NOTICE TO
CLOCA BOARD OF DIRECTORS

Please find enclosed the Agenda and supporting documents for the CLOCA Annual Board of Directors’ meeting on Tuesday, May 12, 2020, 5:00 p.m. This meeting will be a Virtual Meeting.

The list below outlines upcoming meetings and events for your information.

UPCOMING MEETINGS & EVENTS

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>EVENT</th>
<th>LOCATION</th>
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</thead>
<tbody>
<tr>
<td>*Tuesday, May 12/20</td>
<td>5:00 p.m.</td>
<td>Special Meeting</td>
<td>Virtual Meeting Due to COVID-19</td>
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<tr>
<td>*Tuesday, May 12/20</td>
<td></td>
<td>Immediately Following the Special Meeting</td>
<td>Virtual Meeting Due to COVID-19</td>
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<tr>
<td>*Tuesday, May 12/20</td>
<td></td>
<td>Immediately Following the Source Protection Authority Meeting</td>
<td>Virtual Meeting Due to COVID-19</td>
</tr>
<tr>
<td>Tuesday, June 16/20</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>Friday, June 26/20 (Tentative)</td>
<td>TBD</td>
<td>Summer Solstice Celebration – Insectmania</td>
<td>Purple Woods CA 38 Coates Road East, Oshawa</td>
</tr>
<tr>
<td>Tuesday, July 21/20</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>Tuesday, September 15/20</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>Tuesday, October 20/20</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>Tuesday, November 17/20</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>Saturday, November 28/20 (Tentative)</td>
<td>TBD</td>
<td>Christmas In The Woods</td>
<td>Purple Woods CA 38 Coates Road East, Oshawa</td>
</tr>
<tr>
<td>Tuesday, December 15/20 (Tentative)</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
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</tbody>
</table>

*prior Tuesday meeting due to Monday being a statutory holiday

LATEST NEWS
Check Out our Website! www.cloca.com
Discover your local Conservation Area.
Register as a Conservation Volunteer Programs & Services
Mobile access to online information with CLOCA’s new mobile website and Free Conservation Areas App

“Healthy Watersheds for Today and Tomorrow”
CENTRAL LAKE ONTARIO CONSERVATION AUTHORITY

AGENDA

ANNUAL AUTHORITY MEETING

Tuesday, May 12, 2020 - 5:00 P.M.

MEETING LOCATION: VIRTUAL MEETING

(ACCESS DETAILS TO BE PROVIDED)

CIRCULATION LIST

<table>
<thead>
<tr>
<th>Authority</th>
<th>Name</th>
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<tbody>
<tr>
<td>Authority</td>
<td>Bob Chapman, Chair</td>
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<tr>
<td>Authority</td>
<td>C. Darling Chief Administrative Officer</td>
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<tr>
<td>Members:</td>
<td>Ron Hooper, Vice Chair</td>
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<tr>
<td>Members:</td>
<td>B. Boardman, Executive/Accounting Administrator</td>
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<tr>
<td>Dave Barton</td>
<td>R. Catulli, Director, Corporate Services</td>
</tr>
<tr>
<td>Janice Jones</td>
<td>J. Davidson, Director, Watershed Planning &amp; Natural Heritage</td>
</tr>
<tr>
<td>Chris Leahy</td>
<td>L. Hastings, Marketing &amp; Communications Coordinator</td>
</tr>
<tr>
<td>Sterling Lee</td>
<td>D. Hope, Land Management &amp; Operations Supervisor</td>
</tr>
<tr>
<td>Tito-Dante Marimpietri</td>
<td>C. Jones, Director, Planning &amp; Regulation</td>
</tr>
<tr>
<td>Ian McDougall</td>
<td>P. Lowe, Director, Community Engagement</td>
</tr>
<tr>
<td>Don Mitchell</td>
<td>P. Sisson, Director, Engineering &amp; Field Operations</td>
</tr>
<tr>
<td>Rhonda Mulcahy</td>
<td>L. Vaja, Executive Assistant/Health &amp; Safety Administrator/Recording Secretary</td>
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<tr>
<td>John Neal</td>
<td>R. Wilmot, GIS Systems Supervisor</td>
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<tr>
<td>Brian Nicholson</td>
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<td>David Pickles</td>
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<tr>
<td>Elizabeth Roy</td>
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<tr>
<td>Corinna Traill</td>
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</table>

SUPPORTING DOCUMENTS

AGENDA ITEM:

1. **CHAIR’S WELCOME**
   Central Lake Ontario Conservation is situated on treaty land that is steeped in rich Indigenous history and is the present-day home to many First Nations, Metis and Inuit People. Today we acknowledge that we are gathering on the traditional territories of the Mississaugas of Scugog Island First Nation.

2. **DECLARATIONS** of interest by members on any matters herein contained

3. **ADOPTION OF MINUTES** of January 21, 2020

4. **DELEGATIONS** – None

5. **PRESENTATIONS** – None

6. **CORRESPONDENCE**

   (1) Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee
       Re: Response to Resolution #96/19 & #97/19

   (2) Correspondence from Conservation Ontario
       Re: Council Meeting Minutes - December 9, 2019

   (3) Correspondence from Ontario Ministry of Natural Resources and Forestry
       Re: Release of “Protecting People and Property: Ontario’s Flooding Strategy’

   (4) Letter to Premier Ford
       Re: Support for Ontario’s Conservation Authorities

Cont’d
7. DIRECTOR, CORPORATE SERVICES
   (1) Staff Report # 5682-20
       Re: Solar Application at CLOCA Office
   pg. 31

8. DIRECTOR, DEVELOPMENT REVIEW & REGULATION
   (1) Staff Report # 5678-20
       Re: Permits Issued for Development, Interference with Wetlands
           and Alteration to Shorelines and Watercourses - January 1 to
           February 29, 2020
       pg. 34
   (2) Staff Report # 5688-20
       Re: Permits Issued for Development, Interference with Wetlands
           and Alteration to Shorelines and Watercourses – March 1 to
           April 30, 2020
       pg. 36
   (3) Staff Report # 5685-20
       Re: Provincial Policy Statement 2020
       pg. 38
   (4) Staff Report # 5690-20
       Re: Application for Development Pursuant to Ontario Regulation 42/06
       pg. 43

9. DIRECTOR, WATERSHED PLANNING & NATURAL HERITAGE
   (1) Staff Report # 5679-20
       Re: Conservation & Restoration Planning Framework
   pg. 50

10. DIRECTOR, ENGINEERING AND FIELD OPERATIONS
    (1) Staff Report # 5684-20
        Re: Cedar Crest Beach Erosion and Plan 2014
    pg. 65
    (2) Staff Report # 5689-20
        Re: Winter/Spring 2020 – Conservation Areas Update
    pg. 121

11. CHIEF ADMINISTRATIVE OFFICER
    (1) Staff Report # 5680-20
        Re: Multi- Stakeholder Consultation on Conservation Authorities
    pg. 128
    (2) Staff Report # 5681-20
        Re: Renaming of Enniskillen Education Centre
    pg. 130
    (3) Staff Report # 5686-20
        Re: Siting of Durham’s Mixed Waste Transfer/Pre-Sort and Anaerobic
            Digestion Organics Processing Facility
        Cont’d
(4) Staff Report # 5691-20
   Re: Summary of CLOCA’s response to COVID-19

12. CONFIDENTIAL MATTERS
(1) Staff Report #5683-20
   Re: Property Matter

13. MUNICIPAL AND OTHER BUSINESS
(1) New and Unfinished Business

14. ADJOURNMENT
AGENDA

SUPPORTING DOCUMENTS

MEETING OF: Authority
DATE: Tuesday, May 12, 2020
TIME: 5:00 p.m.
LOCATION: Virtual Meeting
The Chair called the meeting to order at 5:00 p.m.

**DECLARATIONS** of interest by members on any matters herein contained - *None*

**ADOPTION OF MINUTES**

Res. #1 Moved by T.D Marimpietri
   Seconded by S. Lee

   *THAT the Authority minutes of November 21, 2019 be adopted as circulated.*
   
   **CARRIED**

**CHAIR’S REMARKS**

B. Chapman thanked the Board and congratulated Staff on all of CLOCA’s 2019 Highlights and Accomplishments (attached as H-1 & H-2).

**PRESENTATIONS** - *None*

**ELECTION OF OFFICERS**

The 2019 elected officers vacated their positions and Chris Darling, Chief Administrative Officer, officiated the 2020 election of Chair.

Res. #2 Moved by T-D. Marimpietri
   Seconded by C. Leahy

   *THAT in the event of a vote by ballot, Patricia Lowe and Perry Sisson be designated as scrutineers; and further that all election ballots be destroyed.*
   
   **CARRIED**

Cont’d
Authority Chair
C. Darling made three calls for nominations, noting no seconder was required.

Nominations:  D. Pickles nominated B. Chapman

Res. #3 Moved by T.D Marimpietri
Seconded by C. Leahy

_THAT nominations for the position of Authority Chair be closed._
CARRIED

B. Chapman “stands”.
B. Chapman was declared Authority Chair for 2020 and conducted the remainder of the meeting.

Authority Vice-Chair
B. Chapman made three calls for nominations.


Res. #4 Moved by D. Mitchell
Seconded by S. Lee

_THAT nominations for the position of Authority Vice-Chair be closed._
CARRIED

R. Hooper “stands”.
R. Hooper was declared Authority Vice-Chair for 2020.

SIGNING OFFICERS
Res. #5 Moved by I. McDougall
Seconded by C. Leahy

_THAT the Signing Officers of the Authority be any two of the following: The Chair, Vice-Chair, Chief Administrative Officer/Secretary-Treasurer, and Director of Corporate Services._
CARRIED

SOLICITORS
Central Lake Ontario Conservation Authority utilizes the services of six (5) legal firms:
- Borden Ladner Gervais – property tax and related matters
- Boychyn & Boychyn – real estate and property transactions
- Gardiner, Roberts – land related matters – planning and regulation matters
- Hicks, Morley – employment and labour related matters
- Littler Canada - legal matters for personnel/human resources

Res. #6 Moved by R. Hooper
Seconded by E. Roy

_THAT the firms Winter, Toronto; Borden Ladner Gervais, Toronto; Boychyn & Boychyn, Oshawa; Gardiner, Roberts, Toronto; Hicks Morley, Toronto; and Littler Canada be appointed Solicitors for the Authority, as required._
CARRIED

Cont’d
BORROWING BY-LAW
Res. #7 Moved by R. Mulcahy
Seconded by C. Leahy

THAT the Central Lake Ontario Conservation Authority’s signing officers are hereby authorized on behalf of the Central Lake Ontario Conservation Authority to borrow from time to time, from the banking institution under agreement with the Central Lake Ontario Conservation Authority, up to $1,000,000 to meet current expenditures until Provincial grants and/or Regional funding are received, with interest as may be determined by agreement between the bank and the Central Lake Ontario Conservation Authority.
CARRIED

CONSERVATION ONTARIO COUNCIL
Res. #8 Moved by E. Roy
Seconded by S. Lee

THAT the Chair be appointed as the Authority’s representative on the Conservation Ontario Council. Alternative designates are the Vice-Chair and the Chief Administrative Officer.
CARRIED

ENFORCEMENT OFFICERS
(i) Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation #42/06
Res. #9 Moved by S. Lee
Seconded by I. McDougall

THAT L. Benham, L. Bulford, J. Burgess, E. Cameron, J. Hetherington, C. Jones, M. Guindon, S. Penney and P. Sisson be appointed Enforcement Officers under the Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation #42/06.
CARRIED

ENFORCEMENT OFFICERS
(ii) Conservation Areas Regulation #101/90
Res. #10 Moved by C. Leahy
Seconded by E. Roy

THAT T. Backus, B. De Waal, H. Hirschfeld, D. Hope, J. Maas and A. Cooper be appointed Enforcement Officers under the Conservation Areas Regulation #101/92.
CARRIED

CORRESPONDENCE
(1) The Township of Huron-Kinloss (Agenda pg. 22)
   Re: Resolution # 645 for Township of Ramara
(2) County of Simcoe (Agenda pg. 23)
   Re: Conservation Exit Clause for Township of Ramara
(3) County of Simcoe (Agenda pg. 26)
   Re: Nottawasaga Valley Conservation Authority Levy (NVCA)

Res. #11 Moved by D. Pickles
Seconded by E. Roy

THAT the above correspondence be received for information.
CARRIED

Cont’d
DEVELOPMENT REVIEW & REGULATION
(1) Staff Report #5671-20 (Agenda pg. 29)
Re: Permits Issued for Development, Interference with Wetlands and Alteration to Shorelines and Watercourses - November 1 to December 31, 2019

Res. #12
Moved by C. Leahy
Seconded by S. Lee

THAT Staff Report #5671-20 be received for information.
CARRIED

DIRECTOR, COMMUNITY ENGAGEMENT
(1) Staff Report #5675-20 (Agenda pg. 31)
Re: 2019 Annual Report

Res. #13
Moved by I. McDougall
Seconded by C. Traill

THAT Staff Report #5675-20 be received for information.
THAT comments and recommendations be received from the Board of Directors by 4:30 p.m. Friday, January 24, 2019. At that time, staff will make the necessary edits and prepare for printing, distribution and posting on the website.
CARRIED

ACTING DIRECTOR, WATERSHED PLANNING & NATURAL HERITAGE – None

DIRECTOR, ENGINEERING AND FIELD OPERATIONS
(1) Staff Report #5674-20 (Agenda pg. 32)
Re: Ontario’s Special Advisor on Flood Report to Government – Independent Review of the 2019 Flood Events in Ontario

B. Nicholson asked that C. Darling consult with the Minister to determine if there will be any public consultation opportunities and report back at the next meeting.

Res. #14
Moved by R. Hooper
Seconded by C. Leahy

THAT Staff Report #5674-20 be received for information.
CARRIED

DIRECTOR, CORPORATE SERVICES
(1) Staff Report # 5676-20 (Agenda pg. 36)
Re: BDO Canada Audit of Financial Statements for the Year Ended December 31, 2019

Res. #15
Moved by B. Nicholson
Seconded by C. Leahy

THAT Staff Report #5676-20 be received for information.
CARRIED

Cont’d
CHIEF ADMINISTRATIVE OFFICER

(1) Staff Report #5672-20 (Agenda pg. 51)
Re: Common Membership – Different Boards

Res. #16
Moved by C. Leahy
Seconded by T-D. Marimpietri

THAT the Chair, Vice Chair and members of the Central Lake Ontario Conservation Authority for 2020 be the Chair, Vice Chair and members of the Central Lake Ontario Conservation Fund for 2020 and the Chair, Vice Chair and members of the Central Lake Ontario Source Protection Authority for 2020.
CARRIED

(2) Staff Report # 5677-20 (Agenda pg. 52)
Re: Status Report of Implementation of CLOCA Strategic Plan 2016-2020

Res. #17
Moved by C. Leahy
Seconded by T-D. Marimpietri

THAT Staff Report # 5677 -20 be received for information.
CARRIED

(3) Staff Report # 5673-20 (Agenda pg. 72)
Re: Revision of By-Law 2018-1 Corporate Administrative & Meeting procedural By-Law

Res. #18
Moved by C. Leahy
Seconded by T-D. Marimpietri

THAT Staff Report #5673-20 be received for information
THAT Section 3.18 of By-law 2018-1 Central Lake Ontario Conservation Administrative and Meeting Procedural By-law be revised to the following:

Section 3.18 Indemnification of Members
The Authority undertakes and agrees to indemnify and save harmless its Member and their heirs and legal representatives, respectively, from and against all costs, charges and expenses, including all amounts paid to settle an action or satisfy any judgement, reasonably incurred by any such Member in respect of any civil, criminal or administrative action or proceeding to which any such Officer, Employee or Volunteer is made a party by reason of being a Member (except in respect of an action by or on behalf of the Authority to procure a judgment in its favour) if;
• such Member acted honestly, in good faith with a view to the best interests of the Authority and within the scope of such Officer's, Employee's or Volunteer's duties and responsibilities, and,
• in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty that such Member had reasonable grounds for believing that the conduct was lawful.
CARRIED

CONFIDENTIAL MATTERS – None

Cont’d
NEW AND UNFINISHED BUSINESS

Res. #19  Moved by J. Neal
Seconded by B. Nicholson

THAT CLOCA endorse the letter (attached H-3& H-4) from the Region of Durham regarding Lake Ontario Water Levels dated July 5, 2019

Res. #20  Moved by C. Trail
Seconded by J. Jones

THAT resolution #97 from the November 19, 2019 Board Meeting be rescinded.
CARRIED

Res. #21  Moved by C. Trail
Seconded by J. Jones

THAT CLOCA staff be directed to:
Report back to the Board with written clarification from BAIRD regarding BAIRD’s comments in the report about the impact the St Mary’s Pier has had on erosion by starving the beaches along Cedar Crest in Clarington and specifically, whether Baird believes the pier is a significant contributor to erosion; and
Report back to the Board if there is a fee associated.

Report # 5658-19
Report back to the Board commenting on:
a) the role Plan 2014 has played in the regulation of Lake Ontario water levels, including answering whether it was a contributing factor to flooding; and
b) whether Plan 2014 has performed as advertised “to protect against extreme water levels and prepare us for climate change”. Staff are to consult with TRCA and IJC in preparing its report.
CARRIED

S. Lee noted that the Town of Ajax in collaboration with the Municipality of Clarington is hosting United Shoreline Ontario Educational Event on January 30, 2020 from 6:00 p.m. to 8:30 p.m. at the ARC.

ADJOURNMENT

Res. #22  Moved by B. Nicholson
Seconded by J. Jones

THAT the meeting adjourn.
CARRIED

The meeting adjourned at 5:43 p.m.
January 29, 2020

Mr. Perry Sisson, P. Eng.
Director, Engineering and Field Operations
100 Whiting Avenue
Oshawa, Ontario
L1H 3T3

Dear Mr. Sisson,

On behalf of the International Joint Commission’s Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee, I would like to thank you for sending a copy of the Central Lake Ontario Conservation Authority Board resolution #96/19 and #97/19 along with the staff reports #5667-19 and #5658-19.

The GLAM Committee was established by the International Joint Commission (IJC) to undertake an ongoing assessment of the regulation plan used to manage outflows from Lake Ontario, considering a wide range of interests throughout the system including on Lake Ontario and downstream through the St. Lawrence River. While the GLAM Committee was formed with a long-term perspective, recent high water events on Lake Ontario and the St. Lawrence River have led to considerable interest in the regulation of outflows from Lake Ontario. Recognizing that no regulation plan can eliminate coastal impacts under such extreme water supply conditions as occurred in 2017 and 2019, the IJC has asked the GLAM Committee to look at options for an expedited review of Plan 2014 with the goal of further moderating flooding and erosion, pending available funding. We will keep you informed as this process evolves and look forward to collaborating with you and your municipal partners to incorporate information on high water impacts within the jurisdiction of the Central Lake Ontario Conservation Authority into the broader review of the regulation plan. We would appreciate hearing from you should you have further information regarding high water vulnerabilities in your area, and how those vulnerabilities change under different lake levels.

Please feel free to contact us should you have further questions or additional information to share regarding high Lake Ontario levels.

Sincerely,

Wendy Leger
Canadian Co-Chair, Great Lakes-St. Lawrence River Adaptive Management Committee

CC:
Rob Caldwell, Canadian Secretary, International Lake Ontario – St. Lawrence River Board
Mike Shantz, Canadian Secretary, IJC Great Lakes – St. Lawrence River Adaptive Management Committee
John Allis, US Co-chair, IJC Great Lakes – St. Lawrence River Adaptive Management Committee
Erika Klyszejko, Engineering Advisor, International Joint Commission
Paul Allen, Manager – Policy, Programs, and Communications, International Joint Commission
COUNCIL MEETING
Minutes from Meeting #4/19
December 9, 2019
Sheraton Parkway Toronto North

Voting Delegates Present:
Chair: Wayne Emmerson, Lake Simcoe
Brian Horner, Ausable Bayfield
Alan Revill, Cataraqui Region
Katrina Furlnetto, Cataraqui Region
Rick Cerna, Catfish Creek
Chris Wilkinson, Catfish Creek
Chris Darling, Central Lake Ontario
Karen Ras, Credit Valley
Deb Martin-Downs, Credit Valley
Tim Pidduck, Crowe Valley
Richard Wyma, Essex Region
Linda Laliberte, Ganaraska Region
Samantha Lawson, Grand River
Cathy Little, Grey Sauble
Hassaan Basit, Halton
Lloyd Ferguson, Hamilton
Lisa Burnside, Hamilton
Mark Majchrowski, Kawartha
Elizabeth VanHooren, Kettle Creek
Mike Walters, Lake Simcoe Region
Donna Blunt, Lakehead
Tammy Cook, Lakehead
Michael Columbus, Long Point Region
Judy Maxwell, Long Point Region
Mark Peacock, Lower Thames
Jim Alyea, Lower Trent
Rhonda Bateman, Lower Trent

Janet Mason, Mississippi
Jeff Atkinson, Mississippi
Sally McIntyre, Mississippi
Diana Huson, Niagara Peninsula
Gayle Wood, Niagara Peninsula
Lin Gibson, Nickel District (Con.Sudbury)
Carl Jorgensen, Nickel District (Con.Sudbury)
Brian Tayler, North Bay-Mattawa
George Watson, Nottawasaga Valley
Doug Hevenor, Nottawasaga Valley
Andy Mitchell, Otonabee
Dan Marinigh, Otonabee
John Wise, Quinte
Frank Prevost, Raisin Region
Richard Pilon, Raisin Region
Sommer Casgrain-Robertson, Rideau Valley
Dan Gierszak, Saugeen
Dick Hibma, Saugeen
Corrina Barrett, Sault Ste Marie Region
Joe Faas, St. Clair Region
Larry Gordon, St. Clair Region
Brian McDougall, St. Clair Region
John Mackenzie, Toronto and Region
Sandy Levin, Upper Thames River
Ian Wilcox, Upper Thames River

Members Absent:
Mattagami

Guests:
Phil Beard, Maitland Valley
Darren MacKenzie, Niagara Peninsula
Brad McNevin, Quinte
Angela Coleman, South Nation

GUESTS:
Phil Beard, Maitland Valley
Darren MacKenzie, Niagara Peninsula

CO Staff:
Kim Gavine
Kristin Bristow
Nicholas Fischer
Bonnie Fox
Chitra Gowda
Jane Lewington
Nekeisha Mohammed
Leslie Rich
Jo-Anne Rzadki
Rick Wilson
1. Welcome from the Chair

Members were welcomed by Chair Wayne Emmerson and an Indigenous recognition provided. Chair Emmerson noted that the Deputy Minister would be attending in Minister Yurek’s stead.

2. Adoption of the Agenda

It was requested that the following items be moved from Consent Items to Discussion:

8 d. Conservation Ontario’s Comments on “Transforming and modernizing the delivery of Ontario’s Building Code services” (ERO #019-0422)
8 f. Update on the Memorandum of Understanding between Conservation Ontario and Hydro One
8 g. Interagency Park Pass Project
8 i. Budget Status Report
8 j. Program Updates – i) Marketing & Communications Program Update

#29/19 Moved by: Mike Walters
Seconded by: Alan Revill

THAT the Agenda be adopted as amended.

CARRIED

3. Declaration of Conflict of Interest

There was none.

4. Approval of the Minutes of the Previous Meeting

Two corrections have been made to the minutes from the September 30, 2019 Council Meeting:
Voting Delegates Present: include Pieter Leenhouts (Rideau Valley)
General Managers Report: include action item stating that CAs would share information following each of their respective meetings with the Minister of Environment, Conservation and Parks.

#30/19 Moved by: Lin Gibson
Seconded by: Stephen Harvey

THAT the minutes from the meeting September 30, 2019 be approved as amended.

CARRIED

5. Business Arising from the Minutes

None

6. Motion to move from Full Council to Committee of the Whole
THAT the meeting now move from Full Council to Committee of the Whole. 

CARIED

7. Discussion Items

a. General Manager’s Report

Kim Gavine’s presentation is attached to the minutes of the meeting.

Action Items from the report and discussion:

Uncertainty and concern was expressed regarding the use of self-generated revenue after a CA’s meeting with Minister Yurek. Others provided their understanding that the Minister’s letter was not intended to indicate that those programs would not be permitted to use self-generated revenue. It was noted that Minister Yurek needed clarification that CAs were not taking Section 39 payments and using those funds to offer community events and programming, and also needed clarification that funding for these community events and programming were not buried in the CAs’ municipal levies. It was suggested holding a breakfast reception at ROMA to facilitate discussions with municipalities, and also suggested that speaking with sub-regional groups (Southeastern and Southwestern Warden’s Caucus) would be a good opportunity. It was recommended that CAs send a letter to every Mayor and Council in their regions to share positive messaging with their municipal partners. There was no further conclusive direction provided on this suggestion by CO Council. It was noted the importance of having the Ministry’s retraction letter (vis-à-vis email to Kim Gavine) when discussing levy increases with the municipalities. Kim Gavine also noted that the Ministry’s second letter of retraction was not received by all municipalities and Bonnie Fox noted that the AMO letter that was circulated suggesting that they should approach levy negotiations as “business as usual” could be used in this case. Strategically we should be moving with business as usual and driving the agenda on core mandate. Leslie Rich noted the importance of the Client Services and Streamlining Initiative with the Province, development community and municipalities. It was identified that some sectors see CAs as an impediment around plan review particularly natural heritage. The MECP seems to consider the hazard work is a direct benefit to people and property and that natural heritage is a “nice to have” about environmental protection. It was noted that the municipalities for their watershed made it clear to the Ministry that if water quality is affected there is a chain reaction leading to loss of tourism and water quality issues which results in the public calling MPAC for reassessment every time there is an algae bloom. The message was natural heritage speaks directly to the health of the tax base; healthy watershed, healthy economy and that heritage work mitigates the hazards. It was noted the importance of proposing the economic link between heritage and hazard work, and the need for an integrated watershed management approach.

C.W. # 28/19 Moved by: Cathy Little
Seconded by: Alan Revill

THAT Conservation Ontario Council receives this report as information

CARIED
b. **CO Strategic Plan 2021-2025**

Jane Lewington’s presentation is attached to the minutes of the meeting.

**C.W. #29/19** Moved by: Lin Gibson  
Seconded by: Stephen Harvey

*THAT Conservation Ontario Council approve the proposed timeline and workplan for Conservation Ontario’s 2021 – 2025 Strategic Plan.*

*CARRIED*

c. **Council Meeting Dates 2020**

The request was made to consider moving the June meeting to June 15th from June 22nd.

Meeting Dates Confirmed:  
April 6, 2020  
June 15th, 2020  
September 28, 2020  
December 14, 2020

**C.W. #30/19** Moved by: Frank Prevost  
Seconded by: George Watson

*THAT the 2020 Conservation Ontario Council meeting schedule be adopted.*  
*CARRIED*

d. **Development of a Conservation Ontario Training and Professional Development Strategy**

Bonnie Fox and Nicholas Fischer’s presentation is attached to the minutes of the meeting.  
Action Items from the report and discussion:

John Mackenzie noted that there are not enough technical training opportunities readily available, and that he would like TRCA to work with this group on modifying their STEP programming for the 2020 year and beyond as they have capacity to deliver some of this training. Bonnie noted that the STEP program had come up as a key partner.

**C.W. #31/19** Moved by: Karen Ras  
Seconded by: Dianna Huson

*THAT the Conservation Ontario “Training and Professional Development Strategy” be endorsed.*  
*CARRIED*

e. **CO Client Service and Streamlining Initiative: Update to the Three Streamlining Guidelines**

Leslie Rich and Nicholas Fischer’s presentation is attached to the minutes of this meeting.  
Chris Darling noted that CLOCA was one of the CAs that proposed the amendments covered and requested to make a motion to approve the two amendments.
C.W. #32/19  Moved by: Chris Darling
Seconded by: John Mackenzie

THAT the draft Annual Reporting on Timelines Template, dated November 28th be endorsed for use by conservation authorities;

THAT the updates to the CA-Municipality MOU Template for Planning and Development Reviews, the Client Service Standards for Conservation Authority Plan and Permit Review, and the Guideline for CA Fee Administration Policies for Plan Review and Permitting be endorsed.

CARRIED

Presentation:
Jennifer Keyes, Manager of Water Resources, Great Lakes and Water Policy Branch at MNRF provided a presentation on the Flood Advisor’s report. It is attached to the minutes of the meeting.

f. ESRI Canada Enterprise License Agreement

Rick Wilson’s presentation is attached to the minutes of this meeting.

John Mackenzie expressed his appreciation for CO’s efforts on behalf of the collective and for working closely with Toronto and Region Conservation Authority’s Chief Information Officer Chris [J. Moore] on this file.

C.W. #33/19  Moved by: John Mackenzie
Seconded by: Alan Revill

THAT Conservation Ontario Council provide approval for Conservation Ontario to enter into an agreement with Esri Canada on behalf of the CA collective for a period of up to three years provided the agreement meets the following conditions:
• Cost is equal to or less than 2019 annual maintenance cost of $270,000;
• Annual cost does not increase for the agreed-upon term; and
• Access to software, training and services is equal to or greater than that currently offered

CARRIED

(Moved from Consent):

(formerly Consent 8 a.)
Conservation Ontario’s comments on the “Provincial Policy Statement Review – Proposed Policies” (ERO#019-0279)

Leslie Rich noted that the original PPS comments provided to the Flood Advisor and these PPS comments provided to MMAH both requested that CAs be involved and consulted with prior to any changes to Section 3.1 of the PPS.
It was discussed that Conservation Ontario should pursue more aggressively a meeting with the Province regarding CO comments on the PPS and any changes the Province may be proposing to Section 3.1 of the PPS. It was noted that the Province might be coming out with a revised PPS early in the new year.

