

**Cape Breton Regional Municipality**

**Special Council Meeting**

**AGENDA**

**TUESDAY, OCTOBER 26<sup>TH</sup>, 2021**

**9:30 A.M.**

Council Chambers  
City Hall  
320 Esplanade, Sydney, NS

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# Cape Breton Regional Municipality

## Special Council Meeting

Tuesday, October 26<sup>th</sup>, 2021

9:30 a.m.

### **AGENDA ITEMS**

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#### **Land Acknowledgement**

#### **Roll Call**

1. **APPROVAL OF AGENDA:** (Motion Required)
2. **Overview of Meeting Process and Expectations:** Mayor Amanda M. McDougall
3. **CBRM Energy Management Progress Review:** Khaled Ibrahim, Ph.D., P.Eng., PMP - CBRM Energy Manager (See page 5)
  - Resolution to Join the FCM-ICLEI Partners for Climate Protection Program (See page 20)
  - Proposed New Global Committed Letter from the Mayor (See page 23)
4. **End-of-life Fishing Gear Management Program:** Sonia Smith, Program Manager, Fishing Gear Coalition (See page 25)

See link to Nova Scotia Report:

[https://fgcac.org/wp-content/uploads/2021/06/FGCAC\\_Report\\_End-of-Life-Fishing-Gear\\_Nova-Scotia.pdf](https://fgcac.org/wp-content/uploads/2021/06/FGCAC_Report_End-of-Life-Fishing-Gear_Nova-Scotia.pdf)

5. **CBRM Staff Presentations:**
  - 5.1 **Solid Waste Department Environmental Initiatives – Fall 2021:** Francis Campbell, Manager of Solid Waste (See page 31)
  - 5.2 **CBRM Wastewater Operations:** Matt Viva, Manager of Wastewater (See page 37)

Continued...

**Special Council Meeting Agenda  
October 26, 2021 (Cont'd)**

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**CBRM Staff Presentations (Cont'd):**

- 5.3 **Working Towards Environmental Sustainability Through Effective Utility Management in CBRM:** Greg Campbell, Manager of Technical Support Services – Utilities, Water Utility (See page 42)
- 5.4 **Downtown Sydney District Energy:** Ken Leblanc, CBRM Community Development Coordinator; and Tyler Mattheis, Director of Economic Development – Cape Breton Partnership (See page 52)
6. **ACAP Cape Breton: Eco-Partnership with CBRM:** Kathleen Aitkens, Executive Director; and Jen Cooper, Habitat Restoration Lead - ACAP Cape Breton (See page 58)
7. **Clean Foundation – Clean Energy Financing:** Rob Harris, Senior Manager; and Katie Giles, Manager, Energy Programs, Clean Foundation (See page 66)
8. **Port Morien Wildlife Association – What We Do!:** Jeff McNeil, President; and Stan Peach, Treasurer – Port Morien Wildlife Association (See page 76)
9. **Council Discussion:**
10. **Review of Action Items from the Meeting:** Mayor Amanda M. McDougall

**ADJOURNMENT**



# CBRM Energy Management Progress Review 26.10.2021

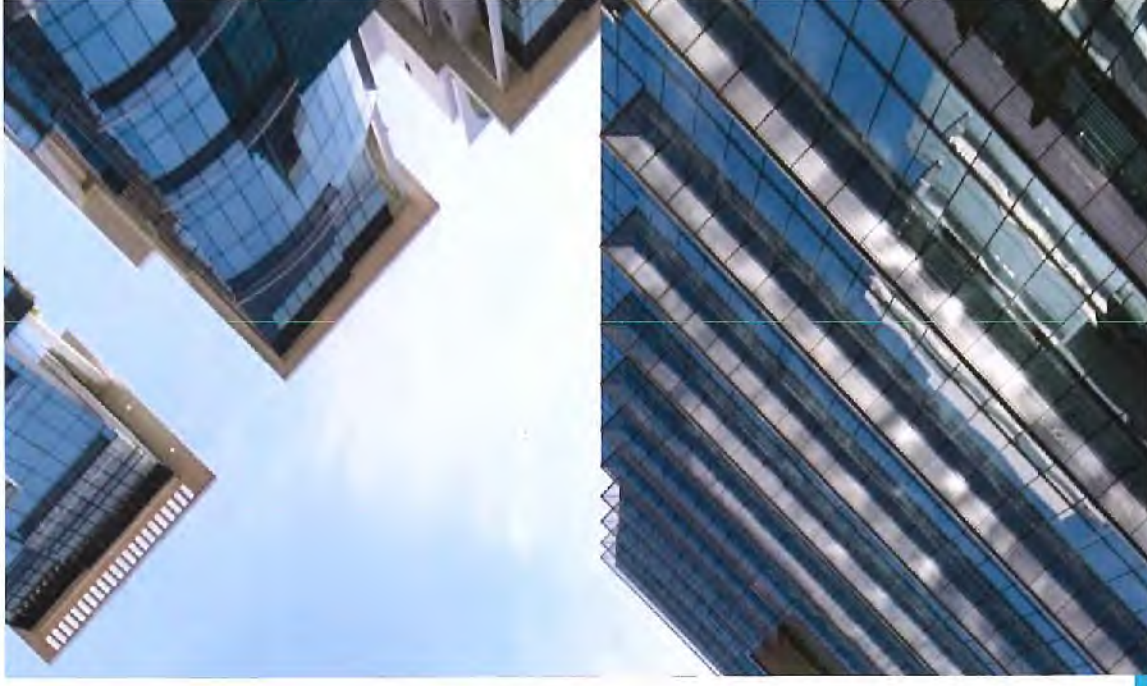
*Khaled S. Ibrahim, Ph.D., P.Eng., PMP*  
CBRM Energy Manager

