International Niagara Board of Control

2019 Teleconference-Webinar
12:00-1:00 pm EDT

October 8, 2019

Presentation Outline

1. Introduction to the International Joint Commission, International Niagara Board of Control/International Niagara Committee (INC)
2. Overview Great Lakes water levels and Niagara River flows
3. Chippawa-Grass Island Pool Operations
4. 2018-19 Ice Season
5. Discharge Measurements & Water Level Monitoring
6. Horseshoe Falls Recession

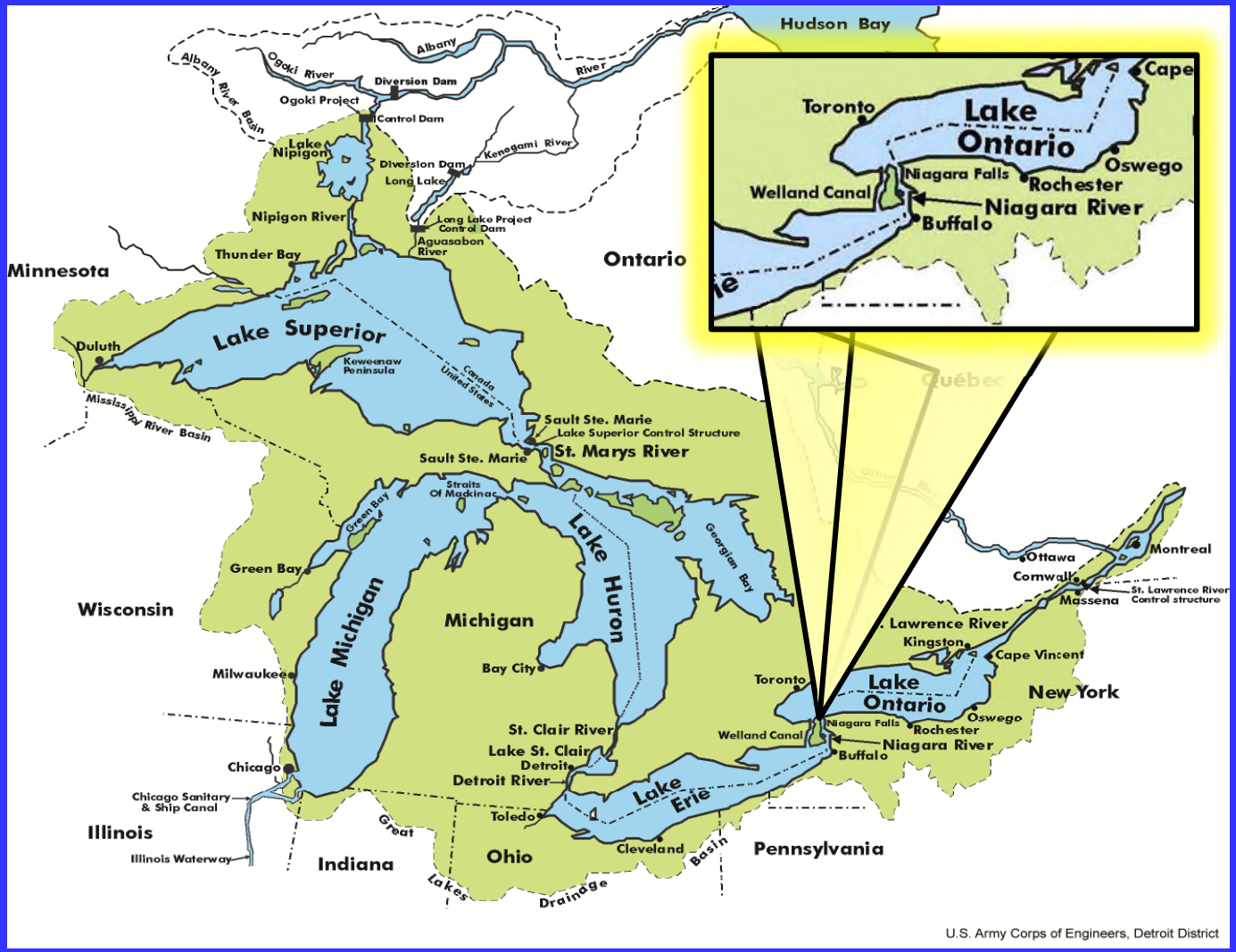
Questions/ Discussion

1. Introduction

1909 Boundary Waters Treaty between U.S. and Great Britain (on behalf of Canada)

- Provides mechanism for prevention and resolution of water disputes
- Created the International Joint Commission (IJC)
  - Jurisdiction over, and approval of the use, obstruction, or diversion of Boundary waters
  - Investigation and reporting

International Niagara Board of Control



U.S. Army Corps of Engineers, Detroit District

Niagara Board's Area of Responsibility

Board Membership

The Board is comprised of two representatives from Canada, and two representatives from the U.S. with a broad diversity of expertise and interests

United States Section

Vacant, Co-Chair
U.S. Army Corps of Engineers

Mr. Stephen Durrett, Alt. Co-Chair
U.S. Army Corps of Engineers

Mr. David Capka, Member
Federal Energy Regulatory Commission

Canadian Section

Mr. Aaron Thompson, Co-Chair
Environment and Climate Change Canada

Ms. Jennifer Keyes, Member
Ontario Ministry of Natural Resources and Forestry

Secretaries

Mr. Bryce Carmichael
U.S. Army Corps of Engineers

Mr. Derrick Beach
Environment and Climate Change Canada

International Niagara Working Committee Composition

The working committee supports the Board and INC

United States Section

LTC Jason Toth, Co-**Chair**
U.S. Army Corps of Engineers

Mr. Keith Koralewski, Alt. Co-Chair
U.S. Army Corps of Engineers

Mr. John Allis
U.S. Army Corps of Engineers

Mr. Michael Asklar
New York Power Authority

Mr. John Spain
Federal Energy Regulatory Commission

Canadian Section

Dr. Frank Seglenieks, Co-**Chair**
Environment and Climate Change Canada

Mr. Kurt Kornelsen
Ontario Power Generation

Mr. Jonathan Staples
Ontario Ministry of Natural Resources

Ms. Jeanette Fooks
Environment and Climate Change Canada

Niagara River Water Diversion Treaty 1950 and the International Niagara Committee (INC)