C.W. #34/19  Moved by: John Mackenzie
Seconded by: Karen Ras

THAT Conservation Ontario’s Comments on the “Provincial Policy Statement Review – Proposed Policies” submitted to the Ministry of Municipal Affairs and Housing on October 21, 2019 be endorsed.

CARRIED

(formerly Consent 8 d.)
Conservation Ontario’s Comments on “Transforming and modernizing the delivery of Ontario’s Building Code services” (ERO #019-0422)

Further to the support of the Province for administrative penalties in the context of this proposal, it was raised that Council should consider whether they wanted to revive a June 2016 Council resolution for CAs to be able to use administrative penalties under Section 28 of the CAA.

C.W. #36/19  Moved by: John Mackenzie
Seconded by: Sally MacIntyre

THAT Council endorse Conservation Ontario’s Comments on “Transforming and modernizing the delivery of Ontario’s Building Code services” (ERO #019-0422) submitted to the Ministry of Municipal Affairs and Housing on November 25, 2019.

CARRIED

(formerly Consent 8 f.)
Update on the Memorandum of Understanding between Conservation Ontario and Hydro One

Action Items from the report and discussion:
John Mackenzie noted TRCA’s initiative called the Meadoway Project and noted that CAs could be involved more in stewardship activities within hydro corridors with Hydro One. The request was made for CO Council to consider looking at the MOU update and CA opportunities to work with stewardship activities in these hydro corridors. Leslie noted that it would be better for this to be brought back in a future report to the next Council meeting. Sally McIntyre agreed with this approach and that CAs should be looking at this as a collective.

C.W. #37/19  Moved by: John Mackenzie
Seconded by: Diana Huson

THAT Council receives this report as information.

CARRIED
Interagency Park Pass Project

Action Items from the report and discussion:
John Mackenzie noted that Parkbus doesn’t seem to have a lot of infrastructure and had questions about the proposal. Jane Lewington noted that Parkbus is working with the Province and funded by Ministry of Tourism Culture and Sport to provide a research project. Currently Parkbus offers passes to State and National parks in the United States and thought that the model might work with National Parks, Ontario’s Provincial Parks and Conservation Areas. Some CAs already have contacts with Parkbus and there is a small committee of CA staff (UTRCA, CVC, and LSRCA) working Parkbus on an exploratory project to see if this initiative is something that the CAs may be interested in. A report to CO Council will be brought forward in the future. John Mackenzie asked to have a TRCA representative on this initiative and Jane Lewington noted this could be done. Doug Hevenor noted his past experience with Parkbus in the Parks department in the United States and noted that parks with gate admissions were charged and fees were charged for activities on those sites there was an increase in revenue, but for parks with only gate admission or parking passes, there was a loss of revenue at those sites; there may be similar challenges here.

C.W. #38/19 Moved by: Frank Prevost
Seconded by: Lin Gibson

**THAT Conservation Ontario Council receives this report for information.**

CARRIED

Budget Status Report to October 31, 2019

John Mackenzie had questions about the Government review and CAA review. Kim Gavine noted that the CAA was a transfer payment from MNRF and that CO no longer has that funding which entailed Indigenous training, CAU, and Information Management work on WECI and the CA statistical survey. John Mackenzie asked for clarification on the funding for Latornell. Jane Lewington noted that it is a cost recovery system, and any revenue generation pays for Latornell. Any reserve is used for years with low revenue generated. John Mackenzie asked about the information listed regarding accounting and audit fees. Kim Gavine noted that the audit was approved by CO Council in 2015 with incremental increases on an annual basis; the audit fee for 2019 is $9,000 and next year the audit will go out to market. Kim Gavine indicated that accounting fees were higher than usual due to a medical leave and the need for additional support. Wayne Emmerson noted that perhaps the budget should not be a consent item going forward and rather part of the discussion agenda.

C.W. #39/19 Moved by: Michael Columbus
Seconded by: Mike Walters

**THAT Conservation Ontario Council receives this report for information.**

CARRIED

Program Updates
i. Marketing & Communications Program Update
John Mackenzie had questions about Latornell keynote speakers. Jane Lewington noted with examples that there is a group that focuses on this and that the program is tailored to CA business areas (watershed management, natural heritage, flooding, SWP). It was noted that Latornell does a survey after the event every year and typically the keynote speakers rate excellent or very good. John Mackenzie noted that the TRCA staff noted that they are looking for more skill-related speakers. Jane Lewington noted that the Latornell program is under review this year for going forward, and noted that the survey had been circulated to CA GMs for feedback. John Mackenzie suggested partnering with Ontario Professional Planners Institute (OPPI) and that providing credits may help with drawing attendance. Deb Martin-Downs noted that CA staff help with partnering by providing the content through abstract submissions, and that it is incumbent on all of us to provide the quality information and content to meet everyone’s needs.

C.W. #40/19 Moved by: Karen Ras
Seconded by: John Mackenzie

*THAT Conservation Ontario Council receives this report as information.*

CARRIED

8. Consent Items

C.W. # 41/19 Moved by: John Wise
Seconded by: Sandy Levin

*THAT Council approve a consent agenda and endorse the recommendations accompanying Items 8c, 8e, 8h, 8j (ii-iv) and 8k.*

CARRIED


*THAT Conservation Ontario’s Comments on the “Provincial Policy Statement Review – Proposed Policies” submitted to the Ministry of Municipal Affairs and Housing on October 21, 2019 be endorsed.*

b. Conservation Ontario’s comments on the “Proposed amendments to the Aggregate Resources Act” (ERO#019-0556) and Schedule 16 of Bill 132, Better for People, Smarter for Business Act, 2019

*THAT Conservation Ontario’s comments on the “Proposed amendments to the Aggregate Resources Act” (ERO#019-0556) and Schedule 16 of Bill 132, Better for People, Smarter for Business Act, 2019 submitted to the Ministry of Natural Resources and Forestry on November 1, 2019 be endorsed.*

c. Conservation Ontario’s comments on the “Waterpower Exemption from Permits To Take Water” (ERO#019-0545) and the “Amendments to Three Statutes administered by the Ministry of Natural Resources and Forestry to support the proposed Better for People, Smarter for Business Act, 2019 and a proposal for a new regulation under the Lakes and Rivers Improvement Act” (ERO#019-0732)

*THAT Conservation Ontario’s comments on the “Waterpower Exemption from Permits To Take Water” (ERO#019-0545) and the “Amendments to Three Statutes administered by the Ministry of Natural Resources and Forestry to support the proposed Better for People, Smarter for Business Act, 2019 and a proposal for a new regulation under the Lakes and Rivers Improvement Act” (ERO#019-0732)
submitted to the Ministry of the Environment, Conservation and Parks and the Ministry of Natural Resources and Forestry on November 27, 2019 be endorsed.

d. Update to the CO Section 28 Regulations Committee Terms of Reference

THAT the draft Terms of Reference for the Conservation Ontario Section 28 Regulations Committee, dated November 25, 2019, be endorsed.

e. EcoHealth Ontario Year End Review

THAT Conservation Ontario Council receives this report as information.

f. Program Updates

ii. Business Development & Partnerships Report

THAT Conservation Ontario Council receives this report as information.

iii. Information Management (IM) Program Update

THAT Conservation Ontario Council receives this report as information.

iv. Drinking Water Source Protection Program Update

THAT Conservation Ontario Council receives this report as information.

g. Correspondence

Update from the Weather Network

9. Motion to Move from Committee of the Whole to Full Council

#31/19 Moved by: Alan Revill
Seconded by: John Mackenzie

THAT the meeting now move from Committee of the Whole to Full Council

CARRIED

10. Council Business – Council Adoption of Recommendations

#32/19 Moved by: Dan Gieruszak
Seconded by: Richard Wyma

THAT Conservation Ontario Council adopt Committee of the Whole (C.W.) Recommendations: C.W. #28/19 to C.W. #41/19.

CARRIED
Deputy Minister of MECP, Serge Imbrogno was present to speak with CO Council. The presentation prepared originally for Minister Yurek was delivered by the Deputy Minister.

Kim Gavine asked about the broader consultations that the Ministry has planned for the New Year. Deputy Minister Imbrogno noted that once the pre-consultations with the CAs have concluded there will be stakeholder sessions including CAs, municipalities, and other stakeholders. John Mackenzie noted that workshops with good facilitation teams can be very helpful in the process; a regional workshop format would be helpful. Deputy was not sure how far they would travel. He invited CAs to suggest facilitators if they had any in mind.

Kim Gavine asked if the Ministry would entertain the idea of a CO/AMO working group to help with the development of the regulations in support of the recent changes to the CAA. Deputy Minister Imbrogno noted that the Ministry is frequently involved in discussions with AMO and that this request would likely be considered by the Government.

Kim Gavine asked what more CAs could do to assist with the Government’s Healthy Parks Healthy People Consultations. Deputy Minister Imbrogno noted that the EcoHealth work has been very impressive and hopes that the CAs will continue to work with the Ministry on this initiative.

Kim Gavine noted that the CAs are eager to assist with the Climate Change Advisory Panel. Deputy Minister Imbrogno noted that the Ministry has put out an RFP for consultants to submit for a climate impact assessment and the committee will reach out to Conservation Authorities. They should be ready to present to them at that point.

CO Chair Wayne Emmerson asked about direction regarding non-core/core programs. Deputy Minister Imbrogno noted that the Government’s direction was that the core programs would be funded by the municipal levy and that non-core programs would be negotiated with the municipality through an MOU for funding. CAs were not expected to stop non-core programs, but they could not levy the municipalities for that funding, unless through agreement, and that only core programs would be funded through municipal levy. Lloyd Ferguson asked about CA programs that are fully funded by user fees and if CAs can continue those programs; Deputy Minister Imbrogno responded that yes that was the case.

Hassaan Basit recommended that the narrative around the message with core vs. non-core programs should change after the consultations with CAs to be more positive in nature. Deputy Minister Imbrogno said he would take that suggestion back to Minister Yurek.

Michael Columbus asked if there was any thought at the Ministry about returning to the MNRF model of having a Conservation Authorities Division Deputy Minister Imbrogno noted that this was a common question in the meetings between CAs and the Minister and that he thinks Minister Yurek is actively considering creating a branch to work with the CAs.

Doug Hevenor asked about transparency and ways the Province thinks they need to be improved. Deputy Minister Imbrogno noted that consistency for regulatory processes and best practices with the development community that other CAs can adopt would be helpful. Gayle Wood noted the Niagara Peninsula CA audit with the Auditor General and noted that NPCA is committed to making sure that transparency and improvements are exemplified.

Dan Marinigh noted the Made in Ontario Plan and the reference to conserving Ontario’s natural resources is part of the mandate of CAs. Is there any conversation at the Province about what the scope of conserving the natural resources is? Deputy Minister Imbrogno noted that the Government is looking at...
a number of things; conservation reserves, the Federal Government’s Canada 101 Challenge to which the Ontario Government has submitted a proposal to see more land conserved, and part of this could be working with CAs on this if the proposal is successful. It was noted that any ideas the CAs have might be helpful as well.

Wayne Emmerson noted that there is funding needed for flood mapping work undertaken by CAs.

Sandy Levin asked about the SAR list and if it will stay as is or after the re-write if species at risk in other jurisdictions will be counted. Is that going forward or retroactive? Deputy Minister Imbrogno noted that there is no retroactive list; the changes would be a SAR trust which is currently in development. Developers can pay into the trust and the Government can tap into those funds to replant trees, etc.

John Mackenzie asked for insights on how the inter-ministerial coordination will come up with a cohesive approach and understanding when the PPS is released in the spring? Deputy Minister Imbrogno noted that there is a formal structure in place to keep the different Ministries up to speed on what each other us undertaking, and informal structures like the PERL committee which meets twice a month helps MECP and MNRF remain up to speed on what they are each working on. It was noted that there is also a “multi-corner” approach within the framework when an initiative is moving forward, and all Ministries impacted are asked for feedback.

CO Chair Wayne Emmerson thanked the Deputy Minister for his time and the visit.

11. New Business

Special mention was made of Gayle Wood’s work and accomplishments as this is her last meeting for CO Council.

Survey will be sent out to the CO Council for the location of future council meetings.

12. Adjournment of Meeting

#33/19 Moved by: John Mackenzie

THAT the meeting be adjourned. CARRIED
From: Great Lakes and Water Policy Section (MNRF) <mnrwaterpolicy@ontario.ca>
Sent: March 9, 2020 11:39 AM
Subject: Release of ‘Protecting People and Property: Ontario’s Flooding Strategy’

Hello,

Ontario is taking action to protect people and property by strengthening the province’s preparedness for flooding because the safety of the public and the protection of our communities is our number one priority.

In response to Ontario’s Special Advisor on Flooding report released last November, and the call from the communities around the province to address the issue of flooding, Ontario has released Protecting People and Property: Ontario’s Flooding Strategy, available here. The Strategy introduces a series of new and enhanced actions that will help Ontario better prepare for, respond to, and recover from significant flood events.

You can also visit our updated webpage, ontario.ca/floods to find emergency preparedness information, including safety and flood mitigation tips for homeowners.

We look forward to continuing to work with you to build a more resilient Ontario.

Thank you

Water Resources Section
Policy Division
Ontario Ministry of Natural Resources and Forestry
mnrwaterpolicy@ontario.ca
The Honourable Doug Ford,
Premier
Premier's Office
Room 281
Legislative Building, Queen's Park
Toronto, ON
M7A 1A1

April 27, 2020

Dear Premier Ford,

We, the 112 undersigned organizations, call on the Government of Ontario to retain the current mandate of the province’s 36 Conservation Authorities in protecting, restoring and managing the watersheds where 95 percent of Ontarians reside. Their functions and responsibilities with respect to land use planning and permitting, monitoring, stewardship and education must be maintained, for the reasons outlined below.

Our Conservation Authorities are a unique and widely respected Ontario innovation. They were established in the 1940s in response to concerns expressed by agricultural, environmental and sports groups about the unhealthy state of the province’s lands and waters as a result of poor resource management practices. The combined impacts of drought and deforestation had led to extensive soil loss and flooding, pointing to the need for a regional approach to managing Ontario’s watersheds, for the safety and well-being of communities.

Today, Conservation Authorities provide a much-valued bridge across municipal boundaries to understand and address environmental concerns, such as flooding. Because they operate at the watershed level, they are ideally positioned to encourage science-based collaborative strategies and decision-making.

The Flood Advisor’s report showed strong support for the Conservation Authority model in protecting Ontario from the impacts of climate change. Their role in flood mapping, hazard assessment and monitoring is critical to protecting life and property. This model only works, however, if Conservation Authorities have the necessary regulatory power, appropriate staffing and adequate funding to intervene in planning decisions and development applications. Their vital role in land use planning and permitting must be retained to ensure that development does not put communities at risk from flooding and other climate change impacts through loss of wetlands, woodlands and farmland.

The monitoring initiatives implemented by Conservation Authorities are necessary for delivery of flood mitigation and drinking water protection programs. Additionally, they support broader environmental protections including land conservation (including areas of importance to protecting water resources), biodiversity conservation, water quality protection and ecological restoration. This monitoring role is essential to evidence-based decision-making and should be maintained.
Conservation Authorities are locally based organizations that have a solid track record in responding innovatively and effectively to community needs and priorities. They support multiple municipalities and partner with conservation groups, farmers, other landowners and other community members. They deliver regionally significant projects and provide on-the-ground expertise and funding. Such projects include, for example, implementation of agricultural best practices and wetland restoration or creation.

The province’s Conservation Authorities are the second largest landowner in Ontario, protecting significant natural areas and hydrological features in our watersheds. They also own and manage conservation areas that are open to the public and provide highly valued nature-based opportunities for recreation and leisure for millions of Ontarians. Here and across their watersheds Conservation Authorities deliver valuable education and outreach programs, serving youth and enriching communities across Ontario.

Any effort to reduce or constrain the mandate of Conservation Authorities is contradictory to the interests of the people of Ontario who are facing enormous risks and costs as a result of climate change and ongoing biodiversity loss. The roles and responsibilities of Conservation Authorities are critical in protecting the lands, waters and wildlife which benefit businesses and communities across Ontario, and upon which our health and well-being ultimately depend.

None of us can afford to ignore the tragic history of poor watershed management and over-exploitation which led to the creation of Conservation Authorities in the last century. Now more than ever we need their expertise to respond effectively to the challenges ahead.

Yours truly,

[Signatures and logos of organizations]

Cc: Jeff Yurek, Minister of the Environment, Conservation and Parks
Cc: John Yakabuski, Minister of Natural Resources and Forestry
Cc: Ernie Hardeman, Minister of Agriculture, Food and Rural Affairs
Cc: Steve Clark, Minister of Municipal Affairs and Housing
Cc: Jerry DeMarco, Commissioner of the Environment

This letter is endorsed by the following national, provincial and local organizations:
A Rocha
Chief Executive Officer
A Rocha Canada

A2A
Executive Director
A2A- Algoma to Adirondacks Collaborative

Bancroft Field Naturalists
Past-President
Terry Bradt

Bay Area Restoration Council
Executive Director
Chris McLaughlin
Bay Area Restoration Council

Bert Miller Nature Club
President
Deb Sherk

BurlingtonGreen
Executive Director
Amy Schnurr

Canadian Freshwater Alliance
Great Lakes Director
Raj Gill

Carolinian Canada Coalition
Chair
Dr. Dawn Bazely

Carden Field Naturalists
President
Tom Wilson

Blue Mountain Watershed Trust
Acting President and Secretary
Norman Wingrove

Blue Fish Canada
President
Lawrence Gunther

Bancroft Field
Director, Ontario
Liz Purves

Birds Canada

Bancroft Field Naturalists

Linda Heron  
Chair  
Ontario Rivers Alliance

Stuart Atkinson  
Lead, Policy and Government Relations  
Ontario Society of Professional Engineers

Ian McLaurin  
Chair  
Ontario Soil Regulation Task Force

Sandy Donald  
Director  
Ontario Wildlife Rescue

Liz Benneian  
Executive Director  
Ontariogreen Conservation Association

Denis Paccagnella  
President  
Orillia Naturalists Club

Elizabeth Logue  
Riverkeeper  
Ottawa Riverkeeper

Donna DuBreuil  
President  
Ottawa-Carleton Wildlife Centre

Dave Harvey  
Executive Director  
Park People

Tianna Burke  
Vice President  
Parry Sound Nature Club

Matt Brown  
Manager  
Patagonia Toronto

Marg Reckahn  
President  
Penokean Hills Field Naturalists
Steve LaForest
President
Pickering Naturalists

Dr. John Bacher
Researcher
Preservation of Agricultural Lands Society

Sandra Dowds
President
Prince Edward County Field Naturalists

Dr. Simon Courtenay
Professor and Director
School of Environment, Resources and Sustainability – University of Waterloo

Dr. Merrin MacRae
Professor and Academic
University of Waterloo

Roger Goulet
Executive Director
Protecting Escarpment Rural Land

Lenka Holubec
Position Member
ProtectNatureTO

Edeltraud Neal
President
Provincial Council of Women of Ontario

George Thomson
President
Quinte Field Naturalists

Tom Woodcock
Planning Ecologist
rare Charitable Research Reserve

Jean L. Williams
Chair
Rattray Marsh Protection Association

Angus Inksetter
President
Saugeen Nature
DATE: March 17, 2020
FILE: LOVE13
S.R.: 5682-20
TO: Chair and Members, CLOCA Board of Directors
FROM: Andrew Cunning, Accounting Assistant
Rose Catulli, Director of Corporate Services
SUBJECT: Solar Application at CLOCA Office Site

The Solar application is now in its ninth year of operation. In 2019, we generated net revenue of $8,248.42 (2018 - $8,655.29) to be replenished into the reserve for working capital. In 2019, we observed an output of 10,321 kW of electricity. This figure represents a 4.66% decrease from 2018. The cash flow forecast below has been updated to reflect the system output generated in 2019 and we are expecting the break-even point to be towards the end of 2020. Please refer to the attached information circular which includes a summary of 2019 monthly payment’s and service charges from Oshawa PUC Networks Inc., a summary of electrical generation (2011-2019), and a summary of the gross monthly revenue generated since 2011.

The Board’s approval was based on financing the system from the Reserve for Working Capital and replenishing the reserve from net annual revenues. The following is a summary of the output for the period January 1 to December 31, 2019:

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<td>Repair Costs</td>
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<td>Net Revenue</td>
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**RECOMMENDATION:**

*THAT* Staff Report #5682-20 be received for information; and,

*THAT* the net revenue of $8,248.42 from generation be returned to the reserve for working capital.

AC/RC/Iv
Attach.

S:\REPORTS\2020\sr5682_20.docx
Solar Application at CLOCA Office Site

CASH POSITION

BEST DAYS

Cont’d
Summary Oshawa PUC Network Inc.
Monthly Payments – CLOCA Electrical Generation

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DATE: March 17, 2020
FILE: RPRG3974
S.R.: 5678-20
TO: Chair and Members, CLOCA Board of Directors
FROM: Chris Jones, Director, Planning & Regulation
SUBJECT: Permits Issued for Development, Interference with Wetlands and Alteration to Shorelines and Watercourses – January 1 to February 29, 2020

Attached are Development, Interference with Wetlands and Alterations to Shorelines and Watercourses applications, pursuant to Ontario Regulation 42/06, as approved by staff and presented for the members’ information.

RECOMMENDATION:
THAT Staff Report #5678-20 be received for information.
## Permits To Be Ratified for 1/1/2020 to 2/29/2020

<table>
<thead>
<tr>
<th>Row #</th>
<th>Municipality</th>
<th>Owner / Applicant</th>
<th>Street / Lot / Con</th>
<th>Permit No.</th>
<th>Description</th>
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<td>EAST PENN CANADA POWER BATTERY SALES LTD.</td>
<td>1840 ENERGY DRIVE / LOT 27 / CON BFC</td>
<td>C19-233-GB</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH GRADING AND CONSTRUCTION OF THE STORM WATER POND AND OUTFALL WITHIN THE AREA REGULATED BY THE CONSERVATION AUTHORITY</td>
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<td>CLARINGTON</td>
<td>PORT DARLINGTON HARBOUR CO.</td>
<td>125 PORT DARLINGTON ROAD / LOT 9 / CON BFC</td>
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<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH DREDGING OF PORT DARLINGTON HARBOR AND TEMPORARY STOCK PALING FOR DE-WATERING ON EASTERN BANKS</td>
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<td>5</td>
<td>CLARINGTON</td>
<td>MUNICIPALITY OF CLARINGTON/ BOYLE EXCAVATING</td>
<td>LOT 12 / CON 01</td>
<td>C20-006-GF</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH REMOVAL OF WOODY DEBRIS AND SEDIMENT FROM BOWMANVILLE CREEK-FISH LADDER</td>
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<td>CLARINGTON</td>
<td>ROGERS COMMUNICATIONS CANADA (DTS) TECHNICAL INC.</td>
<td>DADDSON DR / SQUARE FLETCHER DR / LOT 09 / CON 02</td>
<td>C20-011-G</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH DIRECTIONAL BORE, OPEN TRENCH, NEW CONDUIT, NEW VAULT AND PEDESTAL FOR TELECOMMUNICATIONS UTILITIES</td>
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<td>KOBES NURSERIES INC.</td>
<td>6719 REGIONAL ROAD #57 / LOT 15 / CON 06</td>
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<td>7100 LETNER ROAD / LOT 15 / CON 07</td>
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<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF A 20 FT X 27 FT ADDITION ON AN EXISTING SINGLE FAMILY DWELLING</td>
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<td>ENBRIDGE GAS INC.</td>
<td>NORTH SIDE OF COLDSTREAM DRIVE / LOT 03 / CON 04</td>
<td>O20-009-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE INSTALLATION OF A GAS PIPELINE CROSSING BELOW A WATERCOURSE ON THE NORTH SIDE OF COLDSTREAM DRIVE</td>
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<td>ROGERS COMMUNICATIONS CANADA INC.</td>
<td>GRENFELL STREET / LOT 13 / CON 01</td>
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<td>KINGSWAY COLLEGE / D.G. BIDDLE &amp; ASSOCIATES LTD</td>
<td>NORTH OF SHANKEL ROAD, WEST OF TOWLINE ROAD NORTH / LOT 01 / CON 02</td>
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<td>HOM DRAFTING AND DESIGN INC.</td>
<td>1223 SUNVALLEY COURT / LOT 10 / CON BFC</td>
<td>O20-002-BH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONVERSION OF A SINGLE FAMILY DWELLING TO A SINGLE FAMILY DWELLING WITH ACCESSORY SUITE</td>
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<td>THE DECK GUYS</td>
<td>506 SAFARI DRIVE / LOT 02 / CON 02</td>
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<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE REPLACEMENT OF TWO EXISTING DECKS</td>
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<td>2285136 ONTARIO LIMITED / MMM GROUP LIMITED</td>
<td>WINCHESTER ROAD, EAST AND WEST OF SIMCOE STREET NORTH / LOT 11 / CON 03</td>
<td>O20-013-GH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF STORM OUTFALL CHANNELS AND HEAD WALL INCLUDING RESTORATION AND REVEGETATION OF AREA.</td>
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<td>OSHAWA</td>
<td>CITY OF OSHAWA</td>
<td>LOT 05 / CON 01</td>
<td>O20-016-A</td>
<td>TREE CLEARING (NO GRUBBING OR EXCAVATION) IN ADVANCE OF WATERCOURSE IMPROVEMENT WORKS - HARMONY CREEK BRANCH AT FAREWELL (PARK TO KING STREET EAST)</td>
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<td>ONTARIO-INFRASTRUCTURE / ENBRIDGE PIPELINES INC.</td>
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<td>BELL / PLANVIEW</td>
<td>TOWNLINE ROAD N AND NASH ROAD / LOT 01 / CON 02</td>
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<td>CANADA CHRISTIAN COLLEGE / D.G. BIDDLE &amp; ASSOCIATES</td>
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<td>TOWN OF WHITBY / GOLDER ASSOCIATES</td>
<td>HARBOUR STREET / LOT 25 / CON BFC</td>
<td>W20-029-W</td>
<td>GEOTECHNICAL INVESTIGATION - 8 BOREHOLES BETWEEN 5M AND 7.5M DEPTH WITHIN UNOPENED ROAD ALLOWANCE. NO TREE REMOVALS PERMITTED.</td>
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DATE: May 12, 2020
FILE: RPRG3974
S.R.: 5688-20
TO: Chair and Members, CLOCA Board of Directors
FROM: Chris Jones, Director, Planning & Regulation
SUBJECT: Permits Issued for Development, Interference with Wetlands and Alteration to Shorelines and Watercourses – March 1 to April 30, 2020

Attached are Development, Interference with Wetlands and Alterations to Shorelines and Watercourses applications, pursuant to Ontario Regulation 42/06, as approved by staff and presented for the members’ information.