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# Agenda

1. *Paris Agreement*
2. *Energy Management Achievement 2015-2020*
3. *Energy Management Goals 2021-2026*
4. *Energy Projects Budget Summary*
5. *Energy Projects Fund Application Summary*
6. *Energy Projects Progress*
7. *Strategic Energy Management Program (SEM)*
8. *The Green Choice Program*
9. *PCP & GCOM Programs*
10. *Community Programs*



# UN Sustainable Development Goals

Under the **Paris Agreement**, Canada committed to reducing its greenhouse gas (GHG) emissions to **30%** below **2005** levels by **2030**, or a target of **523** mega tonnes of carbon dioxide equivalent (Mt CO<sub>2</sub>e). In 2015, Canada's total GHG emissions were **722** Mt CO<sub>2</sub>e, which implies that Canada must reduce its GHG emissions by **28%** within the next 14 years.

Factors such as population size, energy sources, and economic base contribute to highly variable emissions among the provinces and territories. **Nova Scotia** has already reduced their emissions by **30%** compared to 2005 levels.



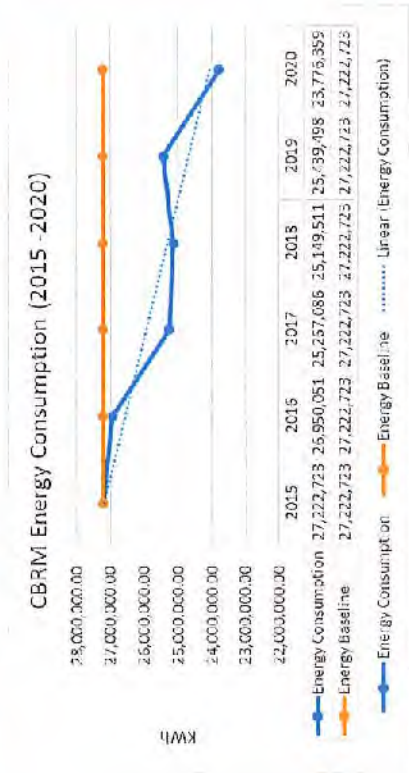
**NS 2005 = 100 % | NS 2015 = 69.93 % | NS 2030 = 50% | NS 2050 = 0 %**



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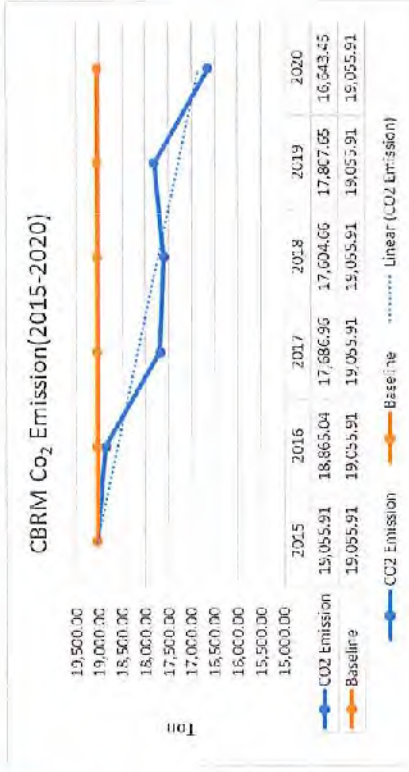
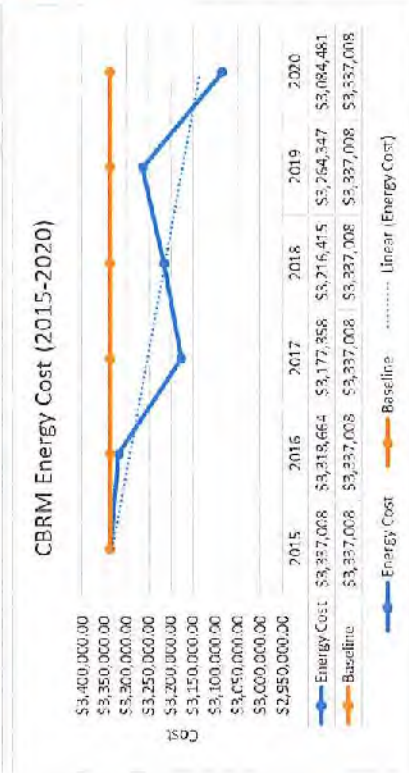
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# CBRM Energy Management Achievement 2015-2020