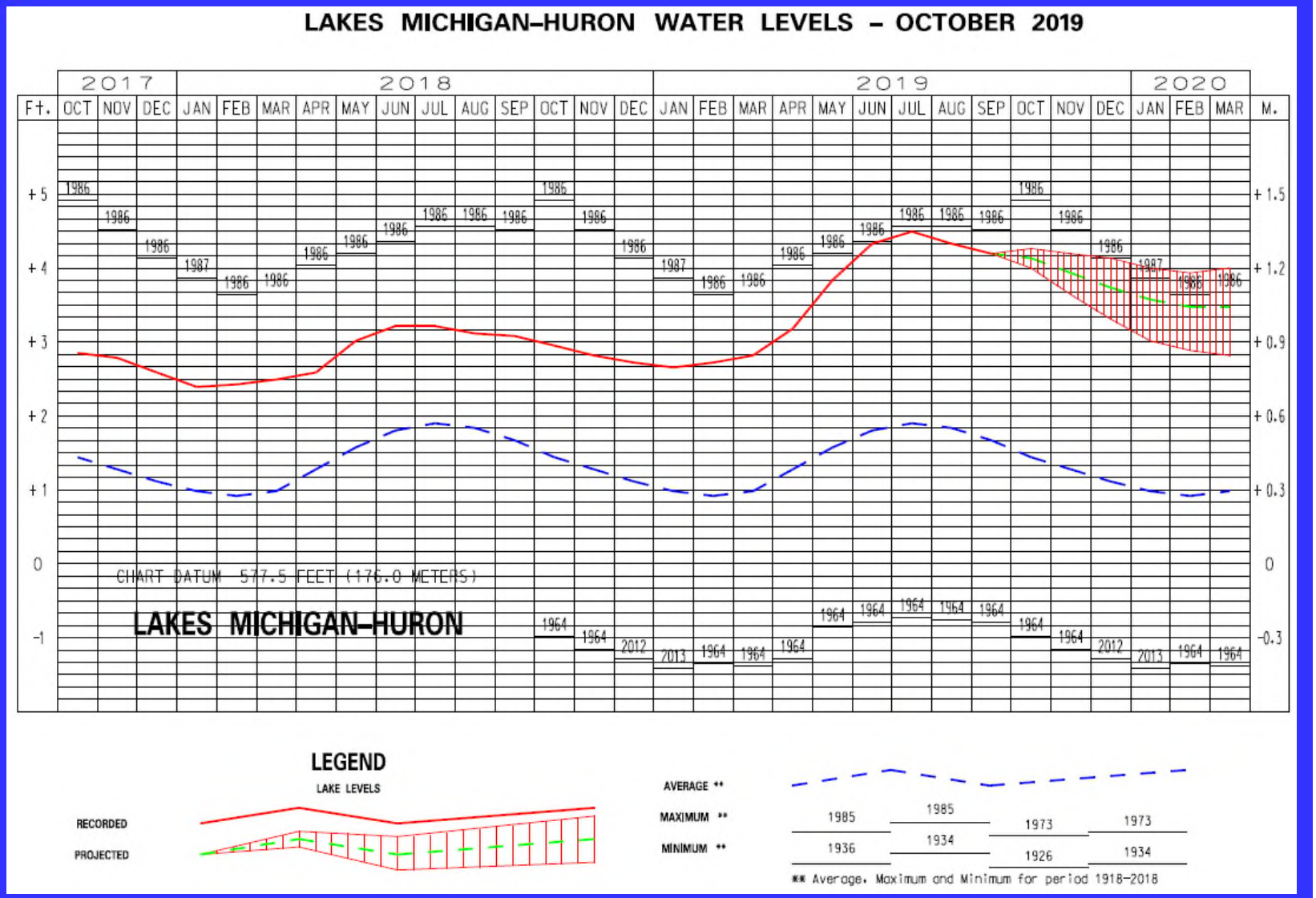
In order to preserve the scenic beauty of the Falls, the Treaty of 1950 stipulated that no water diversions would be allowed that would reduce the flow of water over Niagara Falls as follows:

- No less than 100,000 cubic feet of water per second (ft^3/s) from April 1 to September 15 (inclusive) between 8 am and 10 pm
- No less than 100,000 ft^3/s from September 16 to October 31 (inclusive) between 8 am and 8 pm
- No less than 50,000 ft^3/s from November 1 to March 31 (inclusive)

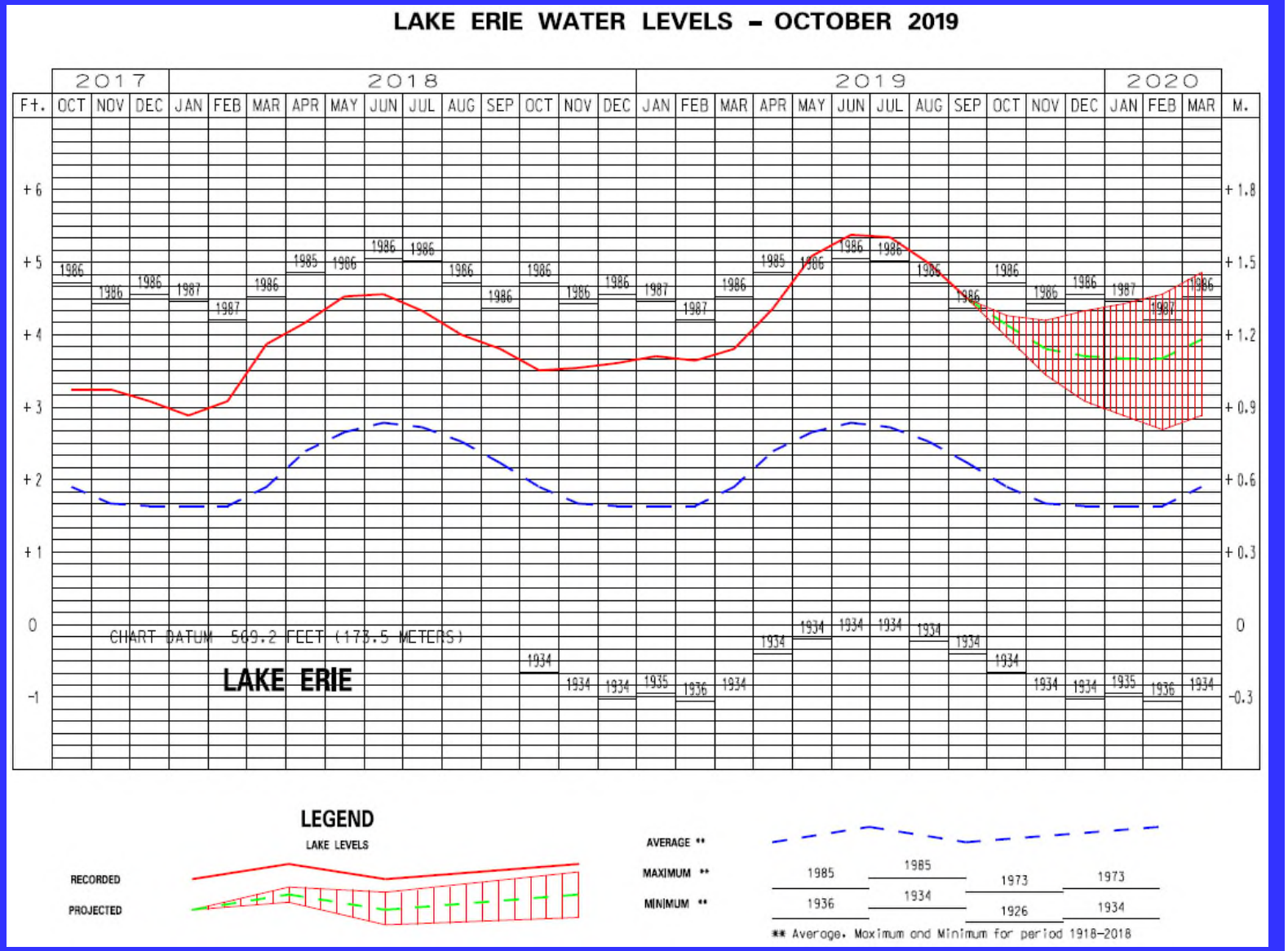
100,000 ft^3/s = 2832 m^3/s and 50,000 ft^3/s = 1416 m^3/s