RECOMMENDATION:
THAT Staff Report #5688-20 be received for information.
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<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH DEMOLISHING EXISTING HOUSE, GARAGE AND POOL AND CONSTRUCTING A NEW SINGLE FAMILY DWELLING WITH 3 CAR ATTACHED GARAGE, SEPTIC SYSTEM AND NEW INGROUND POOL .</td>
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<td>C20-038-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF AN ATTACHED GARAGE AND ATTACHED SUN-ROOM TO EXISTING ONE STORY HOME.</td>
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<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH ADDITION TO EXISTING DWELLING, PAVING OF EXISTING DRIVEWAY AND PARKING AREAS, AND REPLACEMENT OF SEPTIC BED IN EXISTING LOCATION</td>
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<td>PROPERTY OWNER</td>
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<td>FAREWELL CREEK / LOT 34 / CON 02</td>
<td>C20-044-H</td>
<td>TREE / VEGETATION REMOVALS ASSOCIATED WITH FUTURE PEDESTRIAN TRAIL CONSTRUCTION.</td>
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<td>PINEDALE CRESCENT / LOT 35 / CON 02</td>
<td>C20-047-G</td>
<td>GEOTECHNICAL BOREHOLE INVESTIGATION TO DETERMINE STABILITY OF SLOPE FOR PROPOSED MULTI USE PATH.</td>
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<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF A NEW WOOD FRAME SINGLE FAMILY DWELLING AND A C/W FILTER BED SEPTIC SYSTEM.</td>
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<td>GAY COMPANY LIMITED</td>
<td>13 DARLINGTON BLVD / LOT 34 / CON 02</td>
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<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE REMOVAL OF TREES AND VEGETATION WITHIN THE REGULATED AREA AND WETLAND COMMUNITY.</td>
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<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH 2 STOREY WOOD FRAME ADDITION AND GARAGE TO EXISTING SINGLE FAMILY DWELLING.</td>
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<td>CB POOLS AND SPA</td>
<td>76 KILPARKTIC COURT / LOT 16 / CON 01</td>
<td>C20-057-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH INSTALLATION OF A SWIMMING POOL.</td>
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<td>16</td>
<td>OSHAWA</td>
<td>THE REGIONAL MUNICIPALITY OF DURHAM / AECOM CANADA LTD</td>
<td>HARMONY ROAD, N AND S OF HOSKINS BRIDGE / LOT 04 / CON 01</td>
<td>C20-031-G</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH WIDENING HARMONY ROAD NORTH AND SOUTH OF HOSKINS BRIDGE (DOES NOT INCLUDE WIDENING OF BRIDGE).</td>
</tr>
<tr>
<td>17</td>
<td>OSHAWA</td>
<td>PROPERTY OWNER</td>
<td>2148 AVAILON COURT / LOT 10 / CON 05</td>
<td>C20-032-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION/INSTALLATION OF AN INGROUND POOL.</td>
</tr>
<tr>
<td>18</td>
<td>OSHAWA</td>
<td>PROPERTY OWNER</td>
<td>777 BAYLA COURT / LOT 06 / CON 03</td>
<td>C20-035-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF AN ADDITION ONTO THE EXISTING SINGLE FAMILY DWELLING.</td>
</tr>
<tr>
<td>19</td>
<td>OSHAWA</td>
<td>ENBRIDGE GAS INC.</td>
<td>LOT 11 / CON 04</td>
<td>C20-037-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH GAS PIPELINE INSTALLATION.</td>
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<tr>
<td>20</td>
<td>OSHAWA</td>
<td>ONTARIO TECH UNIVERSITY</td>
<td>2000 SIMCOE ST. N. / LOT 13 / CON 04</td>
<td>C20-048-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH NEW CONCRETE PAD AND WATER COOLED COOLING TOWER AT THE GROUND LEVEL OF ACE FACILITY.</td>
</tr>
<tr>
<td>21</td>
<td>OSHAWA</td>
<td>POOIL DEVELOPMENTS</td>
<td>1569 SIMCOE STREET NORTH / LOT 10 / CON 04</td>
<td>C20-053-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH REMOVAL OF CONCRETE, STEEL AND ASPHALT FROM RIVER AND BANKS AND RESTORATION OF NATURAL PLANTINGS, INSTALLATION OF WERS AND EMBANKMENT PLANTINGS.</td>
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<tr>
<td>22</td>
<td>OSHAWA</td>
<td>PROPERTY OWNER</td>
<td>148 STEVENSON ROAD SOUTH / LOT 15 / CON 03</td>
<td>C20-054-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH INTERIOR ALTERATIONS TO A THREE UNIT APARTMENT COMPLEX.</td>
</tr>
<tr>
<td>23</td>
<td>OSHAWA</td>
<td>ROGERS COMMUNICATIONS</td>
<td>268 STREET AND WAVELIVERY STREET / LOT 14 / CON 01</td>
<td>C20-066-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE DIRECTIONAL BORE INSTALLATION OF A COMMUNICATION CONDUIT.</td>
</tr>
<tr>
<td>24</td>
<td>WHITBY</td>
<td>THE CORPORATION OF THE TOWN OF WHITBY / CMA</td>
<td>TAUNTON ROAD WEST AND DES NEWMAN BLVD / LOT 33 / CON 03</td>
<td>W19-197-FH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH INTERSECTION IMPROVEMENTS, WATERMARK AND SANITARY SEWER CROSSING.</td>
</tr>
<tr>
<td>25</td>
<td>WHITBY</td>
<td>THE CORPORATION OF THE TOWN OF WHITBY / GED MORPHAX LTD</td>
<td>LYNE CREK AT ASHBURN ROAD / LOT 26 / CON 09</td>
<td>W19-209-A</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH INSTALLING ARMOURSTONE AND STONE PROTECTION AT CULVERT, AND NATURALIZED VEGETATED BANK TREATMENT TO ADDRESS ONGOING EROSION.</td>
</tr>
<tr>
<td>26</td>
<td>WHITBY</td>
<td>STAFFORD HOMES LTD.</td>
<td>401 REYNOLDS STREET / LOT 25 / CON 01</td>
<td>W20-034-G</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH GRADING AND CONSTRUCTION OF A SALES CENTRE.</td>
</tr>
<tr>
<td>27</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>53 ROMA DRIVE / LOT 32 / CON 03</td>
<td>W20-046-B</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF A NEW DECK ON THE REAR OF AN EXISTING SINGLE FAMILY DWELLING.</td>
</tr>
<tr>
<td>28</td>
<td>WHITBY</td>
<td>ENBRIDGE GAS INC</td>
<td>LOT 33 / CON 03</td>
<td>W20-050-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH GAS PIPELINE INSTALLATION.</td>
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<tr>
<td>29</td>
<td>WHITBY</td>
<td>MINTO (ROSSLAND) INC./COLE ENGINEERING GROUP LTD.</td>
<td>1542 ROSSLAND ROAD EAST / LOT 21 / CON 03</td>
<td>W20-056-GH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH SITE ALTERATION, TOPSOIL STRIPPING AND EARTHWORKS.</td>
</tr>
<tr>
<td>30</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>12 CALISTOGA DRIVE / LOT 24 / CON 08</td>
<td>W20-058-GH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF A NEW DETACHED GARAGE.</td>
</tr>
<tr>
<td>31</td>
<td>WHITBY</td>
<td>LAZY DOLPHIN DEVELOPMENT INC./ SCS CONSULTING GROUP LTD.</td>
<td>725 TAUNTON ROAD WEST / LOT 33 / CON 03</td>
<td>W20-060-GH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH INSTALLATION OF NEW WATERMAN ON TAUNTON ROAD, EAST OF CORONATION ROAD, VIA HORIZONTAL DIRECT DRILLING.</td>
</tr>
<tr>
<td>32</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>30 BROMDALE CRESCENT / LOT 34 / CON 02</td>
<td>W20-061-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE INSTALLATION/CONSTRUCTION OF AN INGROUND POOL, DECK AND CABANA AND ASSOCIATED LANDSCAPING.</td>
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<tr>
<td>33</td>
<td>WHITBY</td>
<td>SCENIC VIEW</td>
<td>4755 COUNTRY LANE / LOT 30 / CON 07</td>
<td>W20-062-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION / INSTALLATION OF AN INGROUND POOL.</td>
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<tr>
<td>34</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>15 MYRTLE ROAD WEST / LOT 21 / CON 08</td>
<td>W20-064-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH DEMOLISHING EXISTING GARAGE AND CONSTRUCTING A NEW GARAGE.</td>
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<tr>
<td>35</td>
<td>WHITBY</td>
<td>ROGERS COMMUNICATIONS CANADA INC.</td>
<td>HAWKSTONE CRESCENT / LOT 18 / CON 01</td>
<td>W20-072-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH DIRECTIONAL BORE 60M OPEN TRENCH 2M AND INSTALL NEW 1.5&quot; CONDUIT.</td>
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</tbody>
</table>
Purpose
The purpose of this report is to summarize the new Provincial Policy Statement, 2020, following the provincial review that CLOCA took part of, which took place in the summer and fall of 2019.

Background: The Provincial Policy Statement
CLOCA participated in the provincial review of the Provincial Policy Statement (PPS) by endorsing a set of comments presented by staff in Report 5661-19, which was considered at the September 17, 2019 Board of Directors meeting and subsequently posted to the Environmental Registry of Ontario.

The PPS is a consolidated statement of the Ontario government’s policies on land use planning and is issued under section 3 of the Planning Act. It applies province-wide and sets out the provincial policy direction for:

- The efficient use and management of land and infrastructure;
- Ensuring the provision of sufficient housing to meet changing needs, including affordable housing;
- Protecting the environment and resources including farmland, natural resources (e.g., wetlands and woodlands) and water;
- Ensuring opportunities for economic development and job creation;
- Ensuring the appropriate transportation, water, sewer and other infrastructure is available to accommodate current and future needs; and
- Protecting people, property and community resources by directing development away from natural or human-made hazards – such as flood prone areas.

Municipal Councils must ensure that their decisions that affect planning matters are consistent with the PPS. CLOCA, as public commenting body, must also ensure that its comments on planning matters are consistent with the PPS. Through a memoranda of understanding, the ministries of Municipal Affairs and Housing, Natural Resources and Forestry and Conservation Ontario, CLOCA represents the “provincial interest” with respect to the natural hazards policies in the PPS as an integrated public commenting body as part of the land use planning system in Durham Region.

In July, 2019 the Ministry of Municipal Affairs and Housing initiated a review of the PPS. The province consulted on proposed changes to the Provincial Policy Statement to support the government’s Housing Supply Action Plan and other land use planning related priorities. Of particular note for CLOCA’s interests, were the policies in the consultation draft of the PPS related to natural hazards that were subject to review by the Province’s previously appointed Special Advisor on Flooding. In his final report to the government, the Special Advisor on Flooding, Mr. Douglas McNeil, P.Eng., made the following relevant recommendations (see also Attachment No.1):

Cont’d
“Recommendation 3#
That the following be incorporated into the Provincial Policy Statement:

- The references to ‘impacts of a changing climate’ throughout the Provincial Policy Statement helps to bring it to everyone’s attention and should be included in the Preamble as well.

- Either in the body of the PPS or in the definitions section, reference should be made specifically to the requirement for conservation authorities to regulate development activities in hazardous lands as required in the Conservation Authorities Act. …”

CLOCA’s 2019 comments supported the proposed stronger climate change directions in the draft consultation PPS and highlighted a potential concern regarding changes to language around flood risks associated with storm water management planning.

Finalized PPS: Provincial Policy Statement, 2020
On February 28, 2020, the Ministry of Municipal Affairs and Housing released a final PPS document, the Provincial Policy Statement, 2020 to take effect on May 1, 2020. Key changes to the document, as described by the ministry, include:

- Adding further references to support a changing climate and green infrastructure
- Adding policy direction that is responsive to the recommendations of the province’s Special Advisor on Flooding.
- Increasing the minimum requirement for housing land supply to 15 years
- Clarifying the policies related to market-based housing by adding a reference to affordable housing
- Providing flexibility for municipalities to consider residential development on rural lands that is locally appropriate, including lot creation
- Enhancing land use compatibility policies for sensitive land uses.

Analysis
The most significant change with relevance to CLOCA’s regulatory and policy interests is an addition to the preamble to Section 3.0, Protecting Public Health and Safety. The following has been added to the document, as highlighted in the Attachment No. 2 to this Report:

“Mitigating potential risk to public health or safety or of property damage from natural hazards, including risks that may be associated with the impacts of a changing climate, will require the Province, planning authorities, and conservation authorities to work together.”

Adding a reference to the role of conservation authorities directly in Section 3.0 of the PPS is a critical improvement, which reinforces the critical and integrated role that conservation authorities play in the planning and development process in Ontario. It is staff’s experience and opinion that mitigation of risk does require the Province, planning decision-makers and conservation authorities to work together and fully support this new language. No changes were made with respect to the other detailed natural hazard provisions of Section 3.0 of the PPS, which reflects the longstanding nature of these policies, most of which originate from a 1988 flood plain planning policy statement, yet still require full municipal implementation through zoning by-laws, for example.
Staff also support and endorse the stronger language throughout the document related to the urgent need to plan now for the impacts associated with a changing climate and the importance of continued watershed planning, including “evaluating and preparing for the impacts of a changing climate to water resource systems at the watershed level” [new policy 2.2.1 c)].

With respect to the previously expressed concerns regarding changes to the storm water management policies, provincial staff have advised that the new language is intended to be a stronger test that require a reduction of risk from current conditions: “Planning for storm water management shall mitigate risks to human health, safety, property and the environment…” [new policy 1.6.6.7 d)]

The full document may be viewed at Ontario.ca/pps. The Special Advisor on Flooding report may be viewed in full at Ontario.ca/flood report

**Conclusion**

Improvements have been made in PPS, 2020 in relation to CLOCA’s interests with respect to climate change, managing water at a watershed scale, and reinforcing conservation authorities’ role in Section 3.0, Protecting Public Health and Safety.

**RECOMMENDATION:**

*THAT the commentary contained in Staff Report #5685-20 received for information.*

CJ/lv
Attachment 1 - Excerpt from Special Advisor on Flooding Report Recommendations
Attachment 2 - Excerpt from PPS, 2020
**Recommendations**

Author's note: Implementation of many of the recommendations in this report are focused on agencies outside the jurisdiction or control of the Ministry of Natural Resources and Forestry (MNRF). In those cases, I would expect that the MNRF can initiate discussions with the particular agency to try and seek agreement for implementation, in full or in part.

<table>
<thead>
<tr>
<th>Recommendation #1</th>
<th>That the MNRF proceed as expeditiously as possible to finalize its proposed regulation under the <em>Conservation Authorities Act</em> and submit it to Cabinet for approval.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation #2</td>
<td>That the MNRF consult with the conservation authorities on their application of the hazards-based approach and the risk-based approach to managing flooding.</td>
</tr>
</tbody>
</table>

**Recommendation #3**

That the following be incorporated into the Provincial Policy Statement:

- The reference to “impacts of a changing climate” throughout the Provincial Policy Statement helps to bring it to everyone’s attention and should be included in the Preamble as well.

- Either in the body of the PPS or in the definitions section, reference should be made specifically to the requirement for conservation authorities to regulate development activities in hazardous lands as required in the *Conservation Authorities Act*.

- That “d) Transportation and Infrastructure Corridors, Airports, Solid and Liquid Waste Management” be added to Section 3.1.5 of the Provincial Policy Statement.

**Recommendation #4**

That the MNRF update floodplain mapping technical and implementation guidelines recognizing new technology and approaches for flood hazard and flood risk mapping, and that the MNRF collaborate with conservation authorities on this initiative.
3.0 Protecting Public Health and Safety

Ontario's long-term prosperity, environmental health and social well-being depend on reducing the potential for public cost or risk to Ontario's residents from natural or human-made hazards.

Development shall be directed away from areas of natural or human-made hazards where there is an unacceptable risk to public health or safety or of property damage, and not create new or aggravate existing hazards.

Mitigating potential risk to public health or safety or of property damage from natural hazards, including the risks that may be associated with the impacts of a changing climate, will require the Province, planning authorities, and conservation authorities to work together.

Accordingly:

3.1 Natural Hazards

3.1.1 Development shall generally be directed, in accordance with guidance developed by the Province (as amended from time to time), to areas outside of:

a) hazardous lands adjacent to the shorelines of the Great Lakes - St. Lawrence River System and large inland lakes which are impacted by flooding hazards, erosion hazards and/or dynamic beach hazards;

b) hazardous lands adjacent to river, stream and small inland lake systems which are impacted by flooding hazards and/or erosion hazards; and

c) hazardous sites.

3.1.2 Development and site alteration shall not be permitted within:

a) the dynamic beach hazard;

b) defined portions of the flooding hazard along connecting channels (the St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers);

c) areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard; and

d) a floodway regardless of whether the area of inundation contains high points of land not subject to flooding.

3.1.3 Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards.

3.1.4 Despite policy 3.1.2, development and site alteration may be permitted in certain areas associated with the flooding hazard along river, stream and small inland lake systems:
MEMO TO: Chair and Members, CLOCA Board of Directors
FROM: Chris Jones, Director of Planning and Regulation
       John Hetherington, Regulation and Provincial Offences Officer
SUBJECT: Application for Development Pursuant to Ontario Regulation 42/06

APPLICANT (OWNER): Colin & Cindy Duthie

APPLICATION(S): To demolish an existing one storey frame dwelling and garage structure and erect a new 2 storey frame dwelling.

LOCATION OF SITE: 67 Cedar Crest Beach Road, Port Darlington
                    Part of Lot 13, Broken Front Concession, Municipality of Clarington (Formerly Darlington Township)

WATERCOURSE DESCRIPTION: Westside Creek/Lake Ontario

ELEVATION OF SITE: Approximately 74.73 to 76.12 Metres Above Sea Level (MASL)

FLOODLINE ELEVATION: 76.4 MASL for the Westside Creek Regional Storm
                      77.3 MASL for the Lake Ontario 1:100 year lake level

CURRENT OFFICIAL PLAN DESIGNATION (REGION): Greenlands System – Waterfront Areas

CURRENT OFFICIAL PLAN DESIGNATIONS (MUNICIPALITY): Environmental Protection Area (Map A3)
                                                      Regulatory Shoreline Area (Map F1)
                                                      Flood Plain (Map F1)

CURRENT ZONING: Residential Shoreline (RS) / Environmental Protection (EP)

CURRENT LAND USE: Residential

EXISTING AUTHORITY POLICY: Policy and Procedural Document for Regulation and Plan Review policies for the Lake Ontario Shoreline and Streams including Shoreline Flood Hazard (4.3), Shoreline Erosion Hazard (4.4), Dynamic Beach Hazard (4.5), Lake Ontario Shoreline Protection Works (4.6), Flooding Hazard (5.4), Floodproofing (5.5) and Safe Access/Egress (5.6)

Cont’d
FACTORs INFLuencing RECOMMENDATiOn:

HAZARDOUS LANDS CONTEXT

The subject property is situated on a low-lying sand barrier beach dynamic beach backed by the Westside Creek Coastal Wetland along the shoreline of Lake Ontario. The subject property is affected by multiple overlapping natural hazards associated with the Lake Ontario shoreline and the Westside Creek. These hazards include the flooding and erosion hazards from Lake Ontario and riverine flooding hazards from Westside Creek.

Using the latest available information, the 1:100 year Lake Ontario flood level for the property, incorporating factors associated with Lake Surge and Lake Wave Uprush, has been determined to be 77.74 metres above sea level. The Westside Creek Regional Storm flood elevation at Cedar Crest Beach Road is mapped as 76.7 metres above sea level.

The 100 year erosion setback from the Lake Ontario Shoreline has been determined to be 36 metres, however, as the subject lands are on top of a sand barrier dynamic beach, the entirety of the property is located within an erosion hazard associated with the barrier dynamic beach.

A topographic survey submitted in support of the application indicates that elevations on the property above the existing shoreline protection (concrete retaining wall) range from a low of 75.79 metres above sea level to a high of 76.12 metres above sea level. Accordingly, flood depths associated with Lake Ontario range from 1.53 metres to 1.20 metres in depth (4.5 feet to 4.0 feet). Flood depths associated with Westside Creek flooding in the event of a Regional Storm range from 0.61 metres to 0.28 metres (2 feet to 1 feet).

The Lake Ontario and Westside Creek flood hazards also overtop Cedar Crest Beach Road beyond the Ministry of Natural Resources and Forestry’s allowable depth criteria of 0.4 m, which means that there is no safe access to the subject property in the event of a flooding emergency at the regulatory flood level.

LAND USE PLANNING CONTEXT

The Provincial Policy Statement, 2020, (PPS, 2020) which took effect on May 1, recognizes that Ontario’s long-term prosperity, environmental health and social well-being depend on reducing the potential for public cost or risk to Ontario’s residents from natural hazards. Further, “development shall be directed away from areas of natural… hazards.” In addition, PPS, 2020 recognizes that implementation of its natural hazard directions “will require the Province, planning authorities, and conservation authorities to work together.” Specifically, the PPS, 2020 directs that development shall not be permitted within the dynamic beach hazard or areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard. The application is not consistent with the policies of PPS, 2020.

The Regional Official Plan also states that development and site alteration are not permitted within the dynamic beach hazard, or areas that would be rendered inaccessible to people and vehicles during times of flooding. The Regional Official Plan first identified the subject property as subject to natural hazards when the first Plan was adopted in 1976. The application does not conform to the policies of the Regional Official Plan.

The Clarington Official Plan designates the subject property as Environmental Protection and provides that development is not permitted on Environmental Protection lands. Under the Clarington Official Plan, the lands are also within the Regulatory Shoreline Area. The construction of new buildings or structures of any type is not permitted. The application does not conform to the policies of Clarington Official Plan.

Cont’d
The majority of the subject property (save for a sliver of land along the Lake Ontario shoreline, which is zoned Environmental Protection) is zoned “Residential Shoreline” on Schedule 3B to By-law 84-63 of the Municipality of Clarington. The zoning by-law (enacted in 1984) is the implementing by-law for official plans and does not conform to or implement the existing natural hazard planning policy direction at the provincial, regional and local municipal level. The application conforms to the Residential Shoreline zone regulation requirements.

CLOCA DEVELOPMENT POLICY

CLOCA’s Board-adopted Policy and Procedural Document for Regulation and Plan Review establishes policy direction and guidance for the review of applications for development under CLOCA’s Conservation Authorities Act Section 28 Regulation, Ontario Regulation 42/06. Given the numerous natural hazards present, policies for both the Lake Ontario Shoreline and riverine streams systems apply. These include: Shoreline Flood Hazard (4.3), Shoreline Erosion Hazard (4.4), Dynamic Beach Hazard (4.5), Lake Ontario Shoreline Protection Works (4.6), Flooding Hazard (5.4), Floodproofing (5.5) and Safe Access/Egress (5.6). Policies for development within the dynamic beach hazard indicate that reconstruction of an existing building within the dynamic beach hazard may be permitted as long as the reconstruction is not for a dwelling/structure that was destroyed by erosion or flooding (Policy 4.5.1.5 i). Given that, the proposed dwelling is a reconstruction of a dwelling that was destroyed due to a flooding event; the application does not conform to this aspect of the CLOCA development policy.

PROPOSAL

The Owners, who purchased the property in 2018, approached CLOCA for a permit in the summer of 2019 following a claim to their insurance company, which was made following damage to the dwelling during the Lake Ontario flooding events of spring 2019. The assessment of the insurance company’s agents was that the dwelling had been destroyed due to flooding. It is not clear to CLOCA staff if the damage was due solely from the flooding event of 2019 or the flooding event of 2017.

The original structure on the subject property was very likely a seasonal cottage that had been expanded over time. For example, existing floor beams on portion of the dwelling were damaged in part, as they were lain directly upon the sand beach, which had become inundated with flood waters. As of 2019, the existing dwelling was composed of a structures built at various dates that were located close to the shoreline and abutting residences.

The challenges associated with the existing condition are that the dwelling was not flood protected and due to its various construction could not be raised to be made safe. In addition, the closeness to the shoreline and adjacent dwellings prevents the access of equipment to maintain or reconstruct the existing shoreline protection wall. Further, the existing condition did not conform to the necessary setbacks and requirements of the Residential Shoreline zone.
EXISTING CONDITION PLAN OF SURVEY, PHOTO AND AXIOMETRIC DRAWING

Existing Condition Plan of Survey

Photo Looking South from Cedar Crest Beach

Axiometric Projection

Cont’d
CLOCA, in collaboration with Municipality of Clarington Staff, provided joint comments on the application on January 10, 2020 following a period of site investigation, assessment and review. It was determined that it was not feasible to repair or raise the existing structure in any manner. Outside of the option of recommending refusal of the application (which, due to the damages to the existing structure, would deprive the Owners of a residential use without compensation), staff requested the Owners to revise their plans to conform to the existing zoning regulations and floodproof the dwelling above the governing Lake Ontario flood elevation. Drawings to this effect were received on April 22, 2020.

**PROPOSED SITE PLAN, NORTH AND SOUTH ELEVATIONS**

**Proposed Site Plan**

**North Elevation**

**South Elevation**

Cont’d
The proposed residence is flood protected through an elevated structure on piers. The setback from the Lake Ontario shoreline erosion hazard has been maximized to the extent possible, which represents a managed retreat in comparison to the existing condition. The habitable space has been maintained and not expanded over the existing condition. The existing structures have a useable footprint of 129.23 m² (1391 square feet), the proposed structure has a footprint of 128.67 m² (1384 square feet). Accessory structures in the form of a garage and shed have been removed in order to conform with zoning requirements.

ANALYSIS

The location of the subject property on a low-lying sand barrier beach surrounded by waters to the north and south, which have, and will continue to, flood along with the erosive potential of the sand underlying the lands makes the subject property unsuitable and unsafe for residential development. This is verified through the assessment of the Owners insurance company that the existing dwelling was destroyed due to flooding event(s) of 2019 and potentially 2017. This reality is in competition with the fact that the subject lands are privately owned for residential purposes and are currently partially zoned for “Shoreline Residential” uses. Official plans applicable to the subject property, which recognize and provide policy directions, related to the flooding and erosion natural hazards (beginning with the 1976 Regional Official Plan) have yet to be implemented with appropriate zoning regulations.

The 1:100 year flood level for Lake Ontario is located on the subject property; however, the new structure has been designed to withstand vertical and horizontal hydrostatic pressures.

The proposed works, for the most part, would be situated within the 100 year erosion setback limit of Lake Ontario and are entirely within the dynamic beach hazard. Setting the house back to the greatest extent possible from the Lake Ontario shoreline is an improvement over the existing structure.

Safe Access/Egress
During a Regional Storm flood event, water depths over Cedar Crest Beach Road exceed allowable depth criteria (<0.4 m) for safe access/egress. As such, the site does not have safe access in the event of a regulatory flood event from either Lake Ontario or Westside Creek.

Construction in Flood Plains
The Building Code Act requires that construction within the flood plain must be approved by an Engineer prior to development. As such, it is necessary for the proponent to provide evidence that the proposed additions can withstand horizontal and vertical hydrostatic pressures under Regional Storm conditions.

Shoreline Erosion Protection
The Owners have submitted a coastal engineering report confirming that the existing shoreline protection is functional with minor improvements proposed in relation to protection from erosion due to wave uprush. This report has been prepared to the satisfaction of CLOCA staff.

Statutory Tests of Review
Subsection 3 (1) of Ontario Regulation 42/06 provides that:

“The Authority may grant permission for development … if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development.”

Cont’d
As discussed in this report, the subject property contains flood hazards from Lake Ontario and Westside Creek. Erosion hazards are present due to the location of the subject property fronting on Lake Ontario. The subject property is located on a barrier beach dynamic beach. It is staff’s opinion that the applicant’s development proposal addresses the tests of Subsection 3 (1) of the Regulation to the extent possible given the specific set of circumstances associated with the subject property explored in this report.

CONCLUSION

The subject property will remain unsafe and is unsuitable for residential development. In the absence of any alternative to acquire the lands and given the existence of existing residential zoning that does not conform to provincial natural hazard policy and the current official plan documents, CLOCA and Municipality of Clarington staff have worked with the Owners to mitigate the existing hazards to the extent possible in the unique context of a structure that could not be rehabilitated and which was destroyed due to a flood event. Examples of risk mitigation achieved through the proposal include: moving the structure back from the Lake Ontario shoreline to the extent possible; raising the dwelling above the regulatory flood levels for both Lake Ontario and Westside Creek; limiting the new dwelling to the size of the existing structure; requiring the replacement dwelling to conform to the existing zoning regulations including the required side yard setbacks, which will facilitate access to the shoreline protection for future repair and replacement. Risk to property damage has been reduced over the existing condition.

Given the overlapping natural hazards present and provincial natural hazard management directions and lack of safe access to people and vehicles in the time of a flooding and/or dynamic beach emergency, the recommendation below should not be viewed as a template for the remainder of the neighborhood. A condition has been proposed requiring the Owners enter into a Save Harmless Agreement with respect to CLOCA’s liability associated with the permit approval.

RECOMMENDATIONS:

THAT staff Report #5690-20 be received for information; and
THAT the application be approved subject to the following conditions:

1) The project shall be carried out according to the plans and specifications submitted in support of the application, as they may be amended by the following conditions.
2) The finished floor elevation of the habitable living area is to be located at a minimum of 77.62 metres (Canadian Geodetic Vertical Datum 2013)
3) A Professional Engineer shall provide confirmation in writing, that the plans, design and construction drawings submitted in support of the application will withstand anticipated horizontal and vertical hydrostatic pressures acting on the structure.
4) Prior to the issuance of a permit, the approved plans for works within the flood plain shall be stamped by a Professional Engineer.
5) A Professional Engineer shall provide written verification that the works were completed in accordance with the approved plans, prior to the expiry of the permit.
6) Prior to the issuance of a permit, the owner agrees to enter into a Save-Harmless Agreement with the Authority, to be registered on title at the owner’s expense.
7) All disturbed areas shall be seeded, sodded or stabilized in some other manner acceptable to the Authority.
Background
With the recent enhancement of our restoration program, it is important that CLOCA has an effective process to guide our restoration efforts. The Conservation and Restoration Planning Framework (see Attachment 1) was created to improve successful implementation of conservation and restoration projects by providing a systematic, comprehensive, and consistent process that links actions to results and ultimate outcomes. The Framework will ensure that projects align with our strategic priorities, and that resources dedicated to conservation and restoration projects are used wisely and result in the biggest ecological return from the investment.

The Framework
The Framework is largely based on the Open Standards for the Practice of Conservation, which was developed internationally by conservation professionals, and combines principles and best practices in adaptive management and results-based management.

The framework is organized into 8 steps.
1) Identify Project
   a. Select project based on various management plans and CLOCAs Restoration Prioritization Tool.
2) Review Background Information
   a. Collect and review background information and knowledge to identify existing conditions and knowledge gaps.
3) Conceptualize
   a. Develop a project team and define their responsibilities.
   b. Define project scope and vision.
   c. Identify conservation targets, determine the ecosystem attributes that represent health of the targets, and decide what indicators will be used to measure them.
   d. Identify threats to targets and rate those threats based on their scope, severity and irreversibility.
   e. Create a conceptual model, a visual representation of the relationships between targets and threats and the factors that contribute to those threats.
4) Complete an Action Plan
   a. Set S.M.A.R.T. goals for each of the targets.
   b. Determine strategies that will be used to achieve the goals.
   c. Develop short-term S.M.A.R.T. objectives that detail outcomes necessary to achieve the goals.
   d. Identify the actions that will be taken to accomplish each strategy.
5) Develop a Monitoring Plan
   a. Identify the monitoring needs and requirements of stakeholders and regulatory agencies.
   b. Identify what components of the project need to be monitored and which indicators will be used to establish what data has to be collected.
   c. Determine what methods will be used to collect data.
6) Develop an Implementation Plan
   a. Outline a budget, complete detailed design work and obtain necessary permits.
   b. Prepare a work plan and timeline for completing actions.
After the completion of Step 6 the project plan is complete and the project is ready to implement. Steps 7 and 8 are completed following implementation.

