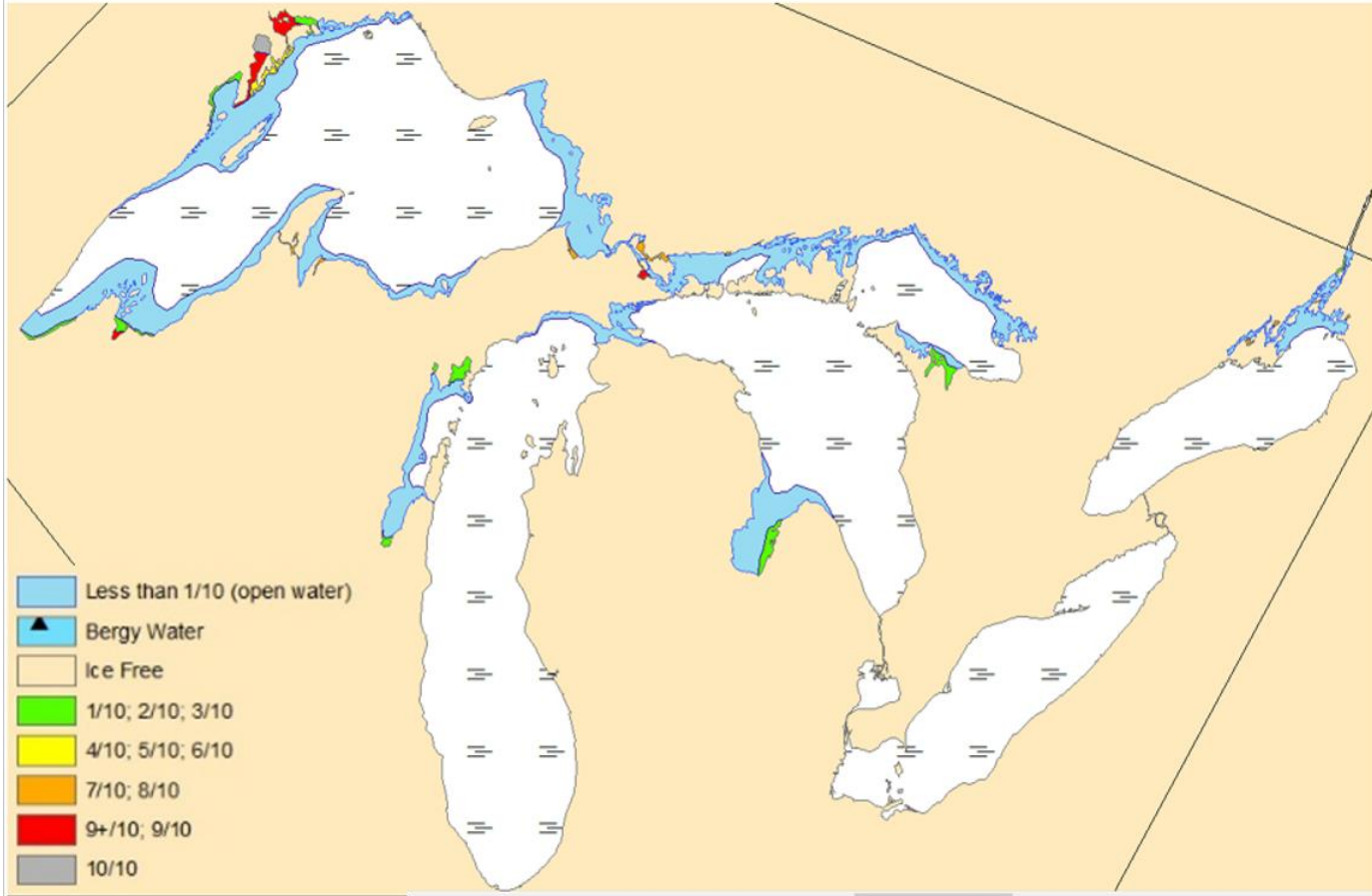


Figure 1: Expected ice conditions – Great Lakes – 1<sup>st</sup> January 2024

### Late January 2024 