2. Great Lakes and Niagara River Conditions

Lake Michigan/Huron Water Levels and Forecast

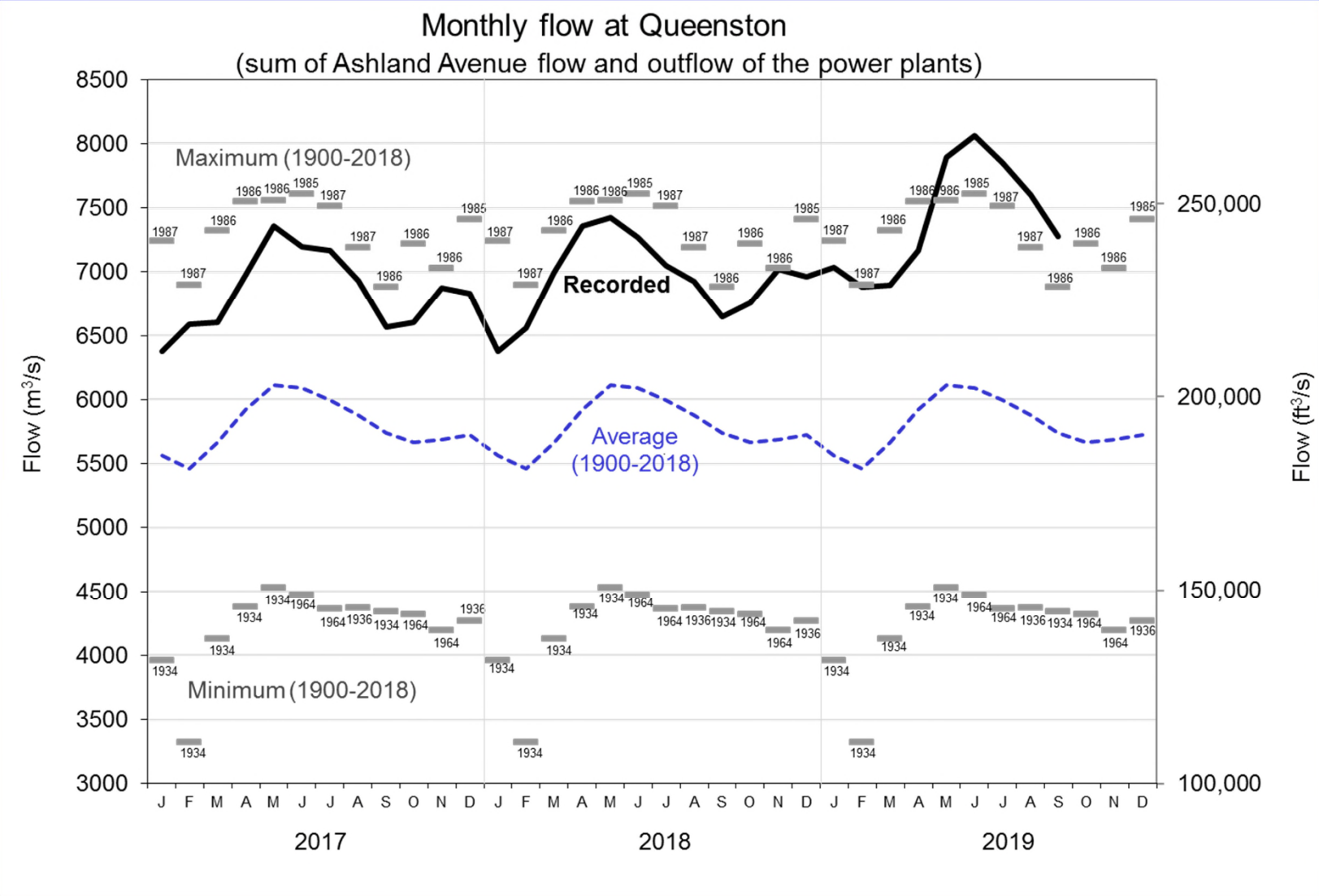


Lake Erie Water Levels and Forecast



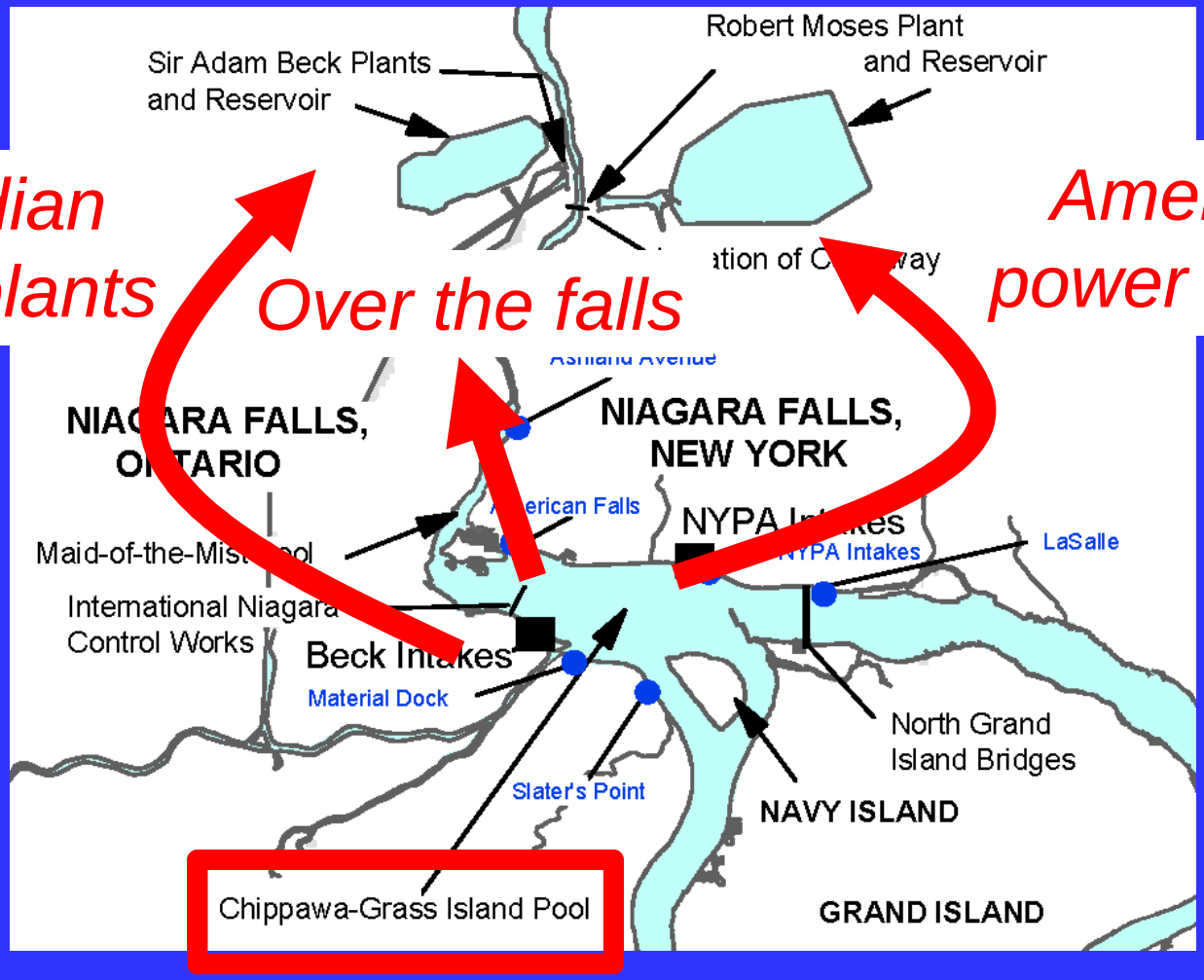
Niagara River Flows

(sum of Ashland Avenue flow and power plant outflow)



3. Chippawa- Grass Island Pool Operation

Water in the Chippawa-Grass Island Pool (CGIP) can only leave in one of three ways:



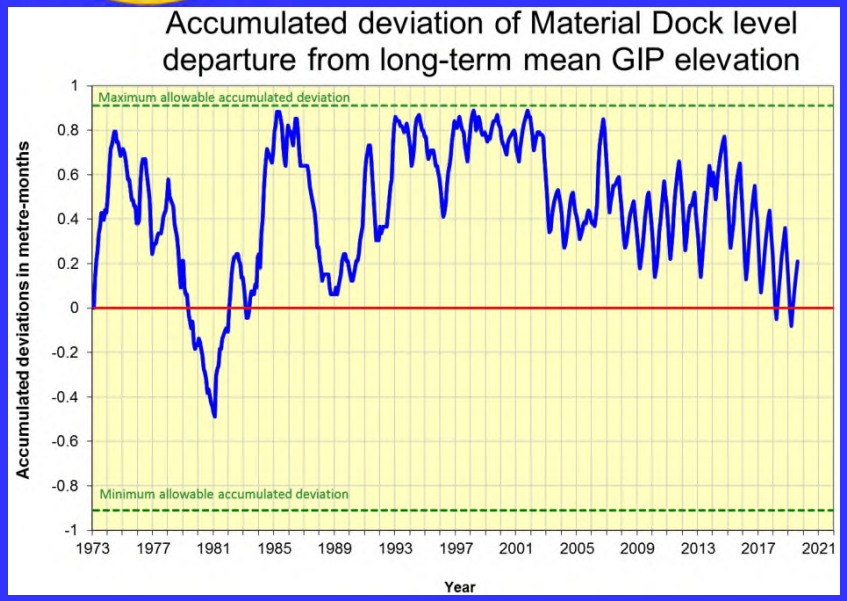
Canadian power plants

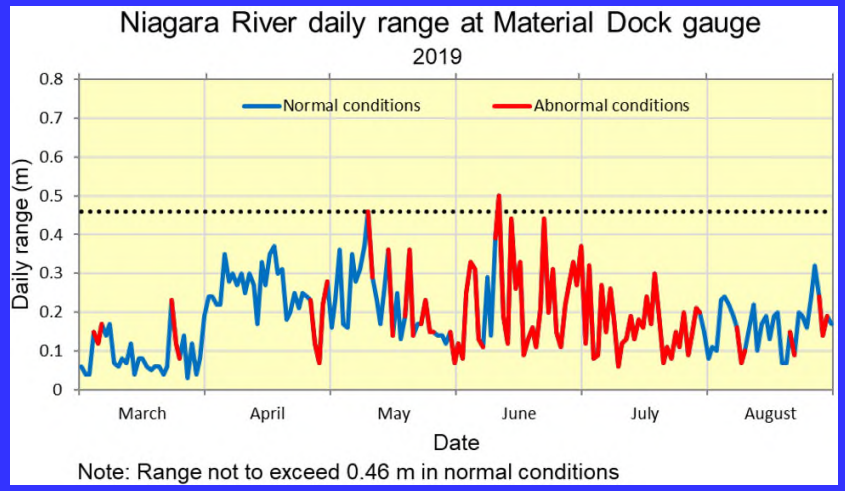
Over the falls

American power plants

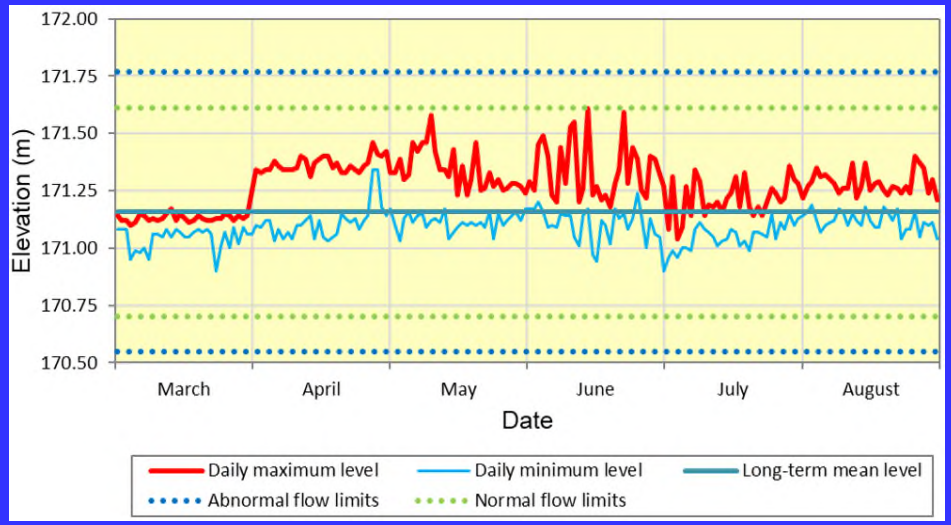
International Niagara Control Works

CGIP Tolerances – 1993 Directive

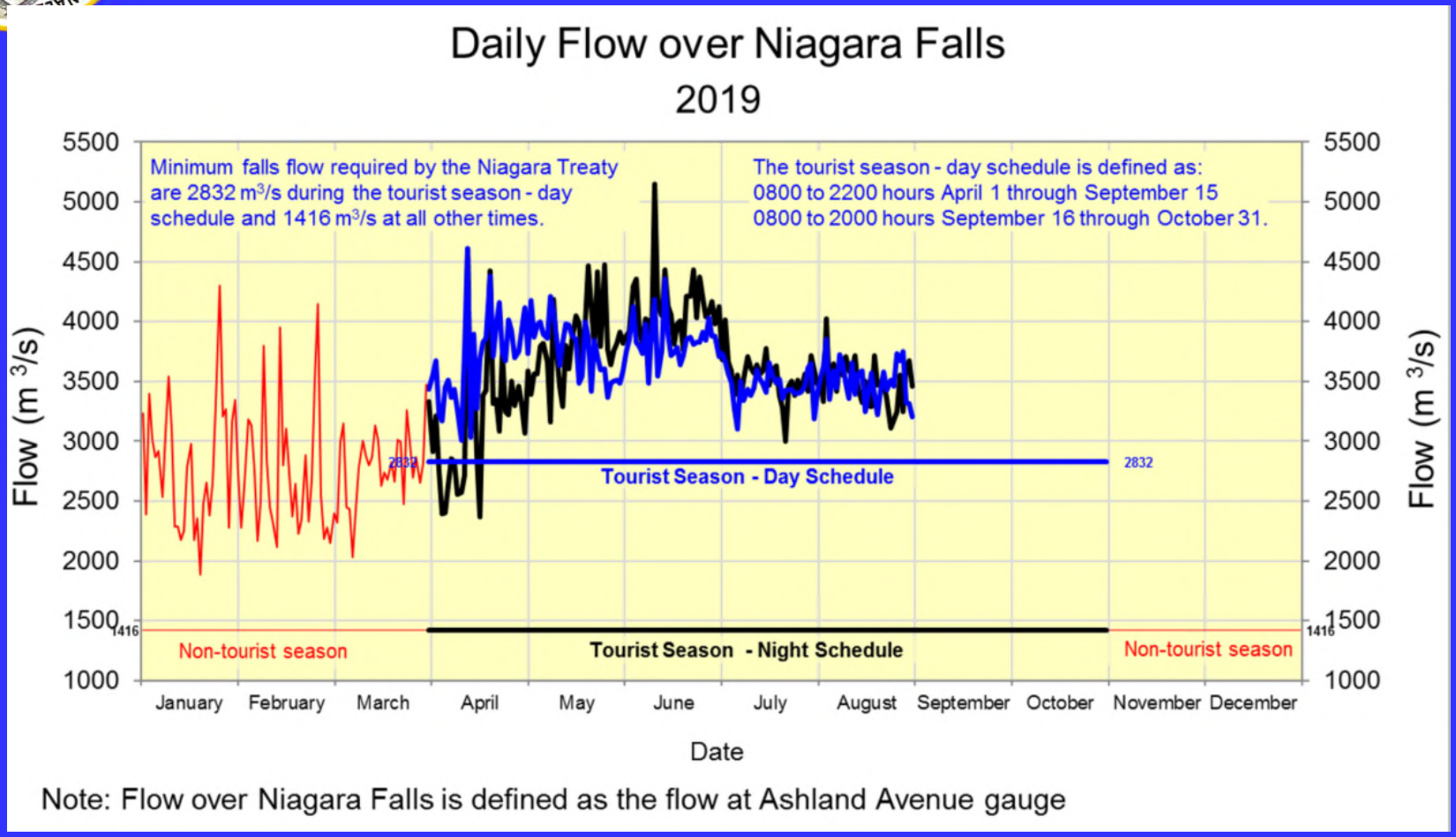




Month	Change in Monthly Mean Level (m)	Abnormal Days Due to High Flow