7) Analysis and Adaptation
   a. Prepare data collected from monitoring work.
   b. Analyze the results of the data to determine whether objectives have been met and the goals have been achieved.
   c. Evaluate project success, and identify where adaptive changes need to be made.

8) Reporting and Data Sharing
   b. Share knowledge gained with a larger audience.
   c. Promote a learning environment through collaboration, feedback, innovation and sharing of successes and failures.

**CLOCA Strategic Plan Alignment**

**Communicate, Educate and Inspire**
- Sharing knowledge and results is an important part of the framework so that people know what CLOCA and project partners do to protect and enhance our watersheds.
- The framework process can identify actions that need to be completed by project partners to improve watershed health.

**Leaders in Integrated Watershed Management**
- The framework ensures that CLOCA works with watershed partners in a project team to implement science-based plans to protect, restore and enhance watershed health.
- The framework allows us to determine how to continue to monitor, manage and evaluate the health of our natural resources and implement management actions where and when necessary.

**Collaborate and Partner**
- The framework encourages partnership with community and government organizations to enhance watershed health and function through conservation and restoration projects.

**Advance Watershed Science and Knowledge**
- Information gained from projects using the framework will improve our knowledge of existing environmental conditions and how conditions change in response to action.
- The data and knowledge gained will be available to stakeholders, community partners, and outside organizations to improve our collective understanding of what actions work and do not work to protect and enhance the natural features in our watersheds.

**Summary**
The application and use of the Framework provides a consistent and effective approach to ecological conservation and restoration activities. Use of the framework supports CLOCA’s Strategic Plan Goals, and therefore helps to achieve Healthy Watersheds for Today and Tomorrow.

**RECOMMENDATION:**
**THAT Staff Report #5679-20 be received for information.**

JD/HP/lv
Attachment 1
s:\reports\2020\sr5679_20.docx
Conservation and Restoration Planning Framework

2019
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Introduction

The Conservation and Restoration Planning Framework (‘Framework’) was created to support achieving the successful implementation of conservation and restoration projects by providing a systematic, comprehensive, and consistent process that links actions to results and ultimate outcomes. It is largely based on the Open Standards for the Practice of Conservation (‘Open Standards’), which was developed by conservation professionals, combining principles and best practices in adaptive management and results-based management.

The framework has been organized into the following 8 steps for clarity and consistency.

1) Identify Project
2) Review Background Information
3) Conceptualize
4) Complete an Action Plan
5) Develop a Monitoring Plan
6) Develop an Implementation Plan
7) Analysis and Adaptation
8) Reporting and Data Sharing

This document is meant to serve as a general outline of these steps. The level of detail and complexity required for each step will depend on the size and scope of the project. It is recommended that the project lead reads the Open Standards and completes training so that they can familiarize themselves with the process.

The Open Standards can be downloaded here: http://cmp-openstandards.org/download-os/. This document provides an overview of the steps, examples for each step, and definitions of key terms and concepts.

Training in the form of guidance documents and presentations is available online at: http://cmp-openstandards.org/using-os/guidance/ and: https://www.conservationtraining.org/course/index.php?categoryid=38

A supporting presentation for this Framework can be found here: Conservation and Restoration Planning Framework Presentation.pptx

Step 1: Identify Project

1.1 Motivation

There are a number of reasons why you may want to complete a conservation or restoration project. For example, they may be ecological (e.g. protect ecosystem values and functions, improve ecosystem quality, conserve biodiversity), regulatory (e.g. habitat compensation, impact mitigation), related to ecosystem services (e.g. recreation, education, flood attenuation) or based on corporate objectives (e.g. strategic plan, mission). Identifying your motivation will help you to prioritize which project you would like to complete and then help to define your scope and shape your vision.
1.2 Prioritization
When identifying a priority project site you can use the Restoration Prioritization Tool if you are looking to identify a project in the CLOCA jurisdiction or a particular watershed. If you are looking to prioritize a project that is site specific, you will want to create prioritization criteria (e.g. ecological value, potential for success, funding opportunity) to help determine the best project to move ahead with. Whatever your prioritization criteria or method, it should reflect your motivation for pursuing a project.

Step 2: Review Background Information
The collection and review of background information and knowledge is essential to inform the planning process. All background information, data, documents and maps relevant to the project will need to be assimilated and catalogued. A reference list and copies of this information should be created and made available for the project team. From this information characterize the existing conditions and identify knowledge gaps. Where significant knowledge gaps exist, you may need to collect additional data at this point before beginning the next steps.

Step 3: Conceptualize
3.1 Project Team and Responsibilities
In this stage it will be important to develop a Project Team. This will include choosing a Project Lead; a staff member who will be responsible for organizing and leading the project and the team. A Core Team should then be identified consisting of key staff members involved in project planning and design. For larger projects a Technical Committee should be established with internal and external members with expertise related to the project. Stakeholders including government agencies, organizations, community groups, indigenous groups, and other individuals with knowledge of the site should also be identified.

Once the Project Team has been identified their roles and responsibilities will need to be determined. It must be decided at what stage and in what capacity team members will be involved in the process. It is important that all team members are consulted early and given the opportunity to contribute. Depending on the scope of the project, a Communication Strategy may be necessary. If necessary, communication staff should be included in the project team. You will then need to identify staff and requirements and resources for communicating the process, results, and adaptive changes to the public.

Many restoration projects require permits from government agencies. It is advisable to consult with these agencies at the beginning of this process to establish positive working relationships and to determine what information is needed for permit submission, what actions are within acceptable limits, and what actions may be unacceptable, before moving forward.

Working with stakeholders and permitting agencies throughout the planning process will result in a more inclusive project that is more efficient and garners more support.

3.2 Define Scope and Vision
The project’s Scope is the broad focus of the project or what you intend to affect. It may be geographic (e.g. a watershed or a wetland boundary) or it may be thematic (relates to a specific subject such as a species, threat or opportunity). If applicable, a map of the project area boundary should be created.
The **Vision** is a broad statement describing the desired future condition a project is aiming to achieve. It should be short, simple, and inspirational; and give a clear idea of where the project is heading.

### 3.3 Identify Conservation Targets

The next step is to define the overall **Conservation Targets**. These are the ecosystems, habitats, species, ecological processes, or ecosystem services that are the focus of the project. If relevant, you may also need to include **Human wellbeing Targets** (e.g. physical, mental and spiritual health). You will need to collaborate as a project team to choose a select number of Conservation Targets that fully represent the breadth of the project. These are the basis for setting goals, carrying out actions and measuring project success.

#### 3.31 Ecological Attributes

Once conservation targets have been established you will need to be able to define the health of that target. This can be done by identifying key **Ecological Attributes** (i.e. wildlife communities, water quality, presence of species at risk); aspects of the target that are measurable and sensitive to a disturbance gradient.

Table 1: Example of Ecological Attributes identified for a Conservation Target.

<table>
<thead>
<tr>
<th>Conservation Target</th>
<th>Ecological Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marsh community</td>
<td>Water Quality</td>
</tr>
<tr>
<td></td>
<td>Amphibian Community</td>
</tr>
<tr>
<td></td>
<td>Breeding Bird Community</td>
</tr>
<tr>
<td></td>
<td>Fish Community</td>
</tr>
<tr>
<td></td>
<td>Macroinvertebrate Community</td>
</tr>
<tr>
<td></td>
<td>Aquatic Vegetation Community</td>
</tr>
<tr>
<td></td>
<td>Sediment Quality</td>
</tr>
</tbody>
</table>

#### 3.32 Indicators

We can measure Ecological Attributes by selecting **Indicators** that are specific measurable characteristics of the attribute (e.g. turbidity of water) or a collection of characteristics combined into an index (e.g. water quality index). In addition to being measurable and specific to the ecological attribute, a good indicator should show detectable changes in response to restoration or conservation actions. The indicator should also be able to be feasibly and affordably monitored over the long term. Once established, indicator values will give you the current status of each ecological attribute and conservation target.
Table 2: Example of Indicators used as measurable characteristics of an Ecological Attribute.

<table>
<thead>
<tr>
<th>Conservation Target</th>
<th>Ecological Attribute</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marsh community</td>
<td>Water quality</td>
<td>Water Quality Index</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turbidity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Nitrogen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conductivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Phosphorus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dissolved Oxygen</td>
</tr>
</tbody>
</table>

3.4 Identify and Rate Threats

In this step you will identify the Direct Threats that influence your conservation targets. Threats are typically human influences that degrade a target. Identifying threats is important for a number of reasons:

- to understand how threats contribute to the current and future status of conservation targets
- to ensure that indicators are sensitive to threats and therefore sensitive to restoration and conservation actions
- to adapt to emerging issues and ensure indicators continue to be appropriate representations of health
- to aid in decision making process about whether to intervene

This is meant to be a high level exercise where you identify the most pressing and widespread threats that will be most important to address. Team members will identify threats related to their area of expertise. The IUCN Threat Classification Scheme can be used as a starting point and reference (IUCN, 2019).

Once threats have been identified, a threat rating can be applied to each threat-target combination. Threat Ratings are based on the Scope of the threat (proportion of the target affected), the Severity of the threat (level of damage to the target) and the Irreversibility of the threat (degree to which threat may be undone). Scope and Severity scores combine to give a Magnitude. Magnitude and irreversibility scores combing to give a total Threat Ranking (see Appendix A).

3.5 Conceptual Model

The Conceptual Model is important to gain an understanding of the context of the project. The first step in this process is to identify the Contributing Factors – the root causes or drivers of threats (indirect threats), the conditions that allow threats to continue and worsen, and the opportunities for positive effects. Factors may be social, economic, cultural or political in nature. Each of these factors can be linked to stakeholders. An analysis of stakeholders will help you to identify their primary interests and values. Stakeholder interests will affect your ability to carry out conservation and restoration actions and will influence whether those actions are successful.
The second step is to create a visual Conceptual Model (Figure 1). This will capture the relationships between Contributing Factors, Direct Threats, and Conservation Targets. It will be used to illustrate the main cause and effect relationships within the scope of your project. It will also help you identify the best strategies and activities to achieve your goals and objectives. Once your model is created it will be important to get feedback from stakeholders to ensure you have considered all important aspects.

**Step 4: Complete an Action Plan**

**4.1 Set Goals**

At this point you will begin to clarify what you would ultimately like to accomplish by setting Goals. Goals are statements that detail the desired future status of your conservation targets over the long term. The work you did in the Conceptualize step will help you to set good Goals for each conservation target you have identified. The Ecological Attributes represent what you need to have a healthy target and the Indicators represent what you can measure. Your goals should be specific (clearly defined), measurable, time limited (achievable within a specified period of time), and impact oriented (achieve positive change to indicators).

Where possible, your approach should involve a reference ecosystem and compare your indicators in relation to that ecosystem. Where no reference ecosystem exists, you may decide to set goals based on existing published guidelines (e.g. Canadian Water Quality Guidelines for the Protection of Aquatic Life) or expert opinion. Regardless, your goals should be based upon credible scientific criteria. Due to the natural variation that occurs with most ecological systems, you may want to determine success based on broader averages or trends.

Avoid shifting baseline syndrome by setting an absolute reference point, determining how existing conditions compare to the reference system or criteria, and then deciding what you think is achievable.

**4.2 Determine Strategies**

Once you have identified your goals you need to determine what Strategies you will use to achieve those goals. Strategies are actions that reduce threats, capitalize on opportunities, or restore natural systems. Strategies should be added to your conceptual Model to identify the key intervention points where you will act. You may decide to take action on the direct threats, or to implement changes earlier on by influencing the contributing factors. Strategies may be existing strategies applicable to your project, or they may be new strategies that you develop based on your project needs.

In addition to being linked to your Conceptual Model, your Strategies should be focused (outline specific actions to be carried out), feasible (can be accomplished given resources and constraints), and appropriate (within the realm of biological, cultural and social norms). In order to have the highest chance of success, strategies should also align with stakeholder interests where possible. This will help to limit conflicts and build support within the project team.
This process allows you to visualize how your strategies will help you achieve your goals. The **Results Chain** depicts the assumed cause and effect results of the implementation of strategies. In this simple chain of events a Strategy leads to an Outcome which leads to an impact on your Target. It is important to keep in mind that your Outcome boxes should contain desired results not actions, have only one desired result, and describe how you hope the factor will change (e.g. improve, increase, decrease...). There should be clear causal links between boxes and there should be enough boxes to show connections but not so many the chain becomes too complex.
4.4 Develop Objectives
At this point you will begin to specify the desired changes in the contributing factors you would like to achieve in the short term by setting Objectives. Objectives are simply statements that detail the outcomes from your Results Chains that are necessary to achieve your goals.

In addition to being results oriented, good objectives should be:

- stated in terms of measurable Indicators
- achievable within a specified period of time
- clearly defined so that they are understood by all team members
- practical within the context of the project.

Like your Goals, Objectives should be based upon credible scientific criteria. Objective values may be based on reference ecosystems, established criteria, models, or expert opinion depending on the available data.

4.5 Identify Actions
Now that you have a clear idea of your Goals and Objectives and the Strategies you plan to use to achieve them, it is time to identify a list of the specific Actions you will take to accomplish each Strategy. This will form the basis of your Work Plan.

Step 5: Develop a Monitoring Plan
A detailed and well thought out Monitoring Plan is essential to be able to evaluate how well the Actions are achieving the desired Goals and Objectives.

5.1 Stakeholder and Audience Needs
You have identified your stakeholders and their interests when completing the conceptual model and identifying Strategies. From here you should determine and summarize which stakeholders require monitoring information, what they want to know, and what level of detail will be required to meet their needs. Be sure to include information needs required as a part of permits or for regulatory compliance.

5.2 Indicators
At this stage you will determine what components of the project you need to monitor and which Indicators to use to collect the data required. Your Results Chains will aid you in this process. This will allow you to narrow down your list of Indicators to a manageable number that meet the needs of your project. If you have an existing monitoring program you will also need to determine which Indicators are being measured and where there are data gaps.

5.3 Methods
Once you have your Indicators to be monitored, you will need to determine what Methods you will use to collect data to measure them. Good monitoring methods are accurate, reliable (repeatable), cost-effective, feasible, and appropriate to the project. Where possible use scientifically acceptable protocols as they typically meet the standards of being accurate and repeatable.

Your monitoring should include a sampling strategy with enough scientific rigour to be able to answer whether you have met your objectives.
You will need to determine how many sampling sites you need (e.g. using power analysis), where your sites should be located to account for spatial variation (e.g. stratified random sampling), and how frequently you should sample them to account for temporal variation.

It will also be important to identify who will be responsible for collecting the data, when the data will be collected, and how it will be analyzed. Monitoring should occur both prior to and after the implementation of conservation/restoration actions to establish baseline conditions and track changes.

**Step 6: Develop an Implementation/Operational Plan**

To put your plan into action, you will need to have an implementation plan. This should include:

**6.1 Budget**

Determine your staff and funding needs as well as potential funding and in-kind sources. Create a table that includes all line items. Prepare and submit funding proposals where necessary and secure letters of support.

**6.2 Detailed Design**

The detailed design should include drawings and plans for construction for any structural components of the project. If the design is beyond the scope of CLOCA’s expertise, a Request for Proposal should be put out for an outside company to complete the design. If the scope of the work is beyond CLOCA’s resources and expertise, reputable and reliable contactors should then be hired to complete the work.

**6.3 Permitting**

Permitting needs should have been identified early in the process and agencies consulted to ensure that this step goes smoothly. Applications for permits should be submitted and all necessary permits obtained prior to work commencing.

**6.4 Work Plan and Timeline**

This should include a table detailing what specific activities and tasks need to be completed to accomplish each Action, who will be responsible for task completion, when tasks will be undertaken, and how funding and staff resources will be allocated.

**6.7 Implement Plan!**

Now is the time to do the work you have been planning and preparing for.

**Step 7: Analysis and Adaptation**

Once the project has been implemented and monitoring has occurred, it will be important to go over your findings and evaluate the success of the project.

**7.1 Prepare Data**

All data collected as part of the project should be recorded, entered into a database, and stored in an accessible location. Quality analysis and control should be completed to ensure data is correct.

**7.2 Analyze Results**

At this point you will complete the necessary queries and analyses to determine the status of your indicators and whether you have achieved the objectives you have set.
7.3 Adaptive Management
Once you’ve assessed your results, you can begin to evaluate how successful you’ve been at achieving your goals and objectives and where to go from here. If you’ve met your objectives, is there ongoing management necessary to maintain those results? If your objectives have not been met, what have you learned and how can you change your plan to achieve the desired result? It is important to make these connections and to make any necessary changes and updates to your plan and carry them out.

Step 8: Reporting and Data Sharing
One of the most important outcomes of a conservation or restoration project should be to document and share the process, the results, and the lessons learned. Without this essential step, we lose the knowledge we’ve gained and the ability of others to learn from our failures and successes.

8.1 Results and Lessons Learned
Documenting results in reports and web products makes your data and information accessible. Lessons learned and adaptive management changes should be discussed and documented in these products as well. Progress reports over the short and long term provide ongoing feedback and updates on changes over time.

8.2 Share knowledge
Once the information has been documented, it is important to share that information in various platforms to reach a larger audience. Have a strategy to communicate the information whether it be in the form of online reports, websites, presentations, videos, or open databases. Take advantage of opportunities to meet with other professionals in your field to share information through working groups, workshops, or conferences.

8.3 Promote a Learning Environment
Finally, continue to foster an environment of learning and growth within your organization and with your peers. Obtain feedback from coworkers, objectively evaluate project outcomes, commit to expand your knowledge base and self-improvement, and be open to new ideas and concepts. Ask the tough questions and use your critical thinking skills to assess results and make informed decisions. Share project outcomes whether they be successes or failures.

References


IUCN. 2019. The IUCN Red List of Threatened Species: Threat Classification Scheme (Version 3.2). https://www.iucnredlist.org/resources/threat-classification-scheme
### Appendix A: Threat Rating

1. **Scope**: proportion of the conservation target/ecosystem affected
   - Low (1-10%),
   - Medium (11-30%),
   - High (31-70%),
   - Very High (71-100%)

2. **Severity**: categorization of the level of damage to the conservation target from the threat
   - Low (Target slightly degraded in quality/size/numbers ~1-10%),
   - Medium (Target moderately degraded in quality/size/numbers ~11-30%),
   - High (Target seriously degraded in quality/size/numbers ~31-70%),
   - Very High (Target destroyed or eliminated degraded in quality/size/numbers ~71-100%)

<table>
<thead>
<tr>
<th>Scope</th>
<th>1-Low</th>
<th>2-Medium</th>
<th>3-High</th>
<th>4-Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
</tr>
<tr>
<td>2-Medium</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
</tr>
<tr>
<td>3-High</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
</tr>
<tr>
<td>4-Very High</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
</tr>
</tbody>
</table>

Magnitude = Scope x Severity

3. **Irreversibility**: the degree to which threats can be undone on the potential targets
   - Low (easily reversible in 0-5 years)
   - Medium (effects can be restored by over 6-20 years)
   - High (technically could be restored, but not likely practical and affordable, 21-100 years)
   - Very High (cannot be reversed and/or not within 100 years)

<table>
<thead>
<tr>
<th>Irreversibility</th>
<th>1-Low</th>
<th>2-Medium</th>
<th>3-High</th>
<th>4-Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
</tr>
<tr>
<td>2-Medium</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
</tr>
<tr>
<td>3-High</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
</tr>
<tr>
<td>4-Very High</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
<td>1-Low</td>
</tr>
</tbody>
</table>

Total Threat Rating = Magnitude x Irreversibility
During the January 2020 Board of Directors meeting, the following resolution was approved:

**THAT Resolution #97 from the November 19, 2019 Board Meeting be rescinded**

**THAT CLOCA staff be directed to:**

1. Report back to the Board with written clarification from BAIRD regarding BAIRD’s comments in the report about the impact the St Mary’s Pier has had on erosion by starving the beaches along Cedar Crest in Clarington and specifically, whether Baird believes the pier is a significant contributor to erosion; and
2. Report back to the Board if there is a fee associated.

With respect to direction #1 and #2, in the Port Darlington Shore Protection Concepts report (Baird, 2018), the following comments were provided with respect to sediment transport on the Port Darlington shoreline:

Baird’s previous experience with the wave field on Lake Ontario indicates that waves arrive at the study shoreline from two different directions, namely; southwest and east. Southwesterly waves are more frequent. The direction of Longshore Sediment Transport (LST) along a shoreline depends on the relative angle between the local shoreline orientation and incoming wave direction. Since waves arrive from two different directions, sediment along the study shoreline is expected to move back and forth depending on the wave conditions. Figure 2.14 shows the net transport direction; net transport is in a westerly direction from the bluffs at the west end of the study shoreline resulting in closure of the mouth of the flood channel and creation of the small fillet beach deposit on the east side of the St. Marys Cement pier. Along the remainder of the study shoreline, net transport is to the east. It is possible that some sediment is bypassing the breakwaters at the entrance to Port Darlington Harbour. The rate of bypassing cannot be quantified without further studies using more recent bathymetry information. Bathymetry contours around the breakwaters (Figure 2.11) do not feature a bypassing shoal, therefore, the rate of bypassing is not expected to be significant. As the breakwaters are in a state of disrepair, it is also likely that sediment is being transported over (e.g. by wind) and through the armourstone structures.

The piers at St. Marys are approximately 650 m long (measured from the nearby shoreline) and extend to -8 m CD. It is expected that they act as a complete barrier to alongshore movement of granular sediment (i.e., sand and gravel) and, therefore, there is no exchange of granular sediment between west and east shorelines on either side of the piers. As a result, at present local bluff erosion and any potential sediment load from the creeks are the only sources of beach size material to the shoreline between Port Darlington and St. Marys Cement. Net alongshore transport in the study area is generally towards the east. This means that St. Marys piers would block any potential supply of sediment available (e.g., through bluff erosion) from the westerly shorelines. In fact, shoreline comparisons for the shoreline immediately west of the St. Marys piers conducted previously by Baird indicated a growing fillet beach since construction of the piers. Comparison of the 2000 and 2007 shorelines indicated approximately 2,000 m³ of sand had been deposited annually in the local fillet beach immediately west of the piers.

Cont’d
In summary, there are three potential impacts by the St. Marys piers on the study shoreline: 1) interruption of sediment supply from the shorelines west side of the piers (approximately 2,000 m$^3$/year as evident from formation of the fillet beach on the west side of the piers); and 2) reversal of longshore transport along the shoreline immediately east of the piers (as evident from formation of the fillet beach on the east side of the piers); and 3) loss of sediment supply from the shoreline protected by the St. Marys piers.

CLOCA staff have communicated with the author of the report on several occasions regarding this discussion of impacts of the St Marys pier. The author provided a very approximate quantification of the impacts of the pier by using a simple observation of the amount of beach sediments accumulated on the west edge of the pier. Baird provided the following written response:

"... This will confirm that we have nothing to add to our report with respect to Section 2.4. Our work did not include technical studies to evaluate potential impacts of St. Marys Pier on the shoreline to the east. The report includes a very brief summary of potential impacts. It further states, a detailed study would be required to confirm and quantify these impacts."

Baird further provided a work plan to complete an analysis of impacts of the pier on sediment transport. The proposal is appended as Attachment #1 to this report.

3. Report back to the Board commenting on:
   a) The role Plan 2014 has played in the regulation of Lake Ontario water levels, including answering whether it was a contributing factor to flooding; and
   b) Whether Plan 2014 has performed as advertised “to protect against extreme water levels and prepare us for climate change”. Staff are to consult with TRCA and IJC in preparing its report.

With respect to direction #3, there have been a number of reviews of the performance of Plan 2014 and Lake Ontario flood levels, from the International Joint Commission as the regulating authority, and from independent parties. The Ontario Ministry of Natural resources and Forestry retained a Special Advisor to review recent flooding in Ontario including Great Lakes flooding, and to consider policies and activities that influenced flooding. The Advisor, Mr. Doug McNeil, P.Eng. provided a report with a summary of the flooding events, discussion, and 66 recommendations, as reported in previous CLOCA staff report 5674-20. With respect to the Lake Ontario flooding, the report notes the following:

4.6.2 Comparison to Flooding Conditions in 2017
The causes of record high Lake Ontario water levels in 2017 and regulation of outflows under Plan 2014 were studied and reported on by the Board (see the IJC report titled: “Observed Conditions and Regulated Outflows in 2017,” May 25, 2018, https://ijc.org/sites/default/files/2018-08/ILOSLRB_FloodReport2017.pdf). The Board attributed the extreme high levels mainly to record precipitation received across the Lake Ontario-St. Lawrence River basin, noting that wet weather was also experienced upstream in the Lake Erie watershed. Lake Ontario water levels rose rapidly, setting record highs by the end of May. In response, in all but three weeks of the year, outflows from the lake were determined by either the maximum flow limits set by Plan 2014 or by deviations from Plan 2014. The Board concluded that Plan 2014 did not cause the high levels in 2017 or contribute to them in any significant way.


Cont’d
The Committee evaluated the impacts on multiple interests, including flooding, from a variety of sources. They noted, however, that much of the quantitative economic and environmental data was not available at the time of reporting.

Impacts to coastal properties in 2017 were reported as widespread, with reports of flooded homes, roads, driveways, trails, lawns, emergency response, and extensive sandbagging efforts to protect houses and properties. In Ontario, flooding of residential property and buildings along the Lake Ontario shoreline was observed with particularly hard-hit areas including portions of Toronto Island, Clarington, Brighton, and Prince Edward County. On the upper St. Lawrence River, shoreline flooding was observed particularly in the Thousand Islands area. From the IJC’s report, Figure 5-25 highlights the percent of shoreline survey respondents that indicated flooding impacts. In Ontario, along the lake shoreline, a local State of Emergency was declared for a portion of the Municipality of Clarington shoreline as well as all of Prince Edward County. The Mohawks of the Bay of Quinte also declared an emergency for their territory in response to high water levels. Independent review of the 2019 flood events in Ontario, (October 2019)

The report further states that “…Based on an analysis of the information available for all of the systems that experienced flooding in 2019, nothing points to human error or the negligent operation of water control structures as the cause of the flooding. The sheer amount of water (snow and rainfall) on the landscape directly contributed to the flooding. Measures taken by water managers everywhere were effective in reducing the magnitude of flooding and associated damages throughout the drainage basins.”

CLOCA staff conferred with staff from TRCA and the IJC in review of the performance of Lake Ontario water level regulation during the extreme water levels of 2017 and 2019.

TRCA recently completed the Toronto Islands Flood Characterization and Risk Assessment Report, (Baird 2020). Baird reviewed simulated water levels by Environment Canada under Plan 58 and Plan 2014 for the period of 1900 to 2008. The simulations indicate that Plan 2014 will vary from Plan 58DD by allowing spring high water levels to increase by approximately 0.05 to 0.15 m. The highest increases in spring high water levels occur for moderate floods with return periods of 10 and 25 years. The plans are nearly identical at extreme high water levels, and any difference in water levels is related to how the plans function before extreme high water levels are reached.

This analysis is further supported by the assessment of 100 year water levels under pre-project, Plan 58DD, and Plan 2014 conditions by Zuzek Inc. through the Lake Ontario Shoreline Hazards Plan, as shown on previous CLOCA report 5658-19. This analysis indicates that Plan 2014 will result in an increase of 0.07 m to the 100-year flood level when compared to Plan 58DD, but still significantly reduces the water level from pre-project conditions.

Baird notes “…The key difference between Plan 2014 and Plan 1958DD is the increased natural variability of Lake Ontario water levels. However, no significant difference exists between the two plans under extreme weather conditions, as the regulation of outflows becomes determined by safety considerations (I-limit, F-limits, and L-limits) rather than the Plan 2014 rule curve. “

The following chart from the Baird study shows the effectiveness of Lake Ontario water level regulation compared to levels that would have been experienced without regulation (“pre-project”):
Environment Canada simulated quarter-monthly water levels for Lake Ontario under Plan 2014, Plan 1958DD, and Pre-project conditions (Baird 2020)

The International Joint Commission has provided extensive information including Frequently Asked Questions and Answers, as attached as Attachment 2. The following chart was also provided by the IJC to show the effect of the water level regulation throughout 2017, 2018 and 2019. The chart plots the actual water levels for the three year period and also charts the water levels that would have been experienced if Plan 2014 and the Moses Saunders Dam and channel works were not in place. As the chart shows, flooding on Lake Ontario would have been approximately 0.3m higher in both 2017 and 2019 without the water level regulation. Furthermore, without regulation, extreme water levels and flooding would also have occurred in 2018, when no significant flood events were actually experienced.
These charts show that the water level regulation throughout the duration of Plan 58 and Plan 2014 has greatly reduced the impact of flooding on Lake Ontario.