Forecast

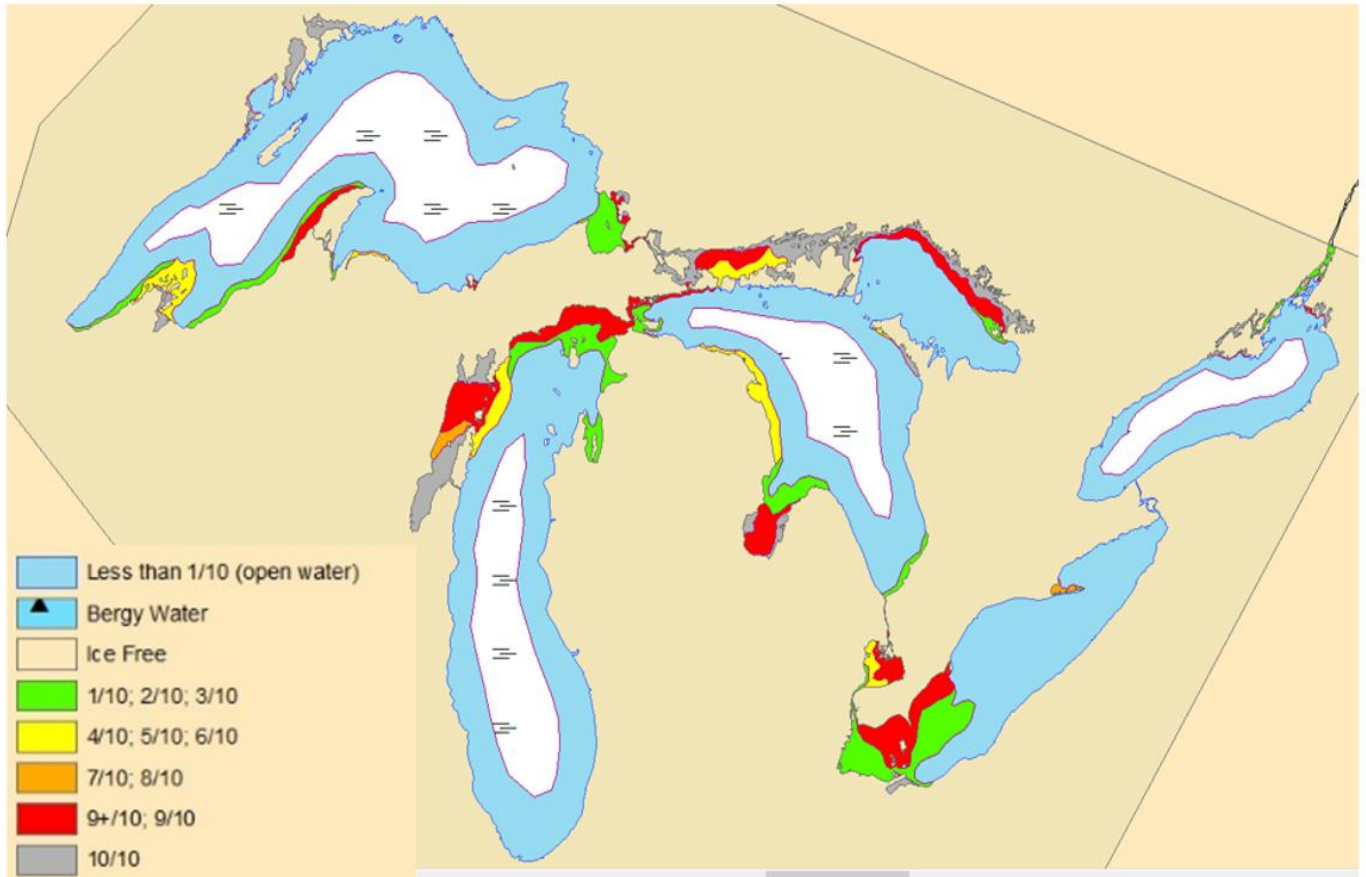


Figure 2: Expected ice conditions – Great Lakes – 31<sup>st</sup> January 2024