March	-0.06	0
April	0.07	0
May	0.06	14
June	0.06	28
July	0.05	30
August	0.05	10



Chippawa-Grass Island Pool Operations



Note: Flow over Niagara Falls is defined as the flow at Ashland Avenue gauge

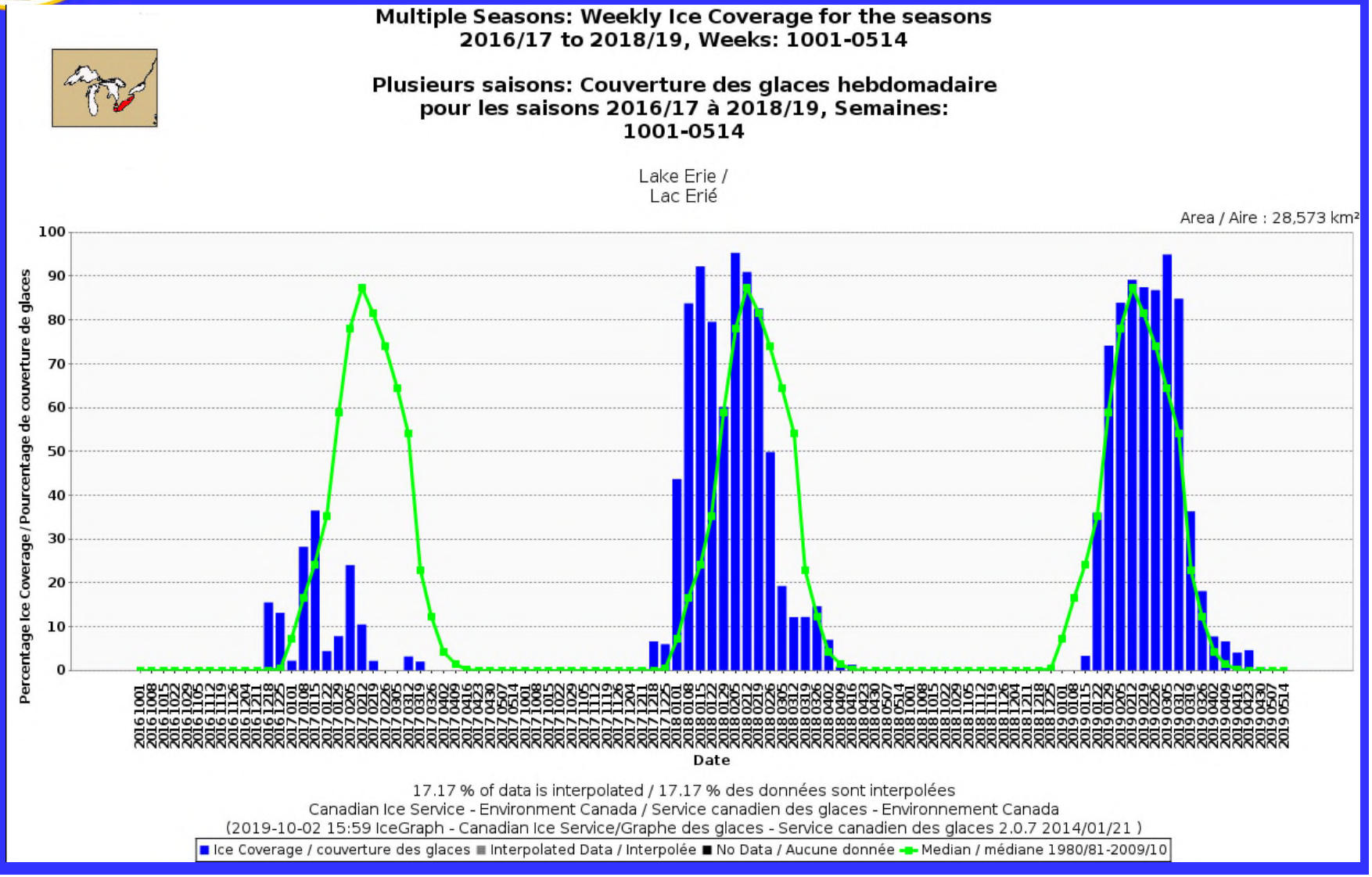
The Niagara Falls flow did not go below the minimums set by the 1950 Niagara Treaty between 1 January 2019 through 31 August 2019