Information provided recently by the IJC shows the natural variability that we have experienced in the Great Lakes watershed. The following chart shows the annual precipitation in the Great Lakes watershed since 1980 to 2019 in relation to long term average. The chart shows annual precipitation has been well above average since 2016, and is the most significant deviation from normal in the forty year period.

The impact of Climate Change of Great Lake water levels is uncertain. With the climate change trends generally accepted as warmer, wilder, and wetter, the resulting impacts on the Great Lakes include:

- More winter precipitation, but fewer snow events and more rain events
- More snow melt events, less ice formation and stability
- More evaporation off Great Lake surfaces with less ice cover, and warmer temperatures
- More wind events, and less ice protection of shorelines during winter and spring

Increased winter precipitation may result in more water in the watershed during the critical spring period, however the increase in snow melting and rain events during the winter may allow for more runoff through the winter and less release during the spring freshet. If warmer temperatures result in a reduction of ice cover in the St Lawrence River, greater release of water from Lake Ontario may be possible, however, if greater period of unstable ice occur, releases from Lake Ontario will be reduced to prevent ice jamming. Increased evaporation from the Lakes may be balanced by increased annual precipitation. Generally, greater uncertainty is the only impact that is consistently agreed upon.

The limits of the current Seaway works are already being demonstrated through the past few years of extreme water levels. The Moses Saunders Dam and seaway works have a finite limit based on the capacity of the dam and channel, and are further confounded by the need to balance upstream and downstream flooding, and the amount of development that exists within the flood limits of Lake Ontario and the St Lawrence River system.
To address climate change, an adaptive approach is required that employs the four stages and natural hazard management:

i) **Avoid** natural hazards by ensuring new development is safely located beyond the extent of natural hazards.

ii) **Accommodate** infrastructure and existing development within natural hazards with resilient construction techniques (example: flood proofing structures).

iii) **Protect** infrastructure and existing development with measures to limit the impact of natural hazards (example: shoreline erosion protection)

iv) **Retreat** or relocate infrastructure and existing development from high risk areas

**Summary**

In summary, it is apparent that water level regulation has been effective in reducing the effect of Lake Ontario extreme water levels. Without water level regulation, flood damages would have been significantly greater than experienced over the past three years.

Water levels and flow through Lake Ontario and the St Lawrence Seaway affects the shipment of goods, generation of hydro-electricity, recreational boating, municipal water supply, and riparian flooding and erosion. The water level regulation plan must consider all of these interests, and use the utilize the abilities of the Moses Saunders Dam and waterway by following the regulation Plan to best manage the water supply from the natural hydrology of the Great Lakes and Ottawa River watersheds.

The IJC continue to operate beyond the limits of Plan 2014. Release rates have consistently been above the maximum L-Limit for navigation, and the opening of the 2020 shipping season has been delayed to April 1st to allow for continued high release rates through March. The balancing of flood impacts on the St Lawrence against the Lake Ontario shoreline continues to be an important consideration, and recent surveys from affected landowners and of flood damages will be important for any further considerations and adjustments of the Plan.

Although it appears that the water level regulation plans have been effective in attenuating the effects of high water levels on Lake Ontario, the IJC has continued to review the regulation Plans through the Great Lakes Adaptive Management (GLAM) committee. The GLAM recently announced a three million dollar investment to complete an expedited review of the water level regulation. The announcement states “...No regulation plan will be able to prevent the extremely high water levels and flows experienced during these periods of record-setting water supplies. However, the IJC remains fully committed to finding the best solutions possible for managing water levels and flows, especially during the s periods of extreme conditions.”

CLOCA staff will monitor the progress of the Lake Ontario water level regulation plan review, and participate as appropriate.

**RECOMMENDATION:**

**THAT** Staff Report #5684-20 be received for information.
Hi Perry,

Happy New Decade!

As promised, this email provides an itemised scope of work for a technical study to assess potential impacts of St Marys’ piers on ongoing shoreline change and flooding processes along the reach of shoreline located between the Piers and Port Darlington jetties. As noted in Baird (2018) report, there are three potential impacts by St Marys’ piers on the sediment budget of the subject shoreline: 1) interruption of sediment supply from the shorelines west side of the piers (as evident from formation of the fillet beach on the west side of the piers); 2) reversal of longshore transport direction along the shoreline immediately east of the piers (as evident from formation of the fillet beach on the east side of the piers); and 3) loss of sediment supply from the shoreline protected by the piers. It is also unclear if the presence of the Pier may have any impact on its nearby flood levels. The following scope of work intends to document/clarify the above points:

1. Data collection and review. Cost: $5,000
2. Detail bathymetric (multibeam) and topographic surveys of the study area to collect latest lakebed and beach elevation information, assess existing conditions, and compare with historic information. This task must be completed by a licenced surveyor under Baird’s guidance. Our experience with similar projects suggests the cost would be roughly around $40,000 to $50,000.
3. Geotechnical investigations (sediment sampling, jet probes, sub-bottom profiling, etc.) to define type, size, thickness, and spatial distribution (or extents) of sediment on the lakebed as well as composition and contents of sediment in the bluffs. I do not have a quote for this task but the cost could be of the same order as #2.
4. Shoreline, top of bluff line, and bathy-topo comparisons in GIS to quantify/update volume changes including sediment volumes trapped on the east and west sides of the piers. Cost: $15,000 to $20,000
5. Numerical modelling of waves, hydrodynamics, and sediment transport with and without St Marys’ piers in place to establish corresponding shoreline conditions, evaluate potential differences, and assess potential impacts of the piers. Any potential impact of the piers on flood levels will also be evaluated using the hydrodynamic model. Cost: ~$90,000
6. Reporting and one meeting to present the results. Cost: $20,000

Please note that all provided costs are approximate. The above scope is not to assess potential impacts of the Darlington Port jetties (assuming they have been always in place).

Hope you will find the above helpful.
Please do not hesitate to call with any questions/comments.

Many thanks,
Mohammad
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Lake Ontario-St. Lawrence River 2019 High Water Levels Questions and Answers

The following background paper was prepared and reviewed by staff on behalf of the International Joint Commission (IJC) and its International Lake Ontario–St. Lawrence River Board (ILOSLRB).

Over the past several months, the Board has heard from many citizens and communities and seen first-hand the devastating impacts that high water conditions in 2019 have had on shoreline properties and local economies around Lake Ontario, surroundings sectors, and on the upper and lower St. Lawrence River. The Board has taken extraordinary measures to try to alleviate impacts from these exceptional conditions, while considering the consequences for all activity sectors along the Lake Ontario - St. Lawrence River system.

While the conditions of both 2017 and 2019 were exceptional in many ways, similar high water events have occurred throughout the history of Lake Ontario - St. Lawrence River regulation and have the potential to occur again in the future. As such, the purpose of this document is to provide accurate information related to the causes of the high water levels in 2019, as well as actions taken by the Board in attempts to address these conditions through regulation of outflows. The intent is to inform shoreline residents, businesses and communities of the capacity and limitations of outflow regulation to affect conditions so that we can work collectively to identify and assess potential solutions to better prepare for the possibility of extreme conditions and high water events in the future.
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Causes of the 2019 High Water Event

Question 1. What are the causes of high water levels in 2019?

Answer: Too much water entering Lake Ontario from a flooded Lake Erie, and nowhere for it to go but into a flooded St. Lawrence River.

Explanation:

These two primary factors, each stemming from above-normal precipitation, caused Lake Ontario levels to rise rapidly in the spring of 2019, eventually exceeding their record-peak of 2017, and resulting in wide-spread flooding, erosion and other high-water impacts.

The 2019 high water event was basin-wide, caused primarily by wet weather conditions across the entire Great Lakes – St. Lawrence River system. These conditions have persisted for several years and increased in intensity more recently, notably in 2017, and again during the several months of fall and winter leading up to the spring of 2019. These persistently and at times exceptionally wet conditions
culminated in record or near-record high water levels and flows across the entire Great Lakes – St. Lawrence River basin.

On Lake Ontario and the St. Lawrence River specifically, after the record-wet conditions of 2017 followed by a more average spring-summer 2018, generally wet weather started again in late-fall 2018 and persisted through the spring of 2019. Similar wet conditions upstream on the upper Great Lakes resulted in record-high water levels and flooding there, and culminated in record-high inflows from Lake Erie into Lake Ontario by spring. Downstream of Lake Ontario, a late, heavy snowmelt coupled with an extremely wet spring resulted in record-high flows from the Ottawa River into the lower St. Lawrence River and rapidly rising water levels downstream. This required a significant reduction in Lake Ontario outflows and further contributed to rapidly rising water levels and eventual flooding throughout the Lake Ontario – St. Lawrence River system.

The high water levels were not caused by regulation of outflows or by Plan 2014. Water levels of both Lake Ontario and the lower St. Lawrence River would have been higher in both 2017 and 2019 had the St. Lawrence Seaway and Moses-Saunders Dam never been constructed, and the higher levels would have lasted for a longer duration.

Figure 2: St. Lawrence River at Lake Saint-Pierre, Quebec, 4 May 2019 (source: Transport Canada)
Question 2. How do high water levels on the other Great Lakes affect Lake Ontario and the St. Lawrence River?

Answer: Since water flowing from Lake Erie through the Niagara River tends to be the largest component of the total inflow to Lake Ontario, when water levels of the upper Great Lakes (including Lake Erie) are high, the flow of water into Lake Ontario also tends to be high. This raises water levels of Lake Ontario and increases the amount of water that must be released through the St. Lawrence River.

Explanation:

The Great Lakes and St. Lawrence River form an interconnected system of water bodies and river channels (Figure 3). With record-high water levels reached or exceeded across the basin in 2019, this represents an exceptionally high volume of water flowing through the system, the vast majority of which makes its way into Lake Ontario and then out through the St. Lawrence River.

Starting at Lake Superior, water passes through the St. Marys River into Lake Michigan-Huron (hydraulically considered one lake due to their wide, deep connection at the Straits of Mackinac). Outflows through the St. Marys River are regulated by the IJC’s International Lake Superior Board of Control (ILSBC). Similar to Lake Ontario and the St. Lawrence River, regulation of St Marys River outflows must take into consideration water levels and impacts both upstream and downstream on Lake Superior and Lake Michigan-Huron. From Lake Michigan-Huron, water flows uncontrolled through the St. Clair

Figure 3: Map of the Great Lakes - St. Lawrence basin. Water from the upper Great Lakes basin (orange) discharges through the Niagara River and into Lake Ontario. This, plus water entering Lake Ontario from its own basin (blue), all flows out the St. Lawrence River, where it combines with water entering from the Ottawa River basin (yellow) near Montreal and other local tributaries (green), before continuing on to the Atlantic Ocean.
River, into Lake St. Clair and then downstream through the Detroit River, which empties into Lake Erie. Water from Lake Erie flows uncontrolled through the Niagara River and Welland Canal into Lake Ontario, before eventually making its way into the St. Lawrence River on its way to the Atlantic Ocean.

**Figure 4:** Great Lakes water levels show periods of highs and lows occurring throughout the past century

Water levels fluctuate naturally on the Great Lakes due primarily to weather driven variations in water supplies, with periods of high and low water levels occurring throughout recorded history (Figure 4).
Water supplies include water flowing in from the lake upstream and from precipitation (rain/snow) that falls directly on the lake and its surrounding watershed, minus the water that leaves the lake through evaporation. Water also flows out of each lake, through its outlet channel, and into the downstream water body. Over longer periods lasting more than several years, outflows tend to equal inflows; otherwise, lake levels would continually rise or fall. However, over shorter periods of days, weeks and months, differences in the amount of water entering and leaving the lakes cause their levels to rise or fall, and can result in periods of high or low levels that may persist for up to several years.

After nearly 15 years of below-average water levels on Lake Superior and Lake Michigan-Huron, water levels of the upper Great Lakes started rising in 2013, and have been well above-average for several years. Then in 2019, following several months of wet weather, water levels on Lake Superior, Lake St. Clair and Lake Erie each exceeded their seasonal record-highs in early-May, prior to record-highs being exceeded on Lake Ontario in late-May. Lake Michigan-Huron was at or near record-highs since the end of May, but did not exceed them in 2019.

Whether regulated or unregulated, high Great Lakes water levels also result in high outflows. With all of the Great Lakes above or near record-highs, this represents an unprecedented volume of water in the Great Lakes system, and other than water lost to evaporation, it all eventually makes its way into Lake Ontario and out the St. Lawrence River.

**Question 3. Did the outflow from Lake Erie through the Niagara River set a record in 2019 and how did this contribute to Lake Ontario’s record-high water levels?**

**Answer:** Yes, record-high outflows from Lake Erie, into Lake Ontario, occurred in the spring and were a primary cause of the record-high levels on Lake Ontario in 2019, even more so than in 2017.

**Explanation:**

Lake Ontario receives the majority of its water from Lake Erie – about 85 percent on average, with most of it entering from the Niagara River and a much smaller amount entering from the Welland Canal. The total flow out of Lake Erie is completely uncontrolled.

Leading into 2019, water levels of the upper Great Lakes, including Lake Erie, had been above average for several years. This was followed by generally persistent, widespread, above-average precipitation during the winter and spring of 2019, resulting in rapidly rising water levels, with the upper Great Lakes reaching levels not seen since the previous record-highs of the mid-1980s.
Lake Erie exceeded historical records starting in early-May 2019 and these record-highs continued through summer (Figure 5). This resulted in above-record inflows from Lake Erie into Lake Ontario. In terms of magnitude, inflows from Lake Erie in May 2019 alone added the equivalent of 113 cm (44 inches) of water to Lake Ontario. This is 24 cm (9.4 inches) more than the average May input, and compared to May 2017, Lake Erie added an extra 2 cm (0.8 inches) per week of water to Lake Ontario in May 2019.

![Figure 5: Lake Erie monthly mean outflows, each line representing an individual calendar year (1900-2019). Record- or near-record-high inflows were experienced throughout 2019.](image)

**Question 4.** How much precipitation was received around Lake Ontario and the St. Lawrence River prior to spring 2019, and how does this compare to 2017?

**Answer:** While total precipitation across the Lake Ontario – St. Lawrence River basin was less than during the record-breaking January – May period of 2017, precipitation was again well-above normal and for a prolonged period, starting around late-fall of 2018 and continuing through spring 2019.

**Explanation:**

The most significant precipitation totals were observed along the northern and eastern shores of Lake
Ontario, and downstream along the St. Lawrence and Ottawa Rivers.

For example, from November through May (Table 1), 555.6 mm (21.9 inches) of precipitation was recorded at Toronto, ON, the 4th highest total recorded at this location over this seven-month period since 1938, while in Watertown, NY, a total of 823.7 mm (32.4 inches) was recorded during this same seven-month period, the 2nd highest total at this location since 1898. Downstream, the 717.8 mm (28.3 inches) recorded at Montreal, QC, was the 5th highest November to May total since 1942, while the 613 mm (24.1 inches) recorded in Ottawa, ON was the 7th highest on record since 1890.

Table 1: Total precipitation across the Lake Ontario – St. Lawrence River basin, November to May 2019

<table>
<thead>
<tr>
<th>Location</th>
<th>Station Name (ID)</th>
<th>Period of Record</th>
<th>Nov 2018 - May 2019 Precipitation</th>
<th>Nov - May Historical Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total (Historical Rank)</td>
<td>Average (Maximum Year)</td>
</tr>
<tr>
<td>Rochester, NY</td>
<td>Roc. Greater Intl (USW00014768)</td>
<td>1926-2019</td>
<td>499.6 mm (19.67 in.) 29th</td>
<td>459.7 mm (19.67 in.) 2016-2017</td>
</tr>
<tr>
<td>Watertown, NY</td>
<td>Watertown, NY (USC00309000)</td>
<td>1898-2019</td>
<td>823.7 mm (32.43 in.) 2nd</td>
<td>576.5 mm (22.7 in.) 2008-2009</td>
</tr>
<tr>
<td>Toronto, ON</td>
<td>Toronto LBP Intl A. (6158733)</td>
<td>1938-2013</td>
<td>555.6 mm (21.87 in.) 4th</td>
<td>426.3 mm (16.78 in.) 2016-2017</td>
</tr>
<tr>
<td></td>
<td>Toronto Intl A. (6158731)</td>
<td>2013-2019</td>
<td></td>
<td>581.2 mm (22.88 in.)</td>
</tr>
<tr>
<td>Ottawa, ON</td>
<td>Ottawa CDA (6105976)</td>
<td>1890-2019</td>
<td>613.0 mm (24.13 in.) 7th</td>
<td>470.3 mm (18.52 in.) 1946-1947</td>
</tr>
<tr>
<td>Montreal, QC</td>
<td>Montreal Intl A. (7025251)</td>
<td>1942-2019</td>
<td>717.8 mm (28.26 in.) 5th</td>
<td>547.2 mm (21.55 in.) 2016-2017</td>
</tr>
</tbody>
</table>

Other areas around the basin, particularly those to the south of Lake Ontario in the state of New York, did not see as much precipitation through the fall, winter and early-spring. For example, Rochester, NY, saw 499.6 mm (19.67 inches), which is above-average, but only the 29th highest November to May total on record since 1926. This differs from 2017, where the entire Lake Ontario, Ottawa and St. Lawrence River basin saw very high precipitation amounts over a shorter period, with many locations setting records for the period of January through May 2017.

Nonetheless, while conditions across Lake Ontario and the St. Lawrence River basins were generally wetter overall in 2017 than in 2019, inflows from Lake Erie and the Ottawa River were substantially greater in 2019.
Question 5. Did Lake Ontario total inflows set records in 2019 and how do they compare to 2017?

Answer: Yes, new record monthly inflows were set in February and May 2019, and the combination of generally wet weather and high inflows from Lake Erie caused Lake Ontario’s net total supply (total inflows) to be near or above historical records for several months prior to the record-high water levels being reached in spring.

Explanation:

Water levels on Lake Ontario began rising in November 2018 in response to wet weather and rising Lake Erie levels. Net total supplies (Figure 6) to Lake Ontario in November and December 2018 were the 4th and 5th highest for those months on record, respectively.

Record-precipitation fell across the Lake Ontario - St. Lawrence River basin in 2017, but inflows from both Lake Erie and the Ottawa River were substantially greater and record-setting in 2019.

Figure 6: Lake Ontario monthly mean net total supplies, which include inflows from Lake Erie, over-lake precipitation and basin runoff, minus evaporation. Each line represents an individual calendar year (1900-2019). Record- or near-record-high inflows were experienced throughout 2019.
January and February saw high inflows continue. Record-high net total supplies were recorded for the month of February 2019, following just one year after the previous February record set in 2018.

The spring started somewhat drier in March and early-April, but inflows from Lake Erie remained high and ensured net total supplies remained well above-average.

The remainder of spring was exceptionally wet. Total inflows to Lake Ontario during April 2019 were very high, the 8th highest April on record and the 13th highest net total supply recorded in any month of the year. Inflows to Lake Ontario are typically at their annual peak in the month of April, but instead of decreasing in May, net total supplies increased. According to provisional data, May 2019 exceeded the previous record set for the month of May in 2017. May 2019 recorded the second highest total inflow for any month of the year dating back to 1900, and April-May 2019 combined are the 2nd highest two-month total ever recorded, behind only April-May 2017.

**Question 6. Why did Lake Ontario start rising in November 2018?**

**Answer:** Water levels of Lake Ontario began rising in November 2018 in response to wet weather and rising Lake Erie levels, which caused increasing inflows to Lake Ontario through the Niagara River.

**Explanation:**

Net total supplies to Lake Ontario in November and December 2018 were the 4th and 5th highest on record for those months, respectively.

Lake Ontario outflows, which were already well above average, also increased at the same time that inflows began to rise (Figure 7). The high outflows resulted in continued low levels on Lake St. Lawrence during this period, and yet despite the increase, outflows could not fully offset the rising inflows at that time.

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**Table 2: Lake Ontario net total supplies (inflows): highest months recorded since 1900**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Month</th>
<th>Net Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1993</td>
<td>April</td>
<td>11,700 m³/s (413,200 cfs)</td>
</tr>
<tr>
<td>2</td>
<td>2019</td>
<td>May</td>
<td>11,150 m³/s (393,800 cfs)</td>
</tr>
<tr>
<td>3</td>
<td>2017</td>
<td>May</td>
<td>11,040 m³/s (389,900 cfs)</td>
</tr>
<tr>
<td>4</td>
<td>1976</td>
<td>March</td>
<td>10,970 m³/s (387,400 cfs)</td>
</tr>
<tr>
<td>5</td>
<td>2017</td>
<td>April</td>
<td>10,830 m³/s (382,500 cfs)</td>
</tr>
<tr>
<td>6</td>
<td>1973</td>
<td>April</td>
<td>10,800 m³/s (381,400 cfs)</td>
</tr>
<tr>
<td>7</td>
<td>1973</td>
<td>March</td>
<td>10,680 m³/s (377,200 cfs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>2018</td>
<td>April</td>
<td>10,550 m³/s (372,600 cfs)</td>
</tr>
<tr>
<td>13</td>
<td>2019</td>
<td>April</td>
<td>10,500 m³/s (370,800 cfs)</td>
</tr>
</tbody>
</table>
Figure 7: Lake Ontario net total supplies, i.e., inflows (top) were above average from 1 July 2018 through 30 June 2019, at times exceeding record-highs. Lake Ontario water levels (middle) were near-average during summer/early-fall 2018, but started rising in late-fall as inflows rose rapidly. Outflows (bottom) were well-above average throughout this 12-month period, except when temporarily limited by ice formation in January/February 2019 and during the record Ottawa River freshet that spring.
Outflows in 2018-2019

Question 7. Why wasn’t more water released in 2018 when Lake Erie levels were high and downstream flooding wasn’t an issue?

Answer: A lot of water was released from Lake Ontario in 2018 for exactly this reason, and this, along with near-average water levels of Lake Ontario, contributed to very low levels on Lake St. Lawrence during this time.

Explanation:

Prior to the record-high water levels in spring 2019, Lake Erie had been relatively high for several years, as had the other Great Lakes. Outflows from Lake Ontario have reflected this, and in fact, have also consistently been kept very high since the record-flooding of 2017, with the exception of the temporary reductions required during the springs of 2017 and 2019 when flooding was occurring both upstream and downstream.

In fact, throughout the summer and fall of 2018, while Lake Ontario levels were at or near the long-term-average, the high Lake Ontario outflows resulted in very low, and at times record-low, water levels on Lake St. Lawrence, immediately upstream of Moses-Saunders Dam (Figure 8). Click here for a video describing the effects of regulation on water levels in Lake St. Lawrence. Low levels, as well as high current velocities in this area, had impacts on recreational boaters, shoreline property owners and commercial navigation.

![Figure 8: Lake St. Lawrence at Croil Island near Massena, New York, 16 September 2018 (source: ILOSLRB)](image-url)
Question 8. Why wasn’t more water released from Lake Ontario during the winter? Why were outflows reduced during January and February?

Answer: Outflows must be temporarily reduced nearly every winter as ice forms on the St. Lawrence River in order to facilitate the formation of a stable ice cover, which reduces the risk of ice jams and allows higher outflows to be released later on.

Explanation:

As ice forms on the St. Lawrence River, outflows can be temporarily reduced to slow down the river current and reduce the forces acting on the fragile ice cover, allowing a solid ice cover to form and stabilize. This helps reduce the risk of ice jams and limits frazil ice growth in the river that can physically block and severely restrict flows. Severe ice jams can result in immediate localized flooding and an immediate reduction in outflows. If such ice restrictions last for a long duration, outflow may be reduced for an extended period during the winter, leading to higher Lake Ontario levels heading into spring.

In 2019, ice began forming around mid-January and continued into February. Once ice had formed and stabilized, outflows were increased relatively rapidly thereafter. In fact, the amount of water released during the winter (from December 2018 – February 2019, combined) was relatively high historically, as only 3 years have seen more water released during these three months, those being 1987, 1997 and last year, 2018.

Question 9. Why was more water released in January and February 2018 than during the same months in 2019?

Answer: Compared to 2019, ice formed more rapidly in early-January 2018 allowing somewhat higher outflows to be released earlier on in winter, but overall, outflows were very high during January and February in both years.

Explanation:

Extreme and, at times, record-cold temperatures at the end of 2017 and start of January 2018 allowed ice to form more rapidly and earlier in 2018 than it did in 2019, and this allowed outflows to be increased sooner as well. Regardless, outflows released in January and February in both 2018 and 2019 are historically high, the 2nd and 4th highest on record, respectively (Figure 9). These high winter flows were possible due to consistently cold temperatures and the solid, stable ice conditions that this promoted. By comparison, ice formation in 2017 was much more complicated, as unusual temperature fluctuations.

What is frazil ice?

Frazil ice is composed of loosely consolidated, tiny ice particles that form in flowing water. These particles can look like irregularly shaped pans of slush at the surface, and extreme cold temperatures can cause frazil to form rapidly in open areas. In deep, fast moving water, frazil ice can be transported within the water column, where it may collect and adhere to other ice particles or to the riverbed, narrowing the channel cross-section and restricting flows.
required that Lake Ontario outflows be almost continuously adjusted to manage highly variable ice conditions in the St. Lawrence River. More information on the difficulties of ice management in 2017 can be found in the Board’s report on 2017 conditions here.

Figure 9: Lake Ontario mean outflows during winter (Dec-Jan-Feb) from 1900-2019. Outflows during the winter of 2018-2019 were on average the 4th highest ever recorded, despite limitations posed by low Lake St. Lawrence levels in December and ice conditions in January/February.

Question 10. Why were outflows from Lake Ontario reduced during the spring of 2019?

Answer: Outflows from Lake Ontario were reduced to mitigate – but not eliminate – damaging flooding in the lower St. Lawrence River during a record-setting Ottawa River freshet in the spring of 2019.

Explanation:

The Ottawa River enters the St. Lawrence River near Montreal and combines with the flow released from Lake Ontario. Each spring, milder temperatures, snowmelt and rainfall increase Ottawa River flows, and the timing and magnitude needs to be considered carefully when regulating Lake Ontario outflows to manage water levels on the St. Lawrence River (see also Question 16 and Figure 15).

In 2019, a heavy snow-pack on the Ottawa River basin lasted into mid-April as a result of colder than normal temperatures in early-spring. Major rains fell over the Ottawa River basin in late-April and
continued into May. These rains combined with the rapid, late snowmelt to result in record-high runoff and flows from the Ottawa River into the St. Lawrence River, and in some places even greater water levels than those seen just two years prior during the record flooding of 2017.

**Question 11. Why were outflows during the spring of 2019 lower than during the springs of 2017 and 2018 and why were they lower for so long?**

**Answer:** Outflows from Lake Ontario were, at times, lower in the spring of 2019 because Ottawa River flows were higher (record-high, at their peak) and they lasted for a much longer duration.

**Explanation:**

Record-high Ottawa River flows lasting a record-duration in 2019 (Figure 10) were caused by the combination of an unusually deep, dense snowpack and a late melt, which occurred at the same time as exceptionally heavy rains in late-April and early-May.

The record-peak Ottawa River daily flow recorded at Carillon Dam in 2019 was 9217 m³/s (325,500 cfs), higher than the previous record of 9094 m³/s (321,200 cfs) set 8 May 2017, and more than 3000 m³/s (105,900 cfs) above the peak daily flow recorded in 2018 of 5860 m³/s (206,900 cfs).

![Figure 10: Ottawa River daily flows at Carillon Dam. Each line represents an individual calendar year (1963-2019). Record flows lasting a record duration occurred in the spring of 2019, all entering the lower St. Lawrence River near Montreal.](attachment:2)
The exceptionally high Ottawa River flows in 2019 also lasted for a much longer duration. For example, Ottawa River flows were above 8000 m³/s (282,500 cfs) for 21 days in 2019, but only 6 days in 2017, and Ottawa River flows were above the highest daily flow recorded in all of 2018 (5860 m³/s (206,900 cfs) on 10 May) from 19 April to 3 June 2019, a full month and a half.

The Ottawa River monthly mean flows also set a new record-high for the month of May 2019, exceeding the previous monthly record in 1974 as well as the second highest on record in 2017 by more than 1000 m³/s (35,300 cfs). April 2019 was also the 5th highest month on record, and the months of April and May 2019 combined far exceed any previous 2-month period.

### Question 12. How can outflows impact navigation safety?

**Answer:** Outflows were increased and sustained at record-high rates for an extended period in the summer of 2019 to increase the rate of decline on Lake Ontario, but this also increased the current velocity of the St. Lawrence River and increased the risks to safe commercial navigation.

**Explanation:**

The Board’s priority in 2019 was to reduce the impacts of high water conditions on shoreline riparians, businesses and communities both upstream and downstream in the Lake Ontario – St. Lawrence River system. In doing so, the Board must consider the degree of relief that can be provided, as well as the consequences to all interests, including navigation.

Starting 10 June, as flooding conditions subsided downstream in the lower St. Lawrence River, outflows were increased above the flows that would have been prescribed by Plan 2014 in order to increase the rate of water level decline on Lake Ontario. By 13 June, outflows reached the record-high outflow of 10,400 m³/s (367,300 cfs). This flow rate was first achieved in 2017 and constitutes the highest flow ever released on a sustained basis. These record-matching outflows were maintained from mid-June through mid-August, even longer than in 2017.

When outflows are increased, this increases the velocity of currents in the St. Lawrence River. To maintain safe conditions for navigation during the sustained, record-high flows, the Seaway entities imposed speed limits, no passing restrictions and other mitigation measures.