### Mid February 2024 Forecast

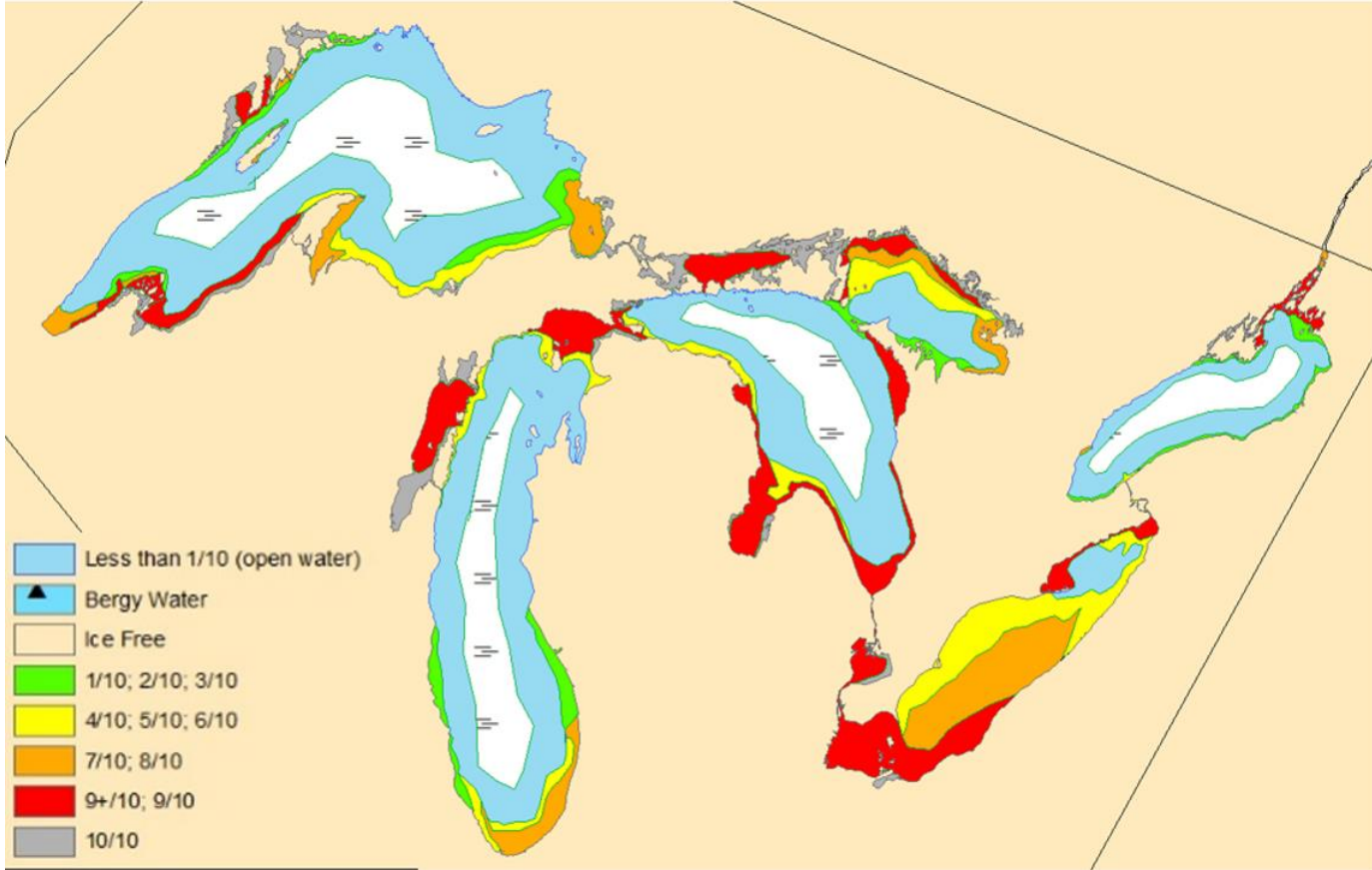


Figure 3: Expected ice conditions – Great Lakes – 15<sup>th</sup> February 2024