Lake Erie-Niagara River Ice Boom

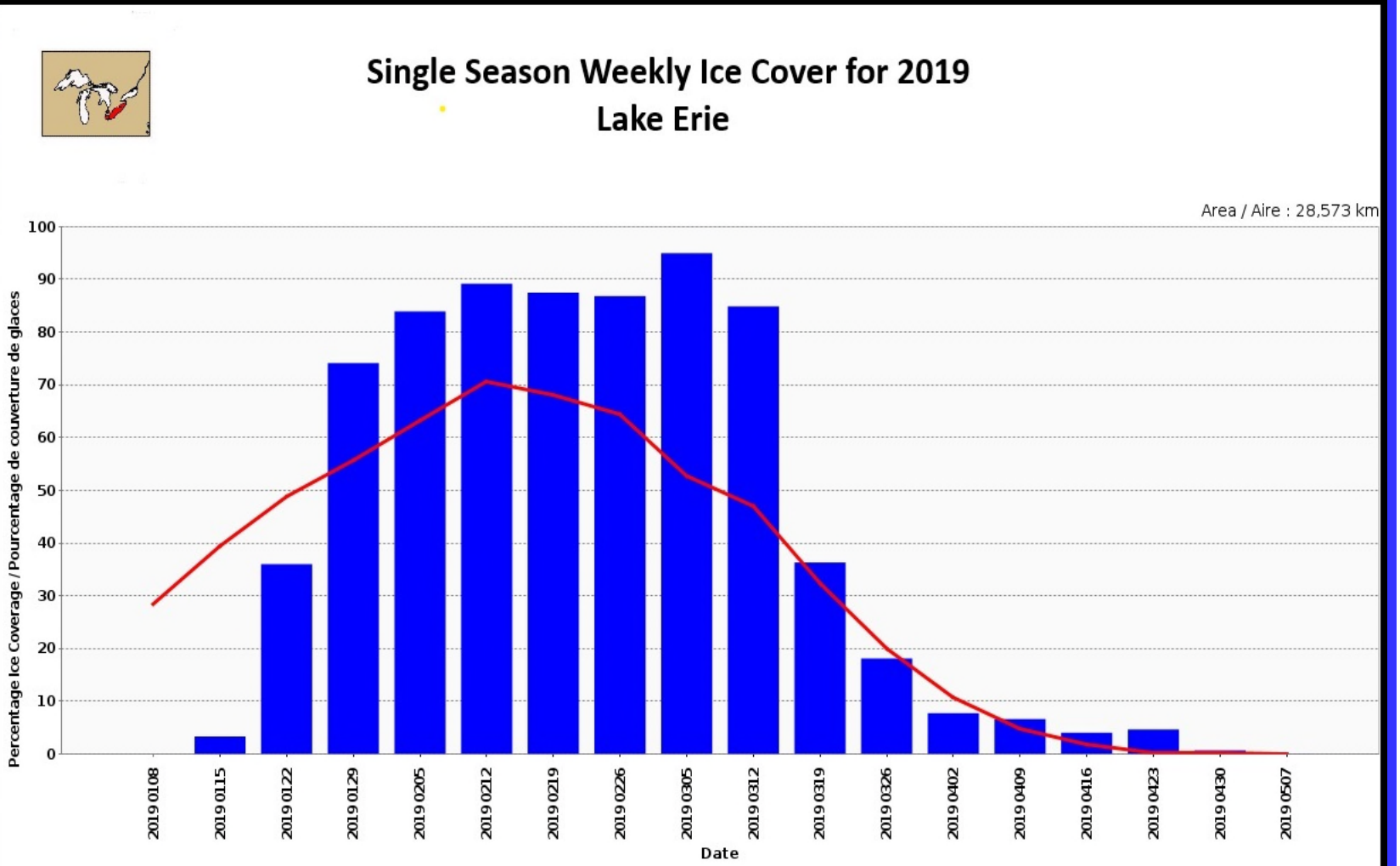
- First installed in 1965
- Designed to help form and sustain a natural ice arch at the mouth of the Niagara River
- Minimizes power losses caused by ice at the intakes in the CGIP