Releasing higher outflows than those set by the Board during the summer of 2019 would have increased currents in the international section of the St. Lawrence River to an extent that would have effectively forced the stoppage of commercial navigation. This would have further impacted people’s lives and

### Table 3: Ottawa River flows: highest months recorded since completion of Carillon Dam in 1963

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Month</th>
<th>Ottawa River Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2019</td>
<td>May</td>
<td>7731 m³/s (273,000 cfs)</td>
</tr>
<tr>
<td>2</td>
<td>1974</td>
<td>May</td>
<td>6459 m³/s (228,100 cfs)</td>
</tr>
<tr>
<td>3</td>
<td>2017</td>
<td>May</td>
<td>6138 m³/s (216,800 cfs)</td>
</tr>
<tr>
<td>4</td>
<td>1976</td>
<td>April</td>
<td>5806 m³/s (205,000 cfs)</td>
</tr>
<tr>
<td>5</td>
<td>2019</td>
<td>April</td>
<td>5404 m³/s (190,800 cfs)</td>
</tr>
<tr>
<td>6</td>
<td>2017</td>
<td>April</td>
<td>5340 m³/s (188,600 cfs)</td>
</tr>
<tr>
<td>7</td>
<td>1979</td>
<td>May</td>
<td>5119 m³/s (180,800 cfs)</td>
</tr>
<tr>
<td>…</td>
<td>…</td>
<td>…</td>
<td>…</td>
</tr>
<tr>
<td>16</td>
<td>2018</td>
<td>April</td>
<td>4467 m³/s (157,800 cfs)</td>
</tr>
</tbody>
</table>
disrupted the economy throughout the Great Lakes region, without providing significant additional relief on Lake Ontario. Furthermore, the gradual decline of Lake Ontario and upper St. Lawrence River levels through the summer months caused the velocity in the river to gradually increase, even while outflow was maintained at the same record-rate. This presented additional challenges, and eventually, maintaining record-high flows was no longer safe for navigation. As a result, starting in mid-August, flows were gradually reduced to ensure safe river currents and to allow ship transits to continue.

**Question 13. How effective were the deviation strategies of 2017 and 2019 compared to the strategy employed during the summer of 1993, when outflows were set at alternating rates that temporarily stopped commercial navigation?**

**Answer:** The Board’s deviation strategy in 2017 and 2019 resulted in continuously higher outflows released for a longer duration when compared to the strategy in 1993. Record-sustained outflows averaging 10,400 m³/s (366,900 cfs) were released for 54 days in 2017 and 69 days in 2019. Compared to 1993, when outflows averaged 10,190 m³/s (359,900 cfs) over just 23 days, the strategies employed in 2017 and 2019 allowed more water to be removed from Lake Ontario, a greater rate of lowering and more rapid relief to Lake Ontario riparians, and with fewer impacts on other stakeholders.

**Explanation:**

In both 2017 and 2019, Lake Ontario outflows were set higher than those released in 1993 on a weekly basis and were sustained for a longer period, while permitting navigation to continue with the Seaway’s mitigation measures in place. The flow of 10,400 m³/s (366,900 cfs) is the highest sustained outflow on record. In 2019, this flow of 10,400 m³/s was maintained from 13 June to 21 August, and over those 69 days, this record-outflow removed the equivalent of about 3.17 m (10.4 ft) of water from Lake Ontario. This is more than the total number of days that the same record-outflow was sustained during the summer of 2017, when it lasted from 14 June to 8 August, and removed just over 2.5 m (8.2 ft) of water.

The only time higher outflows have ever been released for any duration was during the high-water event of 1993, when temporary, 24-hour flow increases from 9900 to 10,900 m³/s (349,600 to 384,900 cfs) occurred approximately twice per week from 20 May to 11 June 1993. Over this 23-day period, outflows were increased a total of seven times and the Seaway suspended navigation during each of these 24-hour flow increases. The average outflow over the entire 23 days that this strategy was implemented in 1993 was 10,190 m³/s (359,900 cfs), equivalent to removing 104 cm (41 inches) of water from Lake Ontario, much less than what was achieved in 2019 and in 2017, and with greater impacts on other interests.

Overall, the outflows released during the summers of 2017 and 2019 were record-setting (Figure 11). The higher sustained outflows in 2017 and 2019 were made to lower water levels in consideration of Lake Ontario and upper St. Lawrence River riparian interests primarily, but other interests throughout the Lake Ontario – St. Lawrence River system were also considered. In addition to commercial navigation, the safety of recreational boaters and other users along the St. Lawrence River would have also been impacted by a strategy involving fluctuating outflows, both in the upper and lower St.
Lawrence River. The higher temporary outflows that this strategy would have entailed would have also increased high-water impacts downstream, including flooding and erosion along the lower St. Lawrence River. Instead, the strategy in 2017 and 2019 resulted in more predictable conditions for all users, while still ensuring record-high releases and a greater rate of lowering of Lake Ontario than was achieved in 1993, and with fewer impacts on other stakeholders.

Figure 11: Lake Ontario mean outflows during summer (Jun-Jul-Aug) from 1900-2019. Outflows during the summer of 2019 were the highest ever recorded, exceeding the previous record set in the summer of 2017.
Question 14. Why were flows reduced in October for Lake St. Lawrence boat haul-out?

Answer: High outflows from Lake Ontario contribute to low levels on Lake St. Lawrence. Flow reductions were necessary to create enough depth for Lake St. Lawrence boaters to access boat ramps and lifts.

Explanation:

The extremely high outflows, especially after Lake Ontario reached lower levels in August, reduced the level of Lake St. Lawrence just upstream (west) of Moses-Saunders Dam at Cornwall, Ontario and Massena, New York. This left many boats grounded, and many marinas and boaters unable to remove their vessels prior to winter. Reducing the outflow for one weekend in the fall (12-13 October 2019) raised the level of Lake St. Lawrence sufficiently to assist with boat haul-out without any significant impact on the level of Lake Ontario.

Figure 12: Lake St. Lawrence at Long Sault, Ontario, 10 October 2019 (source: ILOSLRB)
Effects of Regulation

Question 15. Would water levels have been lower without the St. Lawrence Seaway and Moses-Saunders Dam?

Answer: No, water levels of both Lake Ontario and the lower St. Lawrence River would have been higher in 2017, 2018 and 2019 had the St. Lawrence Seaway and Moses-Saunders Dam never been constructed, and the higher levels would have lasted for a longer duration.

Explanation:

In addition to the construction of Moses-Saunders Dam and the navigation locks, the St. Lawrence Seaway project involved significant dredging in the upper St. Lawrence River. This makes it physically possible to release higher outflows now than prior to the project.

As a result, higher regulated outflows are generally released when Lake Ontario is high, prior to and following the spring Ottawa River freshet, which lowers Lake Ontario’s water level. Moses-Saunders Dam makes it possible to reduce outflows to below what they would have been without the project, which reduces the peak level in the lower St. Lawrence River during the spring Ottawa River freshet.

The outflow conditions that would occur without the St. Lawrence Seaway/Moses-Saunders Dam project can be simulated using a relationship between the observed water levels and flows that occurred prior to the construction of the project (Figure 13). This relationship is known as the pre-project relation. The left plot compares the actual weekly mean outflow from 2017 through 2019 to the pre-project outflows calculated weekly for the same inflows or supplies to Lake Ontario. Similarly, the top right plot compares the weekly mean water level of Lake Ontario from 2017 through 2019 to the simulated pre-project level based on the pre-project outflows, while the bottom right plot compares the actual and pre-project weekly mean levels of Lake St. Louis.

As shown, the project and regulation allowed higher outflows than the natural, pre-project river channel before and after the spring. In 2019, this reduced the peak Lake Ontario level by approximately 35 cm (13.8 inches) and hastened the decline afterwards. It also allowed outflows to be temporarily reduced during the critical flooding downstream at Lake St. Louis when the Ottawa River flows were at record-highs, reducing the peak level at Lake St. Louis by over 50 cm (1.6 ft).

On its own, regulation cannot prevent flooding during periods of extreme wet weather and high inflows. However, the project and regulation do reduce the severity of high water impacts, on both Lake Ontario and the lower St. Lawrence River. During the extremely wet conditions and high inflows in 2017 and 2019, it reduced the peak and duration of flooding that occurred. In 2018, under more moderately high inflow conditions, the project and regulation were able to help prevent flooding altogether.

\[ Regulation \text{ reduces the severity of high water impacts on both Lake Ontario and the lower St. Lawrence River. In 2017 and 2019, it reduced the peak and duration of flooding; in 2018, it helped prevent flooding altogether.}\]
Figure 13: Actual (observed) versus pre-project (simulated) conditions from 2017 through 2019. Channel excavations during construction of the project allowed actual Lake Ontario outflows (left) to be higher before and after spring. This resulted in lower Lake Ontario water levels (top right) in general, and lower Lake St. Louis water levels (bottom right) during the spring of all three years, including 2018 when flooding was prevented.

Question 16. Did Plan 2014 cause the high water levels?

Answer: No, the high water levels were caused by wet weather and record-high inflows from Lake Erie and the Ottawa River.

Explanation:

The record-high water levels in 2019 followed persistently above-average precipitation across the Great Lakes basin that lasted several months, and which resulted in record-high inflows from Lake Erie, as well as the record-high flows from the Ottawa River system. These high inflows dictated how outflows from Lake Ontario had to be managed in 2019, and have dictated outflows in general since as far back as 2017.

During the summer and fall of 2018, outflows largely followed the Plan 2014 maximum L-limit. The maximum L-limit sets outflows at the highest rates possible in consideration of the level of Lake Ontario and the impacts that these high flows have on the upper St. Lawrence River, including increased current velocities and low levels on Lake St. Lawrence, both of which affect commercial navigation and recreational boating. The Plan 2014 maximum L-limit is based on a similar limit within the previous regulation plan, Plan 1958-D. However, the Plan 2014 L-limit allows for higher outflows than the Plan 1958-D version, as it better reflects modern ship capabilities and commercial navigation infrastructure, as well as knowledge gained through nearly 60 years of operations under the previous regulation plan.

In November and December 2018, as conditions turned wet, water levels of Lake Ontario began to rise.
As they did, outflows were also increased, again according to the maximum safe flow for navigation, which increases as levels of Lake Ontario rise. This generally continued until ice formation began. During this two-month period, outflows averaged 8120 m³/s (286,800 cfs), the 7th highest November-December average on record (1900-present) and equivalent to removing 2.19 m (7.19 ft) of water from Lake Ontario during this time. Nonetheless, total inflows averaged 8840 m³/s (312,200 cfs) over the same time, the 4th highest on record for November-December and equivalent to adding 2.39 m (7.84 ft), which accounts for the water level rise during this period despite the high outflows.

In the second week of January 2019, cold temperatures caused ice to begin forming in the critical areas of the St. Lawrence River. As has been done regularly since regulation began in 1960, outflows were temporarily reduced as ice formed on the St. Lawrence River to prevent ice jams that could have severely restricted flows and resulted in immediate localized flooding. These operations are done according to the I-limit of Plan 2014, which prescribes the maximum flow for safe ice formation. This rule is also based on similar rules and operational experience gained from decades operating under Plan 1958-D. This past winter, unlike the winter of 2017, the ice cover formed relatively rapidly starting on 11 January and a stable ice cover was largely established a couple of weeks later (Figure 14). Outflows were generally increased thereafter, again according to the maximum safe flow possible to ensure safe and stable ice conditions continued.

![Image](image_url)

**Figure 14**: Lake St. Lawrence ice coverage, 2 February 2019 (satellite imagery: USGS Landsat)

Ice cover on the St. Lawrence River reduces the cross-sectional area and increases the roughness of the channel, which then also causes water levels immediately upstream of Moses-Saunders Dam on Lake St. Lawrence to drop. From February and continuing into March of 2019, outflows were increased to the maximum flow that could be released from Lake Ontario, while still maintaining minimum water levels on Lake St. Lawrence to protect municipal and domestic water intakes. These minimum levels also help ensure that the ice cover remains stable.

Despite the necessary reductions to allow for ice formation and to maintain minimum levels on Lake St.
Lawrence, outflows from Lake Ontario were very high in comparison to outflows that have been released historically during this period. The total amount of water released during the three winter months from December 2018 to February 2019 was the 4th highest on record, having only been exceeded in the winters of 1986-87, 1996-97 and recently in 2017-2018.

Outflows in March remained high and near or at the maximum outflow that would maintain minimum Lake St. Lawrence levels. Cold weather also caused ice conditions to persist somewhat later than normal. On 26 March, the St. Lawrence Seaway opened for the season, and with Lake Ontario still high, outflows began to be set according to the maximum safe flow for navigation. The outflow in March was the 6th highest on record, and despite well-above average inflows from Lake Erie, Lake Ontario only rose 2 cm (0.8 inches), the 11th smallest rise recorded during the month of March since 1900.

Cool weather and high outflows continued into mid-April. The cool weather maintained a very deep, dense snowpack in the Ottawa River basin. Starting on 14 April, milder temperatures and heavy rainfall began and persisted for several days. This rain combined with a rapid snowmelt, caused Ottawa River flows to increase to record-rates, exceeding the previous record-high set in 2017. With rising levels on Lake St. Louis due to the Ottawa River outflow, the Plan 2014 F-limit began to apply to balance high water upstream on Lake Ontario and the upper St. Lawrence River with high water downstream on Lake St. Louis and the lower St. Lawrence River.

The outflows during most of the summer/fall of 2018 and the first five months of 2019 were set according to rules of Plan 2014 – namely, the “I” (ice) limit, “L”-limit and “F” (flood) limit (a description of these limits is also available online in the Board’s FAQs). These are all maximum flow limits, designed on the basis of how the Board had operated during similar conditions in the past when it often had to deviate from Plan 1958-D to achieve similar results. The maximum flow limits only apply when Lake Ontario outflows prescribed by Plan 2014 are high, and their intent is to limit outflows from being so high as to cause immediate impacts to interests within the St. Lawrence River system.

At the start of May 2019, water levels exceeded the Criterion H14 high triggers, giving the Board authority to deviate from the rules of Plan 2014. Outflows were increased throughout the month of May as the Ottawa River generally subsided (Figure 15), in order to continue balancing ongoing high water conditions in the lower St. Lawrence River with increasing water levels upstream on Lake Ontario and the upper St. Lawrence River. Beginning in June, the Board deviated from the rules of Plan 2014, and released higher outflows to provide relief to Lake Ontario shoreline property owners. Starting on 10 June, as flooding conditions subsided downstream, outflows were increased above those prescribed by Plan 2014, up to the maximum possible without stopping commercial navigation on the St. Lawrence Seaway. At this time, outflows matched the highest flows ever previously released on a sustained basis, which first occurred during the summer of 2017, and these unprecedented outflows were maintained from mid-June into mid-August 2019. Outflows were then gradually reduced as Lake Ontario levels declined, but remained 200 m³/s (7100 cfs) above the normal maximum L-limit flow for safe navigation (Figure 16). This higher rate of outflow enabled continued lowering of Lake Ontario, while also maintaining safe conditions in the St. Lawrence River.
In summary, the Board managed outflows during the unusual and extreme weather conditions from November 2018 through late-May 2019 according to Plan 2014 rules that were based on Board operations under the previous regulation plan, Plan 1958-D. During this entire period, water supplies coming into Lake Ontario were consistently high, reaching record-breaking levels in May, and neither regulation plan would have been able to take significantly more water off Lake Ontario quickly enough to make a meaningful difference in water levels and prevent the flooding in 2019.
Figure 16: The Plan 2014 L-limit prescribes the maximum outflow that can be released for a given Lake Ontario level, while still permitting safe navigation in the St. Lawrence River. This maximum outflow declines as water levels decline because as they do this reduces the capacity and increases current velocities in the St. Lawrence River. However, the Plan 2014 L-limit prescribes higher outflows than both pre-project conditions and the Plan 1958-D L-limit, and in 2019 outflows above the L-limit were released for an extended period as the Board deviated from Plan 2014 and tried to remove additional water from Lake Ontario.

Question 17. Did Plan 2014 hold water back to intentionally raise the level Lake Ontario?

Answer: No, water levels rose because of high inflows, which are uncontrolled, even while Plan 2014 outflows were well above average and at maximum flow limits throughout much of 2018 and 2019.

Explanation:

The uncontrolled, natural factors that directly influenced Lake Ontario water levels in 2018 and 2019 were also the primary factors in determining – and often constraining – outflows during this time, including:

- wet weather in late-fall and winter;
- ice conditions in the St. Lawrence River in winter;
- high and eventually record-high inflows from Lake Erie;
• deep, dense snowpack and late snowmelt coinciding with major rainfall resulting in record-flows from the Ottawa River basin; and,
• wet spring conditions around Lake Ontario itself.

It was these natural factors that at times limited how much outflow could be released under Plan 2014, not the rules themselves. These natural factors would have had the same impact on the system and similar reductions in outflow would have needed to be considered under any regulation plan, including the previous Plan 1958-D.

In fact, despite these natural constraints, total releases from Lake Ontario under Plan 2014 were well above average during much of 2018 and 2019. During the summer and fall of 2018, a combination of high Plan 2014 outflows and near-average levels of Lake Ontario resulted in very low (and at times record-low) levels of Lake St. Lawrence, limiting further outflow increases during this period. Following that, and notwithstanding the reductions needed to establish a stable ice cover, high outflows continued to be prescribed by Plan 2014 during most of the winter, again resulting in very low levels on Lake St. Lawrence.

Figure 17: St. Lawrence River at Lake St. Louis, Maple Grove, Quebec, 2 June 2019 (source: IJC)
Outflows were temporarily reduced according to Plan 2014 during the record Ottawa River freshet in spring. While these reductions are built into the F-limit rule of Plan 2014, similar actions have been taken in the past under the previous regulation plan, and regulation of outflows under any plan would have to be done in consideration of the exceptional spring conditions and the resulting impacts, both upstream and downstream. Following the spring, outflows were increased to record-setting rates as downstream flooding subsided in early-June. As described in a previous answer, without the project the levels of Lake Ontario would have been even higher in 2019.

*Figure 18: Lake Ontario at Greece, New York, 28 May 2019 (source: iLOSLRB)*
Question 18. Did operation of dams on the Ottawa River system help to reduce flows to the St. Lawrence River?

Answer: Yes. While the IJC has no authority over the dams in the Ottawa River system, as was the case in 2017, those dams were operated to reduce high flows and flooding all along the Ottawa River, and this helped reduce peak flows into the St. Lawrence River near Montreal as well.

Explanation:

In response to the extreme flooding on the Ottawa River system, every measure was taken to reduce discharges from upstream reservoirs. Further information on operations in the Ottawa River system are available on the Ottawa River Regulation and Planning Board website and a video presentation summarizing the 2019 high water event is also available.

Flood reservoirs in the northern, regulated parts of the Ottawa River basin were lowered during winter to create space to allow much of the spring runoff to accumulate in the reservoirs. The storage space allowed for reduced river flows during the spring to reduce peak flood levels throughout the Ottawa River. These actions also reduced the peak flows entering the St. Lawrence River and this helped mitigate flood impacts in the Montreal area as well. For example, at the peak of the Ottawa River flood on 30 April 2019, the combined flow reduction due to the reservoir storage amounted to approximately 5000 m$^3$/s (176,600 cfs) in reduced discharge from Carillon Dam, the most downstream dam on the Ottawa River. This equates to more than 50 cm (1.6 ft) at Lake St. Louis on the St. Lawrence River and is in addition to the effects that Lake Ontario regulation had in reducing the peak levels here. During flood events, the safety and security of riparian residents and the integrity of water retention structures take priority over hydropower production.

While flow reductions were significant, there are limitations to using the dams to reduce flows on the Ottawa River, particularly under the extreme conditions experienced in 2019. Storage capacity in the Ottawa River basin is small compared to the total volume of the annual spring freshet (i.e. the surge that occurs in the spring when rains combine with snowmelt). Total runoff from the 2019 spring freshet was nearly four times the total storage volume of the reservoirs in the basin. In addition, approximately 60 percent of the drainage area of the Ottawa River basin is uncontrolled and has no significant reservoir storage capacity. The extreme rainfall received in late-April and early-May 2019 was widespread, including significant totals in the northern part of the Ottawa River basin where there was heavy snow waiting to melt, and also over the uncontrolled southern portion of the basin at the downstream end of the system, closest to the St. Lawrence River. The physical geography of this southern area does not allow further storage of flood waters – in fact, this was clearly illustrated in 2017 and 2019 by the extensive and severe flooding that occurred along the lower Ottawa River during the record-flows in late-April and early-May.
Question 19. Would the Board have had more flexibility to release water if Plan 1958-D had been in place leading up to the record-high levels of 2019?

Answer: Likely not, as outflows from Plan 2014 were already near or at the maximum that could be released from Lake Ontario without causing additional impacts on interests throughout the system.

Explanation:

It is impossible to know exactly how the Board would have responded under Plan 1958-D in the lead-up to the spring flooding. Such decisions are based on uncertain information and with considerable subjectivity.

However, during extremely wet conditions, the constraints imposed by the capacity of the system are the same, and outflows with the new plan are very similar to those that would have occurred operating with the old plan. This is because the Plan 2014 rules that apply during such wet conditions were designed to reflect the Plan 1958-D rules plus what was learned through years of experience with deviations from Plan 1958-D during similarly wet conditions in the past. Under Plan 1958-D, the Board needed to deviate frequently from the outflow rules to address conditions (the plan plus deviations is known as 1958-DD). Deviations from Plan 1958-D rules were often needed to address winter ice conditions, adjust for the effects of high or low Ottawa River flows on the lower St. Lawrence River, and to maximize outflows to moderate Lake Ontario flooding while maintaining safe conditions for navigation. These conditions had to be addressed by deviations from Plan 1958-D, but are now included and considered directly in the outflow rules for Plan 2014.

Natural factors – including record-high inflows from Lake Erie and from the Ottawa River system – would have had the same impact on the system, and similar reductions in outflow would have needed to be considered under any regulation plan, including the previous Plan 1958-D.

For example, had the Board been operating under Plan 1958-D prior to the spring flooding in 2019, the Board would have certainly considered the potential increased risk that high inflows from Lake Erie throughout 2018 would have posed to Lake Ontario. However, high Lake Erie flows have historically not proven to be a strong indicator of spring flooding during the following year. Furthermore, Lake Ontario had reached seasonal average levels by the summer, and remained near average through the fall of 2018. Plan 2014 was nonetheless prescribing maximum L-limit outflows throughout this time, largely in response to the continuing high inflows from Lake Erie, resulting in extremely low levels on Lake St. Lawrence, immediately upstream of Moses-Saunders Dam.

Given this, it is possible that the Board may have operated in such a way that it would have caused slightly higher levels on Lake Ontario and the St. Lawrence River in the latter half of 2018 and possibly continuing into 2019. Under Plan 1958-D the Board may have reduced outflows below the maximum safe flow for navigation during the summer of 2018 in order to raise levels of Lake St. Lawrence and thereby providing some relief to those having to cope with the record-low levels there at the time. The Board had done this under similar circumstances in the past while operating under Plan 1958-D.

In January 2019, winter weather conditions would have dictated the same outflow reductions under...
both plans to ensure safe ice formation and lower the risk of ice jams in the St. Lawrence River. Stable ice conditions allowed high outflows in February and March 2019, but also again caused low water levels upstream of the dam, which increased risk to municipal water intakes (this risk would have been considered under both plans). As ice melted in March, and prior to the Seaway opening later that month, outflows remained very high (just slightly below maximum values). Given that forecasts at the start of March 2019 did not suggest the extreme weather to come, it is unlikely that the Board would have deviated from Plan 1958-D to increase the outflow significantly; had the Board done so, this would have reduced Lake Ontario water levels by at most 5 cm (less than 2 inches). When the Seaway opened in late-March, Plan 2014 again set outflows at maximum safe rates for navigation, as would have been done under Plan 1958-DD. During April and May, the record-breaking Ottawa River flows and severe flooding downstream of the dam would have limited outflows from Lake Ontario under both plans.

In summary, additional deviation authority may have resulted in small differences in outflows prior to the spring of 2019, but this would have made little difference in the water level of Lake Ontario and the St. Lawrence River by spring when record-high inflows began, and the differences may have made flood conditions worse, not better.

**Question 20. Why not draw Lake Ontario down each fall so that there is sufficient storage to prevent flooding in the spring?**

**Answer:** The outcome would have immediate consequences on other interests and will not reliably prevent future flooding impacts on Lake Ontario.

**Explanation:**

Plan 2014 does attempt to draw down Lake Ontario levels when water supplies are high, as they have been in the fall of 2017, 2018 and again in 2019. This helped to successfully prevent flooding in 2018. However, the physical capacity simply does not exist to prevent flooding in years when winter and spring water supplies upstream and downstream are as extreme as those experienced in 2017 and again in 2019.

Previous studies have shown that it is not possible to prevent all flooding on Lake Ontario, even if this was the only objective of the regulation plan (e.g., see final report by the International Lake Ontario – St. Lawrence River Study Board, pg 33). Furthermore, the impacts that can occur during low water years must be considered. For example, if there is a drought in the following spring, drawing down Lake Ontario as much as possible each fall would result in significant impacts to other interests. Extreme fall drawdowns are also known to have detrimental impacts to environmental restoration interests as well.
Potential Future Measures in 2020 and Beyond

**Question 21. What further actions can be taken to lower water levels and reduce the risk of flooding in 2020?**

**Answer:** Outflows will remain high in 2020. The IJC has given the Board authority to continue deviating from Plan 2014 even after Lake Ontario falls below the criterion H14 trigger levels, and this will allow the Board to further increase outflows whenever opportunities arise considering the impacts that these flow increases will have on other interests of the system.

**Explanation:**

The Board has had authority to deviate from Plan 2014 since 7 May 2019, after Lake Ontario rose above the high water trigger levels known as criterion H14. In light of the present extraordinary circumstances, the IJC has given the Board authority to deviate from Plan 2014 even after Lake Ontario falls below the criterion H14 trigger levels.

The outflow released from June through December 2019 was the highest ever recorded for this seven-month period. High outflows are expected to continue to be released in 2020 as the Board continues to consider all possible measures to lower the level of Lake Ontario as rapidly and as much as possible, heading into next spring. The Board has been reviewing data from the past three years to better understand when potential opportunities to deviate from Plan 2014 might be available over the next several months, and what the effects of such deviations might be on water levels and interests throughout the Lake Ontario - St. Lawrence River system.

Forecasts indicate that Plan 2014 outflows will be very high and at or near maximum values for several months. The IJC's decision will allow the Board to further increase outflows when opportunities arise considering the impacts that these flow increases will have on other interests of the system. These opportunities are expected to remove a small amount of additional water from Lake Ontario to reduce the risk of high water in 2020.

However, the Board stresses that while an outflow strategy can influence water levels, the main driver is weather, especially when wet conditions are as extreme as they were in 2017 and 2019. Likewise, the amount of additional lowering that will be achieved through deviations will largely depend on weather and water supply conditions, and whether or not a flood occurs during the spring of 2020 will also depend on weather conditions and water supplies over the winter and spring months, not the regulation plan. While the Board and the Plan are doing all that can be done, no flow management plan can eliminate the risk of future flooding.
Question 22. Are these high water levels of 2017 and 2019 the “new normal”?

Answer: Extreme high water levels are never normal, but they have occurred in the past and they will occur again in the future – when, or how frequently, is uncertain.

Explanation:

The primary cause of high water levels is always the same - wet weather. Record-precipitation caused the record-high water levels in 2017, and persistent, widespread wet weather also led to record-high inflows from Lake Erie and the Ottawa River system in 2019, resulting in new record Lake Ontario levels. Weather and water supply conditions are uncontrolled and highly unpredictable – we know extremes have occurred in the past and we expect they will occur again in the future, so we must be better prepared for the next event, even though it is difficult to know how soon that will be.

Question 23. How can shoreline residents and businesses prepare for potential future high-water events?

Answer: It is imperative that shoreline residents and businesses assess and address risk by considering all available options when living near any body of water that can potentially cause damage or harm.

Explanation:

Shoreline property owners have been impacted by two record-high water events within three years. Multi-year high water events occurring in close succession are not new – for example, Lake Ontario rose above 75.50 m (247.70 ft) and caused shoreline damages in 1973, 1974 and 1976. However, the severity of the events in 2017 and 2019 is alarming.

No regulation plan can eliminate the risk of future flooding. The only reliable means of avoiding high water impacts is through shoreline resilience measures.

It is impossible to predict with any certainty the frequency of occurrence of such extreme events, but it is highly probable that extreme high and low water events will occur again at some point in the future. In the short term, it is important for residents and businesses with at-risk properties to consider "resilient" approaches to shoreline management and implement strategies to minimize the potential negative impacts.

Unfortunately, there are no simple or easy solutions, but it is absolutely essential to assess and address risk by considering all available options when living near any body of water that can potentially cause damage or harm.