### Mid March 2024 Forecast

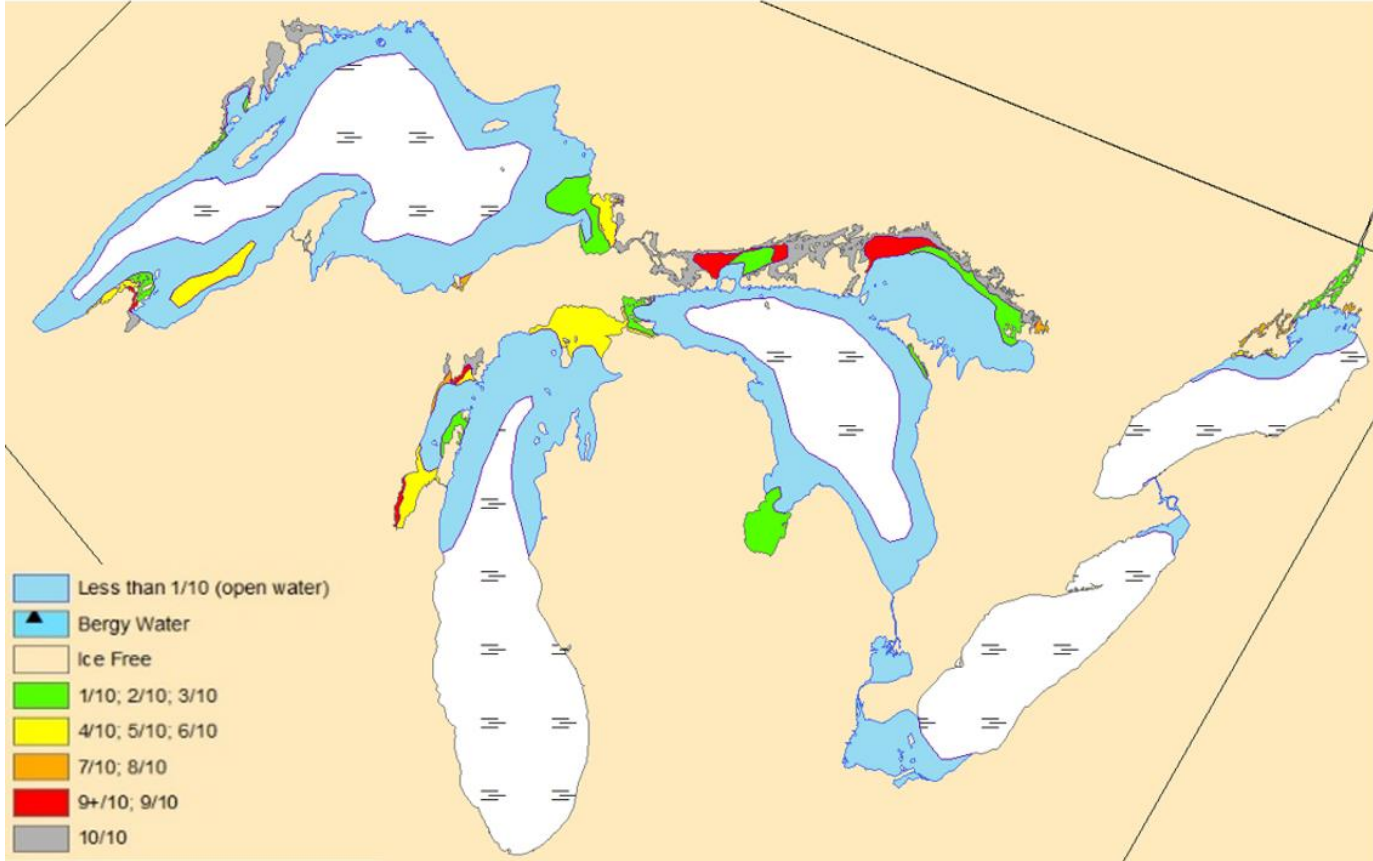


Figure 4: Expected ice conditions –Great Lakes – 15<sup>th</sup> March 2024