Lake Erie-Niagara River Ice Boom

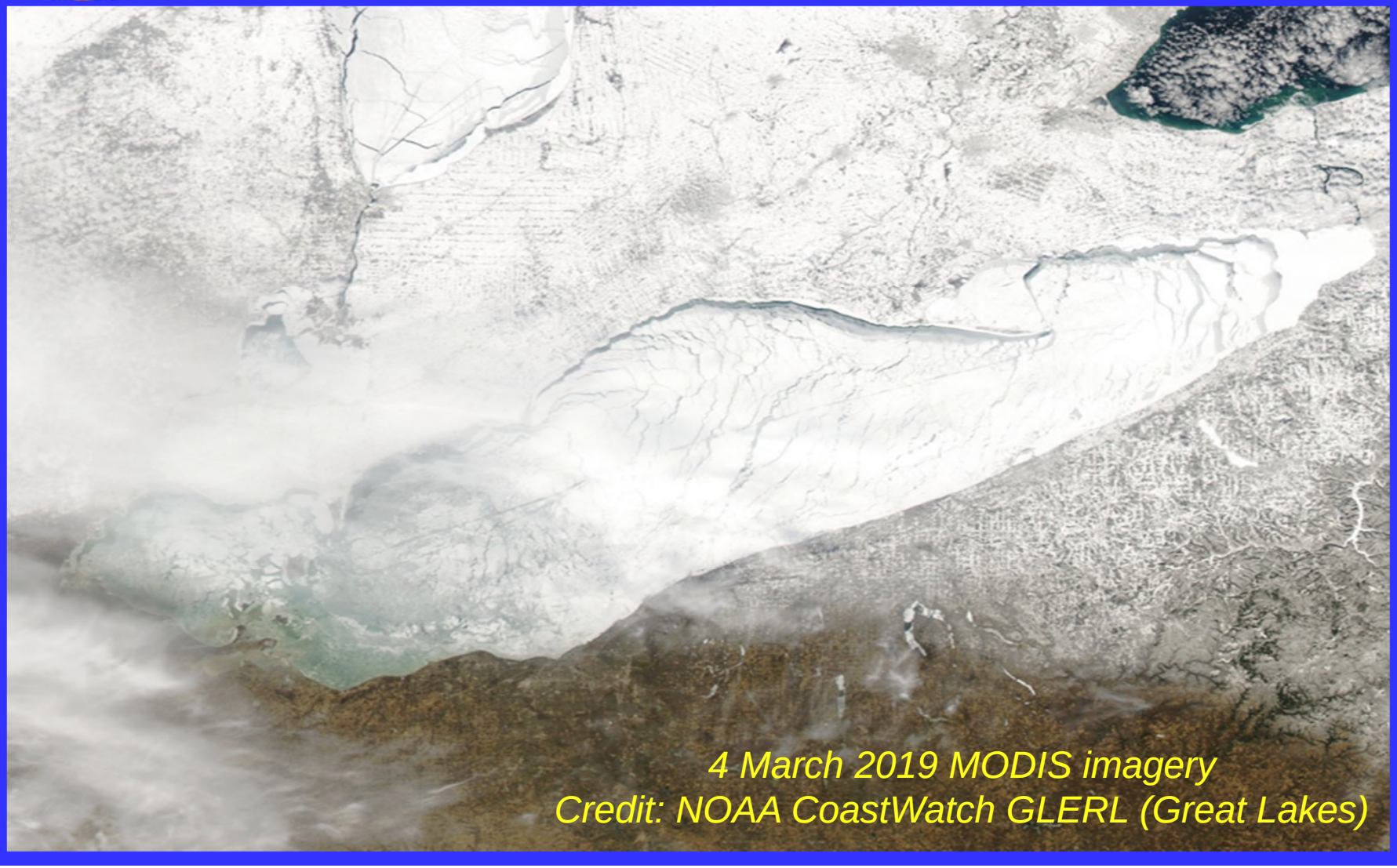
Ice Cover by Season 2017-2019



2019 Ice Cover



4. 2018-19 Ice Season



4 March 2019 MODIS imagery
Credit: NOAA CoastWatch GLERL (Great Lakes)

Ice thickness Measurement Flight 16 March, 2019

On 29 March 2019, It was determined that more than 650 SQ KM (250 Sq. miles) remained in the Eastern Basin of Lake Erie. The INWC notified the commission that the opening of the Ice Boom would be delayed past 1 APRIL 2019. A media advisory was released the sane day.

N W E S Ice Coverage Areas **Ice Coverage Representing 250 Square Miles on Lake Erie**

ON 17 APRIL 2019 MEMBERS OF THE INWC WORKING COMMITTEE CONDUCTED A LAKE ERIE ICE SURVEY FLIGHT

Ice Boom Removal

The ice boom can be removed when less than 650 sq. km (250 sq. mi.) of ice is present in the eastern section of Lake Erie

Further Ice Boom Information

Ice Boom related items found at Niagara Board's website:

- ✓ Ice Boom Reports
- ✓ Frequently Asked Questions
- ✓ NYPA Ice Boom Camera
- ✓ Ice Boom informational video

https://www.ijc.org/en/nbc/watershed/ice-boom

Ice Boom Information | Inte...

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Ice Boom Information

Ice Boom Opening Update

(posted April 30, 2019)

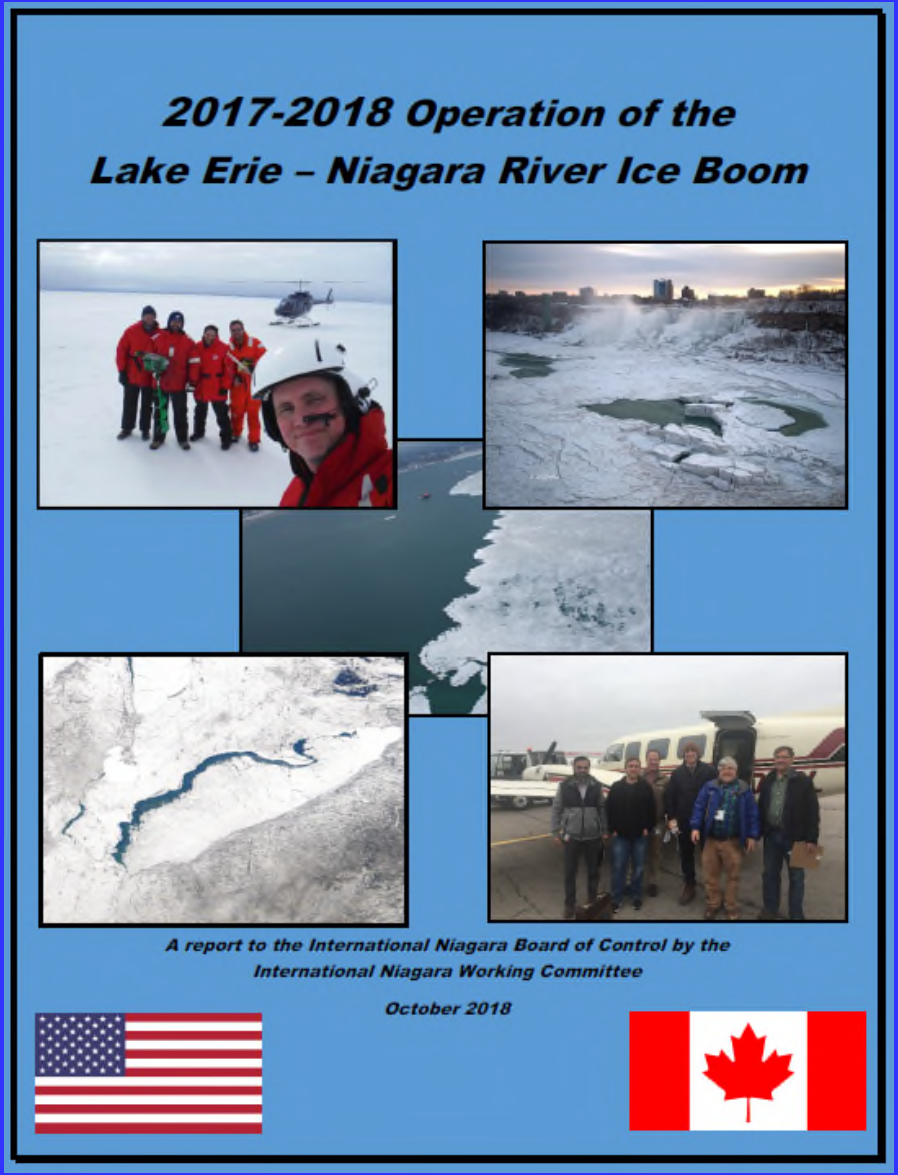
Thick ice conditions have hampered Lake Erie – Niagara River Ice Boom removal efforts by New York Power Authority (NYPA) since they began on April 22. Dense ice around the Buffalo breakwall has blocked removal of any ice boom spans from Lake Erie as of end of day April 29, 2019. However, a number of spans have been opened, with one end remaining attached to an anchor buoy in the lake. This allows for a controlled release of ice into the Niagara River, minimizing potential downstream impacts due to ice boom removal, and will allow for retrieval of spans, as the ice recedes. NYPA is continuing removal efforts today (April 30, 2019) and will continue removal of the boom this coming week, as conditions allow.