There is not a "one size fits all" solution to preparing for extremes. Some of the options for consideration may include both engineered and non-engineered approaches, or a combination of actions to find the most optimal response to local conditions. Some examples include:
Engineered Resiliency Responses
- Shoreline Protection - seawalls, revetments, groins, bulkheads, etc.
- Beach nourishment
- Flood proofing/ relocating vulnerable structures and roads
- Floating docks/dock extensions/modular board walks
- Dredging
- Marina facility relocations
- Water intake and sewer modifications
- Coastal wetland construction to mitigate losses
- Soft engineering/green infrastructure (e.g. re-vegetation of shoreline)

Non-Engineered Adaptive Responses
- Integrated shoreline management planning
- Zoning restrictions/ setbacks
- Acquisition of vulnerable properties, non-functional marinas
- Improved flood plain mapping/ technical services
- Alteration of recreational boating season
- Cargo load adjustments
- Abandoning non-functional water intakes

Figure 19: Lake Ontario beach at Cobourg, Ontario, 29 May 2019 (source: Ganaraska Conservation)
Purpose and Background
A staff report (#5688-19) was provided in May 2019 to inform the Members of the Board of the current and forecasted Lake Ontario water levels, flooding and erosion concerns, and CLOCA responsibilities and actions. The Board provided the following resolution for the report:

1. Refer the matter back to Staff for comment on the role Plan 2014 has played in the regulation of Lake Ontario water levels, including answering whether it was a contributing factor to flooding;
2. What role CLOCA can play re: working with United Shoreline Ontario, a grassroots community based organization which has the mandate of uniting residents and municipalities of the North shore of Lake Ontario;
3. Provide further information on the areas of flooding outlined in Report #5688-19 and propose solutions to the issue of flooding, with specific reference to the areas mentioned in the final paragraph but also including northern Municipalities;

The following report provides the requested information.

1) Plan 2014 and Lake Ontario Water Levels
The Great Lakes are a chain of 5 Lakes that are the largest surface freshwater system on earth, with a drainage basin area of more than 500,000 square kilometres and shared jurisdiction between Canada and the United States. Lake Ontario, the lowest Lake in the system, receives drainage from the other Great lakes, and discharges to the St Lawrence River. Of the water draining through Lake Ontario, about 85% flows in from Lake Erie, with the remaining 15% contributed directly from the Lake Ontario drainage basin. The enormity of this hydrological system, under extreme and record setting climactic conditions, is beyond human control.

Prior to the 1950’s, the Great Lakes were unregulated, and the water levels and shoreline impacts were unmanaged. Recognizing an opportunity to improve transportation of goods through the St Lawrence River and Great Lakes system, Canada and the United States created an agreement to work collaboratively to not only provide navigation channels but also create hydro-electricity on the shared waters. The St Lawrence Seaway and Power Project commenced in 1954 to provide navigation channels for movement of freight, and the Moses Saunders Dam for the generation of hydro-electricity. Deep navigation channels and locks, and the Dam were officially opened in 1959. The navigation channels also allowed for greater outflow from Lake Ontario, while the dam provided some ability to control the outflow to the St Lawrence system. Water levels of Lake Ontario and the St Lawrence River have been managed since the completion of these works with less severe high water and low water events than natural conditions would have created.

A water level plan was established for the operation of the Moses Saunders Dam. Plan 1958 was created by analysing Lake Ontario water supplies between 1860 and 1954, and was intended to keep Lake levels above 74.15m during the navigation seasons, and below 75.4m for flood protection. Several alterations to the Plan were made to adjust for problems experienced with low water levels and it was recognized that it would be necessary to occasionally deviate from the Plan when adjustments were needed to relieve level problems, but still recognize multiple interests. Attachment #1 shows Lake Ontario
water levels for the period of 1918 through 2016. The plot shows the natural water level fluctuations up to 1959 including multiple years of extreme high levels and extreme low levels. The remaining plot shows the Lake water levels under Plan 1958 through Plan 58DD. It is notable that water levels exceeded the intended maximum level of 75.4m three years during the 1970’s and twice in the 1990’s.

The 1958 water level plans were intended to provide a balanced approach to a number of interests:

- Provide navigation for transportation of freight through the St Lawrence River and Lake Ontario
- Provide for hydro-electricity generation
- Provide recreational boating
- Protect against flooding and erosion of shoreline properties

Between 2000 and 2014 The IJC examined alternative Plans to better balance the various interests. The International Joint Commission provided a History of Water Regulation in the Lake Ontario St Lawrence River Basin and stated “...In the ensuing decades, shoreline development in the region continued to grow. New homes were built, many residents converted summer cottages to year-round residences, and recreational boating grew to become a significant economic activity. But greater development also meant that greater impacts were felt from fluctuating water levels, particularly on occasions when water supplies were more extreme than Plan 1958-D was designed to handle. By the 1990’s, there was growing dissatisfaction with the current regulation plan.” Recognizing that Plan 1958 had not considered ecosystem health, and that the water level regulation had caused significant harm to coastal wetland environments, the IJC also studied alternative plans to include protection of natural processes and shoreline environment including coastal wetland protection in the list of interests. After a very lengthy process involving extensive consultation and debate, Plan 2014 was approved and implemented in 2016, with the intention of providing a Plan that continues to balance the interests as previously stated, and also providing consideration for ecosystem health.

The IJC provided rational for the new plan and impact assessments for the proposed changes:

“...there was general, and often strong, support for Plan 2014. For example, the U.S. Environmental Protection Agency (USEPA) supported Plan 2014, writing that Plan 1958DD has significantly degraded Lake Ontario wetlands and vital fish and wildlife populations, and that Plan 2014 would increase the diversity and functioning of 26,000 ha (64,000 acres) of coastal wetlands. Conservation Ontario wrote to explain the significant economic value of wetlands and asserted that Plan 2014 would contribute to the economic, ecological and social well-being of the Lake Ontario and St. Lawrence River. The U.S. Department of the Interior wrote that Plan 2014 would best meet the stated goals and that it represented the most logical approach to bringing water level regulation into the 21st century. The City of Montreal supported Plan 2014, as well. The Nature Conservancy noted that selecting Plan 2014 would reverse decades of environmental harm, while rejecting it would not solve the coastal impact problems that would have to be confronted no matter the regulation plan. Audubon New York wrote to advise that Plan 2014 was central to the long-term success of the Great Lakes Restoration Initiative and the overall restoration of this important ecosystem. Ducks Unlimited commented that the IJC and other principal interests had done an outstanding job of balancing the needs and requirements of all the major parties, and encouraged the IJC to implement Plan 2014.”

Lake Ontario – St Lawrence River Plan 2014 (International Joint Commission, June 2014)

Both Plan 2014 and Plan 1958DD protect coastal development from damage that would occur on Lake Ontario without regulation. Studies show that average annual coastal damages on Lake Ontario would be approximately $46 million under natural conditions, approximately $18 million under plan 1958DD and approximately $20 million under Plan 2014.

Cont’d
Lake Ontario-St Lawrence River Plan 2014: Summary of Benefits and Impacts (IJC 2016)

The adjacent figure from the Lake Ontario-St Lawrence River Plan 2014 (IJC 2014) shows the Lake Ontario water levels for Plan 2014 versus the former Plan 58DD using both historical (1900-2008) water supply records as well as stochastic water supplies that included wetter and drier conditions than have been experienced in the historical record. The figure shows that Plan 2014 will allow both historical and stochastic (probabilistic) maximum water levels to increase by less than 0.1m.

2017 and 2019 Record Lake Levels
During high water level and flood conditions, the IJC utilizes dam operations in an attempt to minimize damage throughout the Lake Ontario-St Lawrence River system. This sometimes results in reducing Lake Ontario outflow despite flooding of Lake Ontario shoreline, when serious flooding is occurring in the lower St Lawrence (i.e., Montreal area).

After the establishment of Plan 2014, Lake Ontario hit record high water levels in 2017, and again in 2019. Flood damages were experienced around the Lake Ontario shoreline and in the St Lawrence River system over extended periods of time, and shoreline erosion has been greatly accelerated with the two years of extreme water levels. There has been a great deal of discussion of the possible link between the new water level management plan and the extreme water levels experienced.

CLOCA, in association with the Ganaraska Region and Lower Trent Conservation Authorities, is updating the 1990 Lake Ontario Shoreline Hazard Study for the shoreline reach between Ajax and Brighton. Zuzek Inc., a coastal engineering company, has been retained to complete the study, with completion expected by the end of 2019. The attached graph (Attachment #3) was provided by Zuzek Inc. during a recent Steering Committee meeting for the study, and provides insight regarding the influence of water level regulation on Lake Ontario water levels. The graph is based upon statistical analysis of modelled and measured lake level data provided by Environment Canada for the time period between 1900 and 2017. This analysis was provided in the spring of 2019 prior to the new record high water levels in Lake Ontario. The 2019 data will be added to the analysis for the final report.

The analysis shows the 100 year (levels that have a 1% chance of occurring in any given year) static Lake Ontario water levels that would be experienced under various scenarios including:

- No regulation (natural conditions prior to the Moses Saunders dam and channel works)
- Plan58DD (the plan used prior to 2014)
- Plan 2014 (the plan in current use)

Actual measured maximum water levels are also included in the chart to compare actual maximum levels against the 100 year water levels. The chart shows that without regulation, the 100 year Lake levels would reach extreme levels more than 0.3m higher than the regulated scenarios. The natural scenario would also allow for much higher 100 year water levels through the winter, spring and fall months also. This scenario would result in much greater flood damage as well as significantly increased rates of shoreline erosion.

Plan 2014 allows the Lake level to be slightly higher than the previous Plan 58DD. The analysis shows the effect of Plan 2014 over the previous plan is an increase in 100 year flood level of about 0.1m, and is consistent with the IJC assessments.

Cont’d
In 2017, snow melt and rainfall resulted in above average water levels for all the Great lakes, but extreme runoff from the Ottawa River watershed and Lake Ontario drainage basin resulted in severe flooding of the lower St Lawrence River and record high water levels in Lake Ontario. The Great Lakes-St Lawrence River Adaptive Management (GLAM) Committee completed a thorough investigation of the 2017 water management, as documented in the Great Lakes Basin Conditions and Water Level Impacts to Support Ongoing Regulation Plan Evaluation (GLAM, November 2018). The report concludes that the water levels experienced in 2017 under Plan 2014 would have been the same if the former Plan58DD had been in effect. The report provides findings and suggested next steps for the adaptive management of water level regulation including:

- Continue to test and improve simulation models to include more variations in climactic conditions and reduce uncertainty in predictions.
- Continue to study and evaluate Plan 2014’s maximum flow limits for:
  - flooding and erosion impacts (F-limit) of Lake Ontario and the St Lawrence River
  - river level and velocity (L-limit) for navigation
- Examine trigger levels (levels that allow for deviation from the Plan) for extreme conditions

In 2019 high water levels returned. All of the Great Lakes experienced extreme water levels, with flooding and erosion impacts experienced on the shorelines. These levels have very little to do with water regulation, but everything to do with an extreme amount of water in the system provided by the Great Lakes drainage basin.

<table>
<thead>
<tr>
<th>Lake</th>
<th>Average Summer Level</th>
<th>2019 Summer level</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Ontario</td>
<td>75.1m</td>
<td>75.9m (Record)</td>
<td>0.8m</td>
</tr>
<tr>
<td>Lake Erie</td>
<td>174.3m</td>
<td>175.2m (Record)</td>
<td>0.9m</td>
</tr>
<tr>
<td>Michigan-Huron</td>
<td>176.7m</td>
<td>177.4m (Record)</td>
<td>0.7m</td>
</tr>
<tr>
<td>Superior</td>
<td>183.5m</td>
<td>183.9m (Record)</td>
<td>0.4m</td>
</tr>
</tbody>
</table>

Under the extreme conditions experienced in 2017 and 2019, given the enormity of the Great Lakes system and the fact that inflows to Lake Ontario from the Niagara River and Lake Erie are unregulated, no other actions could have been taken under any regulatory plan or approach to prevent flooding. Widespread and record setting precipitation and water volumes from snow melt brought water volumes that led to flooding on the shoreline of Lake Ontario beyond human control. Thus, events of unusual magnitude or severity are referred to as natural hazards (Understanding Natural Hazards, MNR, 2001). In this case, the natural hazard of the Lake Ontario flood plain.

Nevertheless, it will be important to continue to take an adaptive management approach to the Lake Ontario water level plans, with further examination of the most recent record Lake levels, climate change scenarios, and variations on plans that may provide improved regulation.

2) United Shoreline: Ontario

The United Shoreline: Ontario website provides information for the organization. According to the website, this is “…a grass-roots community based organization with the mandate of uniting the residents and municipalities of the north shore of Lake Ontario in one voice”, and an objective “…to engage governments and private home owners toward the protection of lakeshore homes, families, businesses, emergency responders and municipalities from violent or wide-spread lake surge flooding.”

United Shoreline raises awareness of impacts to shoreline property from Lake Ontario water levels and shoreline erosion. CLOCA staff requested information on membership, and involvement of municipalities and Conservation Authorities with US:O through the US:O website, but have not yet received the information.
CLOCA has a role with natural hazard management that includes:

- Identifying natural hazards and limits
- Regulating development to limit conflict with natural hazards
- Providing monitoring services and flood forecasting and warning information to assist with emergency response
- Providing technical advice and services to mitigate the risk of flooding

CLOCA would be happy to receive more information, suggestions, and concerns from homeowners on the shoreline as well as United Shoreline: Ontario, and can provide responses and information under our role. CLOCA staff have reviewed and circulated a recent “Understanding Plan 2014 for Municipalities” presentation from United Shoreline: Ontario, and have registered for a webinar entitled “Why is Lake Ontario Flooding and What Needs to Change”.

CLOCA continues to work closely with our municipal partners and lakeshore communities to protect people and property from natural hazards.

3) Shoreline Damage Centres
The current source of information for natural hazards along the Lake Ontario shoreline within CLOCA’s watershed is the Lake Ontario Shoreline Management Plan by Sandwell Swan Wooster Inc, (1990). This report provides flood and erosion limits that have been utilized to develop regulation limits when Ontario Regulation 42/06 provided CLOCA the authority and responsibility to regulate development along the Lake Ontario shoreline in 2006. The Sandwell report also documented shoreline Damage Centres and suggested protection measures that could be employed to manage the risk at these locations. The damage centres are areas where structures exist in close proximity to a shoreline reach with high risk of flooding or erosion. The Sandwell study will be replaced with the Shoreline Hazards Management Plan currently in progress by Zuzek Inc. However, until the Zuzek report is finalized in late 2019, the 1990 report continues to be relied upon. The 1990 documented damage centres and recommended shoreline protection measures are:

C1: Crystal Beach, Whitby

The Crystal Beach community is located behind a bluff and partially backed by the Corbett Creek Marsh (coastal wetland). The Marsh outlets to the lake with a barrier beach system, and to the west of the beach, the bluff builds to heights of 5 metres. The reach is located immediately to the east of Thickson’s Point, a land feature that likely acts as a littoral barrier and limits the amount of sediment passing to the Crystal Beach reach. The bluff is within metres of Crystal Beach Road, and boulder and armour stone revetments have been placed to protect the road and water service that lies within the road allowance.

The Sandwell report notes that low lying areas are prone to flooding from the Marsh during storm events, and the bluff is subject to relatively high erosion rates because of the orientation and proximity to Thickson’s Point. The report recommends an armour stone revetment where shoreline protection is required. Works such as stone revetments will require monitoring and maintenance as wave energy continuously works to shift the armouring.

C2: Stone Street, Oshawa

Approximately 45 homes are located on the Lake Ontario bluff on the south side of Stone Street. The bluff reaches heights of about 10m and some homes are within 15m of the bluff. The Sandwell report notes that the bluff protrudes lakeward relative to adjacent shorelines, and is therefore exposed to wave action and erosion. Residents have placed concrete, sheet piling, drums, and tires in an attempt to arrest erosion of the lower portion of the bluff. Sandwell notes these measures are “totally inappropriate” and suggests that offshore breakwaters or headlands with artificial beach placement, in combination with acquisition of private properties and conversion to parkland as the ideal solution.

C3: Muskoka Ave/ Kluane Ave, Oshawa

A 14m tall bluff projects into the Lake at Kluane Avenue, and is prone to wind and wave activity. The bluff height diminishes to the west where a number of homes remain on the shoreline. Approximately 7 homes exist within this damage centre, and the City of Oshawa has effectively acquired homes from this area and enlarged the Lakeview Park.

Cont’d
C4: Port Darlington Beach, Clarington

The Sandwell report focuses on the Cedar Crest Beach portion of Port Darlington, and describes the 50 houses on the and sand spit prone to both flooding from the Westside Creek Marsh and lake Ontario. The report suggests a dyke to protect properties from the riverine flooding, and placing beach materials between off shore breakwaters. Detailed studies are suggested to ensure beach placement would not create a silt problem in the harbour approach channel. The report also notes the high cost for protection of this area, and the possibility for acquisition of the entire beach area.

Other Shoreline Areas of Concern

Through the mapping of floodlines and erosion limits, CLOCA is aware of other shoreline locations where possible shoreline damage centres exist. These include the Wilmot Retirement village (bluff erosion), South Service Road (low bluff erosion) East Beach Road (bluff erosion), West Beach Road (flooding and dynamic beach erosion), Cove Road (bluff erosion), Halls Road (bluff erosion), and Ontoro Boulevard (flooding and bluff erosion).

Shoreline Protection

Where structures are at risk from Lake Ontario flooding (including storm surge and wave uprush), the most appropriate solution is to relocate the structure out of the area of flood risk. Where this cannot be accomplished, floodproofing structures and preparing emergency plans are measures that can reduce some of the risk associated with flooding. Flood protection barriers may be possible, but are generally expensive to build and maintain, creating an on-going liability and sometimes a false sense of security.

Shoreline erosion is most often managed by hardening the shoreline with armour stone or sheet piling, or construction of groins to break waves and trap sediment. These works, if well engineered, can be affective, but have high capital costs, annual maintenance costs, and lifespan replacement costs (perpetual costs).

It is also important to recognize the impacts of shoreline protection. Any time that a natural process is interrupted, off-setting impacts are likely. Shoreline erosion is a natural process where beaches and bluffs erode during high water and wave events. The process converts the energy of the wave into the work of moving sediment. The eroded sediments are carried offshore, but will be placed back on the shoreline over time, as beach material.

When shoreline armouring is placed to arrest shoreline erosion, the immediate impacts are: the loss of the beach at the armouring site because of scouring at the toe of the armouring and the inability of sediment to reach the upper beach zone; and the deflection of the wave and energy which can result in increased erosion of the closest unprotected shoreline area. Armouring shorelines also depletes the amount of sediment in the natural system. CLOCA’s shoreline is currently about 25% hardened through both public and private shoreline armouring. It follows that the beaches on CLOCA’s shoreline have 25% less sediment available than they would have naturally received.

Similarly, groynes act to break waves and trap sediment. These features provide protection to the adjacent shoreline, but may intercept sediment that would otherwise travel to a beach further removed from the site.

The extreme water levels, flooding, and shoreline erosion, are all reminders of the importance of CLOCA’s regulatory role to limit development in hazardous locations and the need to effectively implement long-standing provincial land use policy for Natural Hazards such as Lake Ontario flooding and erosion hazards through local Official Plans and zoning by-laws. The Lake Ontario Shoreline Hazard Management Plan will provide updated information and recommendations to assist CLOCA and our municipal partners with the future management of our shoreline.

RECOMMENDATION:
THAT Staff Report #5658-19 be received for information.

PS/ms
Attach.
Great Lakes Water Levels (1918-2016)

The monthly average levels are based on a network of water level gages located around the lakes. Elevations are referenced to the International Great Lakes Datum (1985).
Water Levels – Static WL

- Influence of regulation plan:
Beginning-of-July levels of all Great Lakes are at or above record-highs

Due to continued high water levels, the risk of accelerated coastline erosion and flooding to low-lying areas continues. For local sources of information on this, see the following sections of this edition of LEVELnews.

All of the Great Lakes began July at or above their record high levels, when we look at our period of record from 1918 to 2018. Parts of the St. Lawrence River also continued to experience high levels, including areas around Montreal Harbour.

Record high levels could continue for the remainder of the summer for all the Great Lakes, if wet conditions continue. However if they receive average water supplies, all lakes will be entering their seasonal decline by mid to late summer. However, even if the remainder of the summer and fall are very dry, forecasts for all of the lakes predict above average water levels through to the beginning of winter.

Continued wet conditions in June resulted in record high June-monthly-mean levels on lakes Superior, St. Clair, Erie and Ontario. Lake Michigan–Huron was just below its June-monthly-mean record.

### Great Lakes Water Level Information

<table>
<thead>
<tr>
<th>Lake</th>
<th>June 2019 Monthly Mean Level</th>
<th>Beginning-of-July 2019 Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Compared to Monthly Average (1918–2018)</td>
<td>Compared to One Year Ago</td>
</tr>
<tr>
<td>Superior</td>
<td>39 cm above</td>
<td>28 cm above</td>
</tr>
<tr>
<td>Michigan–Huron</td>
<td>77 cm above</td>
<td>34 cm above</td>
</tr>
<tr>
<td>St. Clair</td>
<td>81 cm above</td>
<td>27 cm above</td>
</tr>
<tr>
<td>Erie</td>
<td>79 cm above</td>
<td>25 cm above</td>
</tr>
<tr>
<td>Ontario</td>
<td>85 cm above</td>
<td>69 cm above</td>
</tr>
</tbody>
</table>
The beginning-of-July water levels for Lake Erie and Lake Ontario are the highest beginning-of-month levels that have ever been recorded since 1918, at any time of the year on these lakes. Lake Superior’s and Michigan–Huron’s beginning-of-July water level are a record high for this time of year, but higher beginning-of-month water levels have been recorded at other times of the year.

**Be prepared for high water**

With beginning-of-July levels of all the lakes at record-high or near-record-high values, all should be prepared for its impacts during summer. Stakeholders with interests along the lakeshore that are susceptible to shoreline erosion or are in low-lying areas should pay close attention to any weather systems that generate strong sustained winds. Such weather systems can result in a storm surge possibly causing localized flooding and accelerated erosion due to waves reaching higher up on the shoreline. With current lake levels, waves could reach elevations that have not been affected since prior to 1918.

Property owners around the Great Lakes should be following information from their local responsible agencies on high water impacts. For those planning activities around the Great Lakes this summer it is a good idea to check current local conditions before heading out. Be prepared for some possible impacts such as flooding of beaches, boat ramps, docks, low-lying parks, campgrounds, property and structures.

To help you plan your summer and keep you safe, consult the sources of information on flood conditions in your area. You will find references in the “Information on flooding” section. As well it’s a good idea to check current water levels and wave forecasts when planning for activities around the lakes. Sources of current water levels and marine wave forecasts are provided in the “Current water levels, marine forecasts” section below. Property owners around the Great Lakes are also strongly encouraged to consult the information provided by their local responsible agencies on high water impacts on a regular basis.

**Information on flooding**

Great Lakes water levels are hard to predict weeks in advance due to natural variations in weather. To stay informed on Great Lakes water levels and flooding, visit the Ontario flood forecasting and warning program web site at [https://www.ontario.ca/flooding](https://www.ontario.ca/flooding).


Additional information can also be found at the International Lake Superior Board of Control web site, [https://www.ijc.org/en/lsbc](https://www.ijc.org/en/lsbc), and the International Lake Ontario–St. Lawrence River Board web site, [https://ijc.org/en/loslrb](https://ijc.org/en/loslrb).

More information is also provided in the “Water levels forecast” section at the end of this newsletter.

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**June Precipitation over the Great Lakes**

<table>
<thead>
<tr>
<th>Lake System</th>
<th>Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Lakes Basin</td>
<td>109%</td>
</tr>
<tr>
<td>Lake Superior</td>
<td>87%</td>
</tr>
<tr>
<td>Lake Michigan–Huron</td>
<td>114%</td>
</tr>
</tbody>
</table>

**June Outflows from the Great Lakes**

<table>
<thead>
<tr>
<th>Lake System</th>
<th>Outflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Superior</td>
<td>123%</td>
</tr>
<tr>
<td>Lake Michigan–Huron</td>
<td>128%</td>
</tr>
</tbody>
</table>

1 As a percentage of the long-term June average.
2 US Army Corps of Engineers

**NOTE:** These figures are preliminary.

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**Information on current water levels and marine forecasts**

lakes-levels-related-data.html provides a source for web sites on up-to-date Great Lakes water levels.

**Daily levels:** Current daily lake wide average levels of all the Great Lakes are available on the Government of Canada Great Lakes water levels and related data website by clicking on “Daily water levels for the current month”. The daily average water level is an average taken from a number of gauges across each lake and is a good indicator of the overall lake level change when it is changing relatively rapidly due to the high precipitation recently experienced.

**Hourly levels:** Hourly lake levels from individual gauge sites can be found at the Government of Canada Great Lakes Water Level Gauging Stations website at: http://tides.gc.ca/eng/find/region/6 provides hourly water levels. These levels are useful for determining real-time water levels at a given site, however it should be noted that they are subject to local, temporary effects on water levels such as wind and waves.

**Marine forecasts:** A link to current Government of Canada marine forecasts for wave heights for each of the Great Lakes can be found on the Great Lakes water level and related data web page under the “Wave and wind data heading”. Current marine forecasts for lakes Superior, Huron, Erie and Ontario are available by clicking on the link of the lake you are interested in. To view a text bulletin of recent wave height forecasts for all of the Great Lakes click on the “Wave height forecasts for the Great Lakes and St. Lawrence River” link.

**June monthly levels**

All the Great Lakes had well-above-average monthly-mean water levels in June and lakes Superior, Erie and Ontario had record-high values (1918–2018).

Lake Superior was 39 cm above its period-of-record (1918–2018) June monthly-mean water level and 28 cm above its level in June 2018. This set a record high value for the month, surpassing the previous June record set in 1986 by 8 cm, but is still 7 cm below the record-high monthly-mean level set in October 1985.

Lake Michigan–Huron’s monthly-mean level in June was 77 cm above average, 34 cm above last June’s level, the 2nd highest June mean level on record and just 1 cm below the record set in 1986.

Lake Erie’s monthly-mean level was 79 cm above average, 25 cm above its level the same time last year and 10 cm higher than the previous record set in 1986. This is now the highest mean-monthly level on record.

Lake Ontario’s June monthly-mean level was 85 cm above average, 69 cm higher than a year ago, and 10 cm higher than the previous record set in June 2017.

**Lake level changes**

All of the Great Lakes, except Lake Superior, had above-average rises over the month of June, due mainly to continued above-average precipitation. Lake Superior’s levels rose only 3 cm in June, significantly less than its average (1918–2018) rise of 8 cm.

Lake Michigan–Huron rose by 10 cm when on average it rises of 6 cm.

Lake Erie’s level rose by 10 cm, five times its average rise of 2 cm.

Lake Ontario rose by 1 cm when on average in June it falls by 1 cm.

**Beginning-of-July lake levels**

At the beginning of July lakes Superior, Erie and Ontario all had record high levels for that time of the year. Lake Michigan–Huron’s level tied its record high value.

Lake Superior’s beginning-of-July level was 36 cm above average (1918–2018) and 25 cm higher than July 2018. This beginning-of-July level is 4 cm higher than the previous record-high value set in 1943, but 6 cm below the record high monthly-mean level of October 1985.

Lake Michigan–Huron’s beginning-of-July level was 79 cm above average and 35 cm higher than its level at the same time last year. This equalled the Lake Michigan–Huron record high set at beginning of July 1986.
Lake Erie was 83 cm above average at the beginning of July and 30 cm higher than the same time last year. This was 14 cm higher than the record high beginning-of-July level set in 1986.

Lake Ontario’s level at the start of July was 85 cm above average and 74 cm higher than the water levels last year. This also set a new record by 12 cm over the beginning-of-July record set in 2017. Lake Ontario levels reached a maximum daily-average level of 75.92 m by June 6, which was 4 cm higher than the record-high daily-average level first set on May 25, 2017. Levels gradually fell to 75.82 m on July 11 due to very high outflow from the lake.

At the beginning of July, all of the lakes were at least 65 cm above their chart datum level.

Water levels forecast
Relative to their beginning-of-July levels and with average water supplies for this time of year, lake Superior and Michigan–Huron rise over the month of July, while lake Erie and Ontario enter their seasonal decline.

Looking ahead into early fall, and based on their beginning-of-July levels and past conditions on the lakes (1918–2018), continued seasonal record-high water levels are forecasted for all the lakes for the remainder of the summer, if the lakes continue to receive above-average water supplies. If the wet trend changes and very dry conditions occur, all of the lake levels will remain well above average into October.

Lake Superior’s probable range of future lake levels looking forward to October are between 19 cm and 41 cm above average. This forecast, based on beginning-of-July conditions, indicates that if the lake receives average water supplies it will be near or above seasonal record levels for August and September, but will only just reach the October 1985 period-of-record high (1918–2018) if it receives very wet water supplies. Lake Superior is forecasted to be only 1 cm above its period-of-record high of October 1985 if very wet conditions are seen between the beginning of July and October, but if average water supplies are seen it will be 9 cm below its October 1985 record high. However, because the August and September seasonal records are considerably below October’s, it will only take above-average water supplies to keep its levels above seasonal August and September records.

The probable range of values until October for Lake Michigan–Huron are between 64 cm and 94 cm above average. Within this probable range of values, Lake Michigan–Huron could break its seasonal records for August and September by a few centimetres, but only if conditions are very wet. However its levels in October are likely to be from 12 cm to 42 cm below its period-of-record high, which occurred in October 1986.

The probable range of values for Lake Erie up to October are between 48 cm and 81 cm above average. If very wet conditions occur, Lake Erie could exceed record high levels by 15 cm within the probable range of future lake levels, however it is more likely to stay just above its seasonal-record-high values for August and September and drop below record values by October.