Dense Lake Erie ice encasing ice boom April 29, 2019 (Photo Credit: New York Power Authority)

https://www.ijc.org/en/nbc/watershed/ice-boom

Further Ice Boom Information

2018-2019 Ice Boom Report currently underway!



View the report online at:

https://www.ijc.org/en/nbc/library/reports

5. Discharge Measurements & Water Level Monitoring


Total Flow Section
Ashland Avenue Gauge Rating Section
American Falls
Legend
A Ashland Avenue (NOAA, NYPA & OPG)
B American Falls (NOAA & NYPA)
C Material Dock (OPG)
E Niagara Intake (NOAA & NYPA)
F Lasalle (NYPA)
1 Sir Adam Beck I Generating Station (OPG)
2 Sir Adam Beck II Generating Station (OPG)
3 Robert Moses Niagara Generating Station (NYPA)
4 Pump Generating Station (OPG)
5 Lewiston Pump Generating Station (NYPA)
1 OPG Intake Structures
2 NYPA Intake Structures

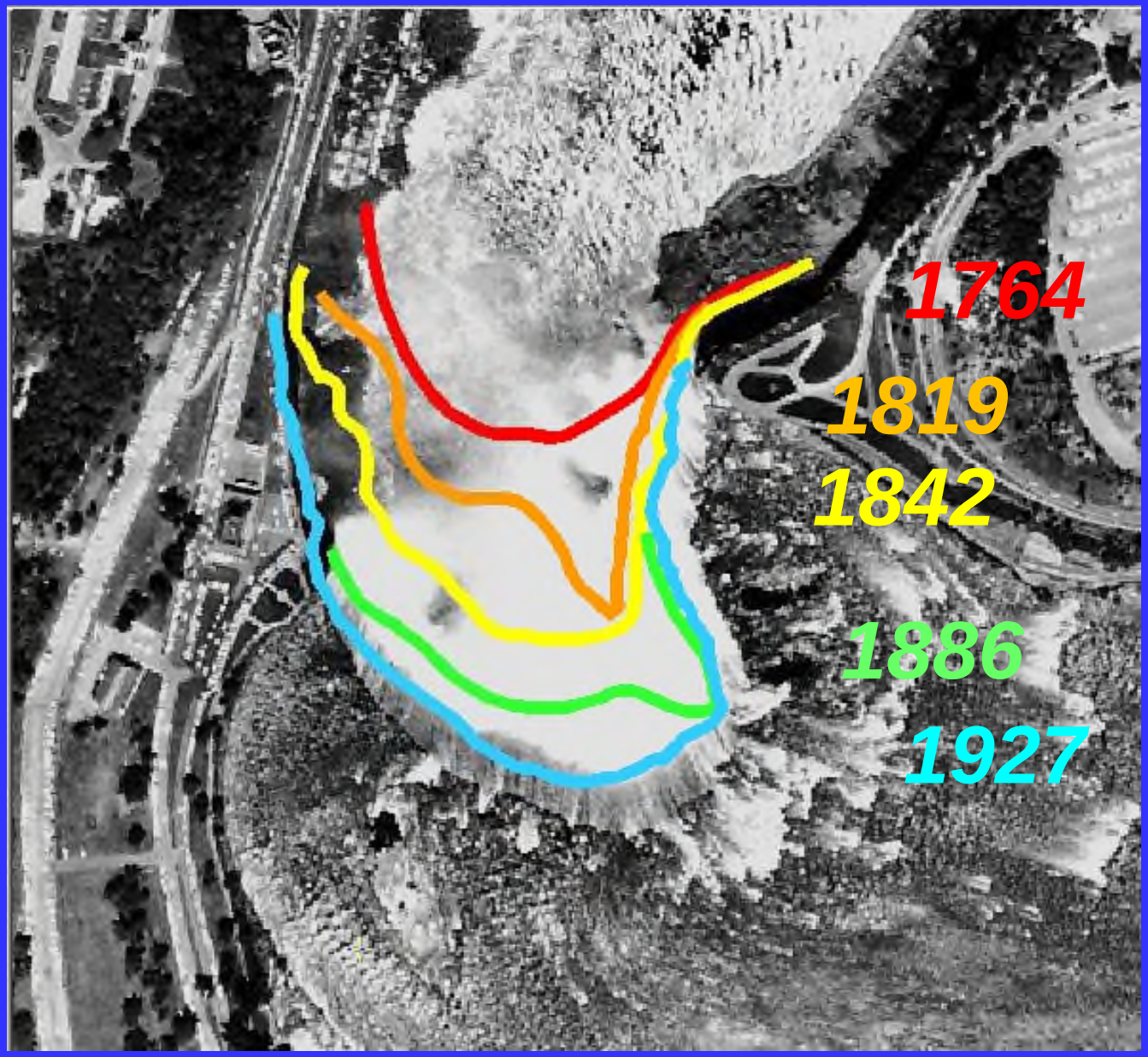
Ashland Avenue Water Level Gauging Station (NOAA station 9063007)

Station jointly operated by National Oceanic Atmospheric Administration, New York Power Authority and Ontario Power Generation

Niagara River Discharge Measurements

6. Horseshoe Falls Recession

Historic Horseshoe Falls Recession



Niagara Board's 1953 Directive

- Clause 2B) of the directive reads:

The board is to "Progressively, with the construction of the remedial works, to exercise control over the maintenance and operation thereof and more particularly the CGIP Control Structure in such a manner as fully to meet the scenic–beauty requirements of Article IV of the Niagara Treaty with the objectives of ensuring:

  - "2B)b) … A dependable and adequate flow over the Horseshoe Falls, including both flanks thereof, sufficient to provide an unbroken crest line, …"


2013
2012
2009
0
10
metres

Thank you!

Additional information can be found at:

https://www.ijc.org/en/nbc