Lake Ontario’s probable range of levels are between 26 cm above average with very dry conditions and 77 cm above average with very wet conditions. Lake Ontario’s levels could stay above record high values by as much as 8 cm through to October if very wet conditions occur, but more likely to drop below seasonal-record-high values.

For more information on the probable range of water levels consult the July 2018 edition of LEVELnews.

For a graphical representation of recent and forecasted water levels on the Great Lakes, refer to the Canadian Hydrographic Service’s monthly water levels bulletin at: https://waterlevels.gc.ca/C&A/bulletin-eng.html.
Expedited review of Plan 2014 begins

**Facebook**

**Twitter**

**Date**
March 03, 2020

The International Joint Commission (IJC) recently received $1.5 million in funding from the United States, with an additional $1.5 million in matching funds from Canada, to investigate possible improvements that could be made to Lake Ontario outflow regulation activities.

Extremely wet conditions over the last several years have driven record-high water levels and river flows in the Lake Ontario-St. Lawrence River system. This 18- to 24-month investigation will focus on gathering information to help inform the critical decisions needed to best manage these extreme conditions, and on providing information that may lead to long-term improvements to the regulation plan.

This effort will be managed by the Great Lakes-St. Lawrence River Adaptive Management (GLAM) Committee, a sub-committee to the IJC’s International Lake Ontario-St. Lawrence River Board, International Niagara Board of Control, and the International Lake Superior Board of Control. The GLAM Committee provides all of the Great Lakes control Boards, including the International Lake Ontario-St. Lawrence River Board, with the scientific data and analysis required to review the performance of regulation plans so that the Boards can evaluate potential changes to those plans. The GLAM Committee has already started executing tasks in support of this expedited review to help the Board with key decisions for this spring.

“The IJC is committed to making this an open and transparent review and is in the process of creating a special advisory group to support the GLAM Committee through this process,” according to Jane Corwin, US Co-Chair of the IJC.
This advisory group will be made up of people representing a wide range of interests throughout the Lake Ontario-St. Lawrence River system. “The advisory group will create an invaluable, direct connection between the review and those impacted by water levels and flows throughout the system,” said Pierre Béland, Canadian Co-Chair of the IJC.

No regulation plan will be able to prevent the extremely high water levels and flows experienced during these periods of record-setting water supplies. However, the IJC remains fully committed to finding the best solutions possible for managing levels and flows, especially during these periods of extreme conditions.

**Contact:**

Sarah Lobrichon (Ottawa)  613-992-5368  lobrichons@ottawa.ijc.org

Frank Bevacqua (Washington)  202-736-9024  bevacquaf@washington.ijc.org
The following report is intended to inform and update the Members of land management and field operation activities within our Conservation Areas during the winter/spring of 2019/2020.

Our watershed received the first snowfall on November 7th, 2019 and it was followed by some fairly significant snowfall accumulations through December. Winter maintenance activities were completed throughout CLOCA’s Conservation Areas and Main Administrative Office in order to clear snow and treat laneways/parking lots/walkways. Primary locations included the Main Administrative Office, Lynde Shores Conservation Area, Heber Down Conservation Area, Enniskillen Conservation Area, Long Sault Conservation Area, Stephen’s Gulch Conservation Area and Bowmanville Westside Conservation Area. The Purple Woods Conservation Area was added to the maintenance list in February as we prepared the grounds for the Maple Syrup Festival.

The onset of the COVID-19 pandemic in mid-March continues to be a unique situation for our society. It forced land management and operations staff to alter normal operations and re-group. Significant efforts were made at the outset of the COVID-19 pandemic in Durham Region to communicate, educate and encourage “social distancing.” People were either not listening or not taking the situation seriously.

CLOCA staff work diligently to ensure that we can invite the public onto our lands where they can have a safe and enjoyable connection with nature. We have a “duty of care” to the public and take that responsibility very seriously. The very thought of having to close our natural areas in order to protect the public from themselves was a difficult, but necessary concept that evolved quickly throughout the Province.

On Wednesday March 25, 2020, it was announced “Conservation Areas to be CLOSED during COVID-19, effective immediately (Attachment 1).” This proactive measure was taken in order to protect staff and members of the public from contracting COVID-19. The approach was consistent with the vast majority of Conservation Authorities throughout the Province of Ontario. CLOCA Provincial enforcement staff received ministerial designation under the Provincial Offences Act (Attachment 2), empowering officers to enforce orders made under the Emergency Management and Civil Protection Act (EMPCA). Officers communicated/worked closely with officers from neighbouring Conservation Authorities, Municipalities, Conservation Officers (MNRF) and Durham Regional Police Services to ensure that lands and infrastructure owned by CLOCA were secure and closures were being respected.

As of early May 2020, Conservation Areas remain closed. Staff will continue to monitor provincial direction for re-opening of public spaces, and will consult with Conservation Ontario and coordinate Conservation Area re-opening with municipal park and/or provincial park practices.

Cont’d
PURPLE WOODS CONSERVATION AREA

With the onset of above seasonal temperatures in February 2020, Purple Woods Maple Syrup Festival tapping activities were completed in the Purple Woods Sugar Bush during the week of February 24, 2020. Tapping this season was approximately two weeks earlier than last season due to an earlier spring. CLOCA staff completed sap line maintenance/repair work and tapped approximately 800 trees with 1400 taps just in time for our first run of sap. Our first significant run of sap occurred on March 5, 2020 and for the most part the taps did not shut off.

For the Province of Ontario and specifically the Region of Durham, March would prove to be a month that our society had never really experienced before. In an effort to stop the spread of the COVID-19, the Government of Ontario issued emergency declarations and closed all non-essential workplaces. Regulatory enforcement/land securement, environmental management and agricultural/food production operations (among others) were deemed essential. Essential staff re-grouped and made adjustments to operational procedures/work schedules. Extensive safety precautions were implemented in order to decrease staff/public interaction and heighten staff safety. CLOCA buildings and infrastructure were closed, Conservation Areas were closed to the public, staff were dedicated vehicles, safe work spaces were developed, social distancing space provided and SOP’s were developed that would reinforce special health and safety procedures and Personal Protective Equipment.

It is safe to say that Mother Nature deemed herself essential as perfect maple syrup production conditions developed through the month of March and into April. Production staff worked diligently and safely to push maple syrup production yields over the 1000 litre plateau. Staff are commended for their efforts in working safely and for the pride in producing an agricultural product that we all enjoy.

The last of the high quality, wood – fired, fresh maple syrup was produced just before Easter weekend and left us with a grand production total of 1026L produced this season. Upon the conclusion of the maple syrup production operation, CLOCA staff focused on cleanup activities, sap line cleaning and the thorough cleaning of all production equipment.
LYNDE SHORES CONSERVATION AREA

At the Lynde Shores CA operations, staff worked through some difficult December conditions to install yet another Memorial Bench as part of the very successful memorial bench program. A quote received from the family in December; “Thank you very much CLOCA! I actually went down there earlier today and was EXTREMELY happy to see it there. I was able to sit and enjoy the peace and comfort that I knew it would bring. This was no small token, it was the BEST Christmas gift that I’ve ever gotten and I have your team to thank for making this happen. All my best. Gene”

On January 12, 2020, the CLOCA watershed experienced some extensive flooding. Floodwaters seemed to do the most damage at the Lynde Shores CA, just south of the main parking lot where the Authority has parking and trail infrastructure. The area was closed and repairs were completed in short order.

Pictures of Eastbourne Road and Waterfront Trail during Flooding:

After Repair Work:
HEBER DOWN CONSERVATION AREA

In mid-November operations staff closed the 1.2 km long laneway into the Heber Down CA for the winter season. The seasonal closure of the south entrance to Heber Down significantly reduces operational expenditures for the area during the winter months. Staff signed the location and have closed it four years in a row and have not received public complaints regarding the seasonal closure.

SMALL DRINKING WATER SYSTEMS REGULATION

The Authority continues to maintain and operate two licensed small drinking water systems. They are located at the Enniskillen Conservation Area (Education Centre) and the Purple Woods Heritage Hall. Maintenance inspections are completed at regular frequencies on these systems and we continue to operate in accordance with Ontario Regulation 319/08 (Small Drinking Water Systems Regulation). CLOCA operations staff work closely with inspectors at the Regional Municipality of Durham in order to ensure conformance with drinking water regulations.

RECOMMENDATIONS:

THAT Staff Report #5689-20 be received for information.

PS/DH/lv
Attachment 1 - CLOCA Conservation Areas Closures
Attachment 2 - Pandemic Guidance Enforcement of Public Safety and Security Orders

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COVID-19 Update

Conservation Areas CLOSED during COVID-19, effective immediately

The Central Lake Ontario Conservation Authority (CLOCA) announces the closure of all eight of their Conservation Areas effective immediately, until further notice. This measure is being taken to proactively protect staff and members of the public from the potential risk of contracting COVID-19.

This includes the following Conservation Areas:

1. Bowmanville/Westside Marshes Conservation Area, Clarington
2. Crow’s Pass Conservation Area, Port Perry
3. Enniskillen Conservation Area, Clarington
4. Heber Down Conservation Area, Whitby
5. Long Sault Conservation Area, Bowmanville
6. Lynde Shores Conservation Area, Whitby
7. Purple Woods Conservation Area, Oshawa
8. Stephen’s Gulch Conservation Area, Clarington

This decision was made in support of the recent legislation put in place by the province of Ontario to help impede the spread of COVID-19 and to keep CLOCA staff and watershed residents as safe as possible throughout this difficult time.

Please monitor the CLOCA website and social media channels (on Facebook and Twitter) for updates. The Central Lake Ontario Conservation Authority appreciates your understanding and thanks you for your patience.

Please note that CLOCA’s administrative office also remains closed to the public until further notice, however CLOCA will continue to operate at full capacity with all departments providing their respective services on a remote basis, with full access to email and phone. Please refer to their staff directory for staff contact information. Alternatively, you can leave a message at 905-579-0411 and CLOCA staff will respond accordingly.
Conservation Ontario Guidance During Pandemic Conditions

Enforcement of Public Safety and Security Orders

Issue


The Provincial government has signed a ministerial designation under the Provincial Offences Act to authorize Provincial Offences Officers to enforce orders under the Emergency Management and Civil Protection Act.

Advice

On March 17, 2020 the provincial government declared a provincial emergency through the authority granted under the Emergency Management and Civil Protection Act (EMCPA). Since that declaration, several emergency orders have been made under the Act to contain the spread of COVID-19 and to ensure that essential services continue to be provided and Ontarians are supported. A list of the Emergency Orders are available here: ontario.ca/alert.

Previously, only police officers and constables who have been appointed under an Act have the ability to enforce orders made under the EMCPA. Due to COVID-19, police resources are being stretched and police services have made requests to have other enforcement personnel assist with enforcing the emergency orders being made by the province.

As a result, the provincial government signed a ministerial designation under the Provincial Offences Act to authorize additional personnel to enforce EMCPA orders, including all persons or classes of persons designated in writing by a minister of the Crown as provincial offences officers, notwithstanding the offence or class of offences of that designation. As a result, CA staff who have been appointed following the Class Designation Process for Section 28 and Section 29; and CA staff who have been appointed as a Risk Management Inspector (by the Source Protection Authority pursuant to S.48 of the Clean Water Act, 2006) are now empowered to enforce orders made under the EMCPA. Note that Risk Management Officials are not empowered to enforce orders made under the EMCPA.

These new powers do not include the power of arrest or additional search powers however Schedule 1 of the Enforcement of Orders does make it a requirement for an individual to provide an officer with the individual’s correct name, date of birth and address.
Provincial direction indicates that no further approvals or authorizations are needed for Provincial Offences Officers to enforce orders under the EMCPA however Provincial Offences Officers are not required to do so. It is recommended that conservation authorities should consider the severity of each infraction in relation to the potential risk to public health and the spread of COVID-19 when taking enforcement action. As always, providing educational messaging or warnings to members of the public around the emergency orders is the most important first step.

Potential offences under the EMCPA include failure to comply with an emergency order, or to obstruct any person acting pursuant to such an order. The maximum punishment is one-year imprisonment or a fine of up to $100, 000 for an individual, $500, 000 for a director of a corporation, or $10, 000, 000 for a corporation itself. If the defendant gained a financial benefit from their violation of an emergency order, the court may increase the maximum fine to match the benefit the defendant received. Officers have discretion to charge under Part I (Certificate of Offence) or Part III (Information).

It is important to note that during this declaration of emergency, the limitation periods that normally apply under the Provincial Offences Act, Clean Water Act and Conservation Authorities Act have been suspended pursuant to order 73/20. The suspension is retroactive to Monday, March 16, 2020. As a result of this suspension, Justices of the Peace are no longer receiving Part III Informations and municipal courts are no longer accepting the filing of Certificates of Offences (Part I). Proceedings may be initiated once the declaration of provincial emergency is lifted by the provincial government. As well, the Limitation Period associated with the appeal provision that must be included in Risk Management Official or Risk Management Inspector Orders per Section 70 of the Clean Water Act (i.e., 60 days for the appeals to the Tribunal), in now an unlimited period of time for the duration of the emergency.

To assist enforcement personnel, the COVID-19 Enforcement Support Line has been established at 1-866-389-7638. Assistance is available Monday to Sunday from 8 am to 9 pm. The dedicated COVID-19 Enforcement Support line is available only to policing personnel and other enforcement personnel who are designated as provincial offences officers for the purpose of enforcing emergency orders under the EMCPA. The Ministry of the Solicitor General has also prepared a list of Frequently Asked Questions that may be of assistance.

NOTE: Conservation Ontario guidance memos are not to be considered as legal advice. Conservation authorities are encouraged to obtain a legal opinion where appropriate.

Questions or More Information

Section 28 and Section 29 Provincial Offences Officers
Leslie Rich
705-716-6174
lrich@conservationontario.ca

Risk Management Inspectors
Chitra Gowda
905-251-2802
cgowda@conservationontario.ca
DATE: March 17, 2020
FILE: ASSA5
S.R.: 5680-20
TO: Chair and Members, CLOCA Board of Directors
FROM: Chris Darling, Chief Administrative Officer
SUBJECT: Multi-Stakeholder Consultation on Conservation Authorities

**Purpose:**
To provide an update on the Ministry of Environment, Conservation and Parks’ (MECP) multi-stakeholder engagement sessions on conservation authorities.

**Background:**
The Conservation Authorities Act, (CA Act) was amended on June 6, 2019 as part of Bill 108, the “More Homes, More Choice Act”, Schedule 2. Staff provided the Board with an information report on Bill 108 at the September 17th, 2019 Board meeting. While Bill 108 is now law, many of the provisions of the amended CA Act are still subject to enabling regulations to be proclaimed by the Lieutenant Governor (Cabinet) or by the Minister. The content of the regulations that will enact the amended legislation includes:

- Mandatory Program and Service Regulations;
- Transition Regulation - transition plan, consultation, timeframe to achieve compliance;
- Governing apportionment of operating expenses and capital costs; and
- Classes of programs and services for fees and prescribed amounts.

These regulations will inform financing arrangements for mandatory services funded by upper tier municipalities. Financing for non-mandatory services will be addressed through the Memorandums of Understanding (MOUs) and Service Level Agreements (SLAs) executed as part of future annual budget processes.

While timelines associated with the release of the draft enabling regulations are unknown, MECP did commit to further stakeholder consultation. CLOCA was advised by MECP of three stakeholder meetings planned for Barrie (January 31st), Colborne (February 7th) and London (February 14th). The stakeholder meetings were intended to:

- help the province further define conservation authorities’ core mandate of preparing against natural hazards, managing conservation authority lands and protecting drinking water sources
- assist the province in improving overall governance, oversight and accountability of conservation authorities
- inform changes the province is making to the Conservation Authorities Act and associated regulations

**Summary of Colborne Consultation Session:**
The Chair of CLOCA’s Board of Directors and the CAO attended the consultation session hosted by MECP on February 7th. Municipalities, conservation authorities, development, agricultural, landowner and environmental organizations were in attendance to provide input on how to improve the efficiencies, consistency, transparency and oversight of conservation authorities (CAs). Approximately 200 people were in attendance. Minister Jeff Yurek provided opening and closing remarks, while MPP David Piccini facilitated the session. The session began with short presentations from stakeholders invited to speak about CAs’ mandatory programs and services and how all stakeholders can work together on key issues involving conservation authorities.

Cont’d
Presenters at this session included Conservation Ontario, Ducks Unlimited, Ontario Federation of Agriculture and the Ontario Home Builders’ Association, Federation of Ontario Cottagers’ Association, Ontario Land Owners Association, and Enpoint Development. Facilitated roundtable discussions with the multi-stakeholder participants followed the presentations. Participants were provided with a series of questions under the following themes:

- Mandatory and non-mandatory programs and services;
- The existing CA model;
- Partnerships and collaborations; and
- Any other feedback that would inform the governments’ review of legislation, regulations and policies related to CAs.

The questions and topics discussed during the roundtable discussions were generally consistent with the ongoing dialogue with the Province and stakeholders throughout the CA Act review process to date. Ministry staff took notes during the discussions but encouraged participants to submit written comments. The Ministry subsequently posted the questions online and stakeholders were invited to provide comments until March 13, 2020.

**Conclusion:**
It will be crucial that the forthcoming draft regulations continue to enable conservation authorities to support provincial, municipal and watershed goals and objectives in our growing watershed. Staff will continue to keep the Board informed on the outcome of the consultation sessions and the release of draft regulations associated with the amended Conservation Authorities Act.

**RECOMMENDATION:**

* THAT Staff Report #5680-20 be received for information.
REPORT

CENTRAL LAKE ONTARIO CONSERVATION AUTHORITY

DATE: March 17, 2020
FILE: LENC1
S.R.: 5681-20
TO: Chair and Members, CLOCA Board of Directors
FROM: Chris Darling, Chief Administrative Officer
SUBJECT: Naming of CLOCA Asset

Purpose:
To re-name the Enniskillen Education Centre to the Russ Powell Nature Centre in honour of Russ’ significant contribution to conservation throughout Ontario and CLOCA’s watershed.

Background:
Russ Powell (June 10, 1943 - October 23, 2019) whose distinguished career spanned more than five decades, was an influential and critical figure in natural resources management in Ontario. He spent much of his career serving the people of Ontario through the conservation authority program at both the field and provincial levels. He was instrumental in initiating many conservation authority programs and set them on solid political and financial footings, all while recruiting and mentoring resource managers. He began an era of progressive resource management, pushing traditional boundaries aside to do what was required as opposed to what was mandated. As a result, he established the basis for the contemporary conservation programs throughout much of Ontario.

Russ joined CLOCA in 1995 as the Chief Administrative Officer. Under Russ’ guidance, CLOCA played a leading role in putting the CA Regulation (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses) in place for conservation authorities across the province. Russ led the streamlining of CLOCA’s plan review process, allowing staff to respond to development approvals in a timely and cost-effective manner.

In 1998, Russ initiated an aggressive land acquisition project across the watershed, bringing together multi-level governments, foundations and non-profit organizations to leverage the financial resources for their purchase. One of his most significant undertakings was the Enniskillen Acquisition project, initiated in 2004 to protect over 590 hectares of environmentally sensitive land.

Russ was also a gifted mentor and educator and his conveyance of his knowledge and wisdom to others certainly supports the name change of one of our education facilities. The Enniskillen Education Centre located in Clarington, within the Enniskillen Conservation Area, was built in 1992 as a reception centre and shortly after Russ arrived at CLOCA it transformed into CLOCA’s main building for hosting environmental educational programs.

RECOMMENDATIONS:
THAT the Enniskillen Education Centre, a Central Lake Ontario Conservation Authority owned and operated education facility located in the Municipality of Clarington, be officially renamed the “Russ Powell Nature Centre”;
AND FURTHER THAT facility signage, along with marketing and program materials, be updated to reflect the name change.

CD/lv
Attachment – Location Map
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REPORT
CENTRAL LAKE ONTARIO CONSERVATION AUTHORITY

DATE: March 17, 2020
FILE: ASSA5
S.R.: 5686-20
TO: Chair and Members, CLOCA Board of Directors
FROM: Chris Darling, Chief Administrative Officer
SUBJECT: Siting of Durham’s Mixed Waste Transfer/Pre-Sort and Anaerobic Digestion Organics Processing Facility

Purpose
To provide comments to the Region of Durham on the siting of Durham’s Mixed Waste Transfer / Pre-Sort and Anaerobic Digestion Organics Processing Facility

Background
On June 26, 2019, Durham Region Council granted approval to proceed with the Region’s preferred long-term organics management technology solution, with the capital project to include both a mixed waste transfer and pre-sort facility and an anaerobic digestion (AD) organics management processing facility (Facility). In order to facilitate the development of the Facility, a suitable site within the Region is required. With this in mind, the Region engaged GHD Limited to undertake a siting exercise to evaluate and identify a preferred site that would be brought forward and recommended to Council.

A report dated March 6, 2020 from GHD established and evaluated a short-list of sites and a recommended preferred site for future development of the Facility. The short list of sites includes a “north Clarington Site” that is adjacent to CLOCA’s Long Sault Conservation Area (refer to attachment 1). Following an evaluation of the short-listed sites, GHD recommends a site in south Clarington.

The Region is seeking feedback on the site selection report with a comment deadline of March 20, 2020. The Region will be preparing a report with recommendations regarding the siting of the Waste Pre-Sort and Anaerobic Digestion Facility for the April 15 Committee of the Whole meeting with report to Council for April 29.

Comments:
GHDs report outlines several disadvantages of the “north Clarington Site” including:
- Limited site size;
- Policy conflict with ORM Conservation Plan as it covers part of site (natural core area) with respect to the development of infrastructure.
- Long Sault Conservation Area multi-use trail is located directly north of site and parking area, which is considered a passive sensitive receptor;
- long waste transfer distance
- Eastern 2/3 of site is within Highly Vulnerable Aquifer and Significant Groundwater Recharge Area covers the entire site.
- New waste and air/noise ECA will be required for this site.
- The site has no utility connections available on site.
- The site is a closed landfill with significant site remediation costs required in contaminated waste and soil removal; and
- Road infrastructure upgrades requirements.

Cont’d
CLOCA staff had an opportunity to meet with Regional staff and GHD to learn more about the proposed Facility, the siting process and to raise compatibility concerns with the north Clarington Site. Long Sault Conservation Area is located in the heart of the provincially significant Oak Ridges Moraine and includes mature forest, plantation, wetland and meadow. This area is considered an important core wildlife area because of the diversity and size of the habitats that it contains. It also includes headwater tributaries that are an important part of the Bowmanville / Soper Creek Watershed. Long Sault provides important opportunities for visitors to appreciate nature in a natural setting and experience the associated mental and physical health benefits. For these reasons CLOCA has the following compatibility concerns for the north Clarington Site:

- Adverse environmental impacts from construction, operational truck traffic, noise, lighting and introduction of nuisance wildlife;
- Adverse impact on visitor experience due to truck traffic, noise and lighting.

**RECOMMENDATIONS:**

*THAT* staff Report #5686-20 be received for information

*THAT* the comments contained in this report be forwarded to the Region of Durham as CLOCA’s comments on the siting of Durham’s Mixed Waste Transfer / Pre-Sort and Anaerobic Digestion Organics Processing Facility.

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Attachment

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PURPOSE
To provide an update on CLOCA’s operational response to the state of emergency resulting from the COVID-19 pandemic.

BACKGROUND
As a result of COVID-19, changes have been made regarding the continuation of some of our operations and programs in an effort to mitigate the extent of impact on employees, operations and the organization.

TIMELINE ASSOCIATED WITH CLOCA ACTIONS:
March 14: Modifications made to Maple Syrup Festival to implement COVID-19 precautionary mitigation measures
March 16: CLOCA Administrative Office closed to the public
          IT arrangements initiated to facilitate staff working remotely
          Employees began working remotely
          CLOCA public events planned for spring and summer cancelled/postponed until further notice
          Remaining of the Maple Syrup Festival cancelled
          The March 17, 2020 Board meeting cancelled
March 17: Provincial State of Emergency issued
March 20: Provincial Non-Essential Workplaces Closure Order, review and calibration of CLOCA operations
March 24: CLOCAs Business Continuity Plan completed and communicated to staff.
March 25: Conservation Areas closed
March 31: Specific COVID-19 Safety Operation Procedures begin to be communicated to staff including:
          • Preventing Exposure to Covid-19
          • Measures for Workshops & Fleet Vehicles during a pandemic
          • Return to work Covid-19 Policy
          • Measures for Field Work during a pandemic
          • Physical –Distancing Dos & Don’ts
          • Screening Questionnaire (Staff)
April 17: Letters issued to staff who are required to attend the administrative office or our conservations areas indicating that they are authorized to work outside of their home subject to following Safety Operating Procedures.

April 21: Board Meeting cancelled

CONTINUED OPERATIONS
Although the administrative office is closed to the public, staff have been able to continue to provide services by working remotely from home thanks to significant effort by Information Technology (IT) staff. All staff have access to CLOCAs email, data, and files through our virtual private network (VPN), and with the use of Office 365 and its program called Teams; meetings are continuing virtually. This has enabled staff to stay connected and continue to provide services to the public and our member municipalities. As part of our day-to-day operations, we continue to upgrade our firewall and virus software ensuring critical and confidential online information is not accessible or compromised.

One of our first orders of business under the Business Continuity Plan was the decision around maintaining standard operations at our Conservation Areas. We monitored, observed, serviced, engaged and managed our 8 Conservation Areas as normal, from March 16th until March 23rd, at which time we made the difficult decision to close our Conservation Areas officially on Wednesday March 25th. The public were notified of the closures through news articles, signage, social media, and posted website updates. Land management staff have been visiting all Conservation Areas to ensure that barricades and signs remain in place and to address monitoring and enforcing of parking violations. Staff also continue to actively respond to inquiries and reports from the public regarding people who are ignoring closures. Staff are conducting routine inspections of all our facilities to ensure that they are not being vandalized and remain in good condition.

Conservation Area Pass holders have been notified that their pass will be extending based on the duration of the Conservation Area closures.

More frequent and enhanced cleaning of the administrative office has been initiated to ensure that the essential services staff continue to be protected.

Our planning, natural heritage and engineering staff continue to review applications for permits and development applications through a seamless and shared information management system. Site visits for compliance have been undertaken only in egregious cases where violations are blatant and high risk.

Flood Warning and Forecasting services continued uninterrupted. We continue to monitor and issue Water Safety and Watershed Conditions Statements to support our Flood Forecast and Warning responsibilities.

Our 2020 ecological monitoring season planning continues, with different plans for multiple scenarios being developed/considered. Amphibian monitoring which typically starts in early spring has been put on hold pending a change in essential services. Staff are involved in environmental data management and developing various environmental action plans.

Since the closure of in-classroom school programs, our education staff have developed some innovative remote online learning. A new education section has been added to our website with nature-based activities and resources to help keep children learning. In addition, there has been some redeployment of education staff to assist with land management activities.

Cont’d
The following CLOCA public engagement events were cancelled:

- Maple Syrup Festival
- Lantern Walk in the Woods (April 9)
- Forest Cover Earth Day Tree Planting and Clean-up (April 25)

Other 2020 events that are risk of being canceled include:

- Summer Solstice Celebration – Insectmania, including firefly hike (June 26)
- Durham Children’s Watershed Festival (possible change of format to in-classroom)
- Monarch/pollinator Education at libraries (if community gardens do indeed open up soon, we are looking at bringing this program there)

The closure of the Maple Syrup Festival and our conservation areas has had a financial impact. We continue to monitor financial impacts and have also implemented several cost savings measures such as deferral of equipment and vehicle purchasing as well as a temporary freeze on filling vacant positions. The 2020 Budget report, anticipated for consideration at the June Board meeting, will provide additional information on the financial impact.

It is anticipated that returning to work post-pandemic will be staged, and staff are discussing developing a plan and processes to facilitate a safe “back to work” once the state of emergency is lifted or relaxed. We are also working with Conservation Ontario to identify shovel ready projects that we have that will assist provincial economic recovery.

**RECOMMENDATIONS:**

*THAT staff Report #5691-20 be received for information*
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<tr>
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<th>Subject</th>
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<tr>
<td>1.</td>
<td><strong>Ontario’s Special Advisor on Flood Report to Government – Independent Review of the 2019 Flood Events in Ontario</strong></td>
<td>SR #5674-20</td>
<td>B. Nicholson asked that C. Darling consult with the Minister to determine if there will be any public consultation opportunities and report back at the next meeting.</td>
<td>C. Darling</td>
<td>March 2020</td>
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| 2. | **THAT resolution #97 from the November 19, 2019 Board Meeting be rescinded.**                                                          | SR #5658-19 | THAT CLOCA staff be directed to:  
1. Report back to the Board with written clarification from BAIRD regarding BAIRD’s comments in the report about the impact the St Mary’s Pier has had on erosion by starving the beaches along Cedar Crest in Clarington and specifically, whether Baird believes the pier is a significant contributor to erosion; and  
2. Report back to the Board if there is a fee associated.  
**Report # 5658-19**  
3. Report back to the Board commenting on:  
a) the role Plan 2014 has played in the regulation of Lake Ontario water levels, including answering whether it was a contributing factor to flooding; and  
b) whether Plan 2014 has performed as advertised “to protect against extreme water levels and prepare us for climate change”. Staff are to consult with TRCA and IJC in preparing its report. | P. Sisson  
C. Darling | March 2020        |