**Annual Saving:**  
**3.44 GWh | \$252K |**  
**2400 tCO<sub>2</sub>e**  **525**

**Acc. Savings:**  
**9.5 GWh | \$623K**  
**6600 tCO<sub>2</sub>e**  **1464**



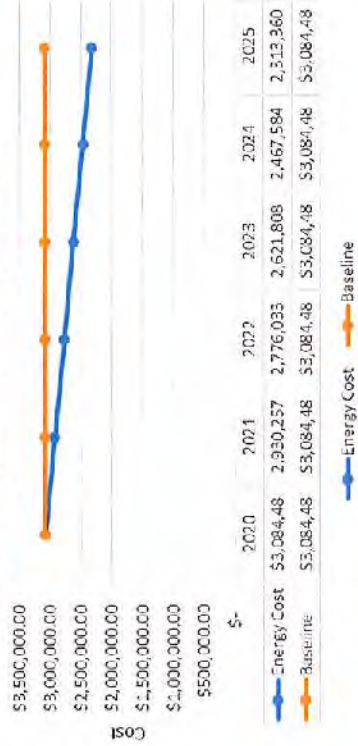
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# CBRM Energy Management Goals 2021-2026

CBRM Energy Consumption Forecast (2021-2025)



CBRM Energy Cost Forecast (2021 - 2025)

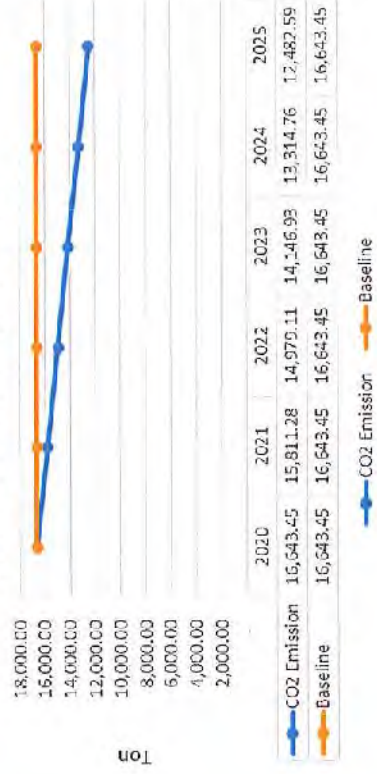


Acc. Savings:  
15 GWh | \$2.3M  
12000 tCO<sub>2</sub>e  2312

Annual Saving:  
5 GWh | \$750K |  
4200 tCO<sub>2</sub>e  771



CBRM CO2 Emission (2021 - 2025)



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# CBRM Energy Projects Budget Summary

Opportunity	Program	Project Cost	Cost Saving (\$/yr)	kWh Gross Savings	GHG Savings (kg)	Incentive Amount	Project Completion Date	Prob %
BRM - ANTHONY DANIEL BALLFIELD - LIGHTING RETROFIT	Business Energy Rebates Me:In 2021	\$ 72,748.00	\$ 3,238.00	18,404.00	12,242.00	\$ 8,800.00	2022-12-31	50%
BRM - Trade/Parks Building High-bay Lighting Replacement	Business Energy Rebates Me:In 2021	\$ 10,562.00	\$ 2,295.00	15,319.00	10,296.00	\$ 2,700.00	2021-02-28	100%
BRM - Messy Dr Garage High-bay Lighting Replacement	Business Energy Rebates Me:In 2021	\$ 12,735.00	\$ 2,795.00	19,490.00	12,296.00	\$ 3,225.00	2021-12-31	100%
BRM-NEVILL BALLFIELD - LIGHTING RETROFIT	Business Energy Rebates Me:In 2021	\$ 72,746.00	\$ 3,831.00	22,533.00	14,216.00	\$ 9,775.00	2021-12-31	50%
BRM - LADY OF FATIMA BALLFIELDS - LIGHTING RETROFIT	Business Energy Rebates Me:In 2021	\$ 87,384.00	\$ 3,206.00	18,852.00	11,894.00	\$ 8,050.00	2021-12-31	50%
BRM - EBCx Central Police Station - TRANE	Custom Building Optimization 2021	\$ 30,000.00	\$ 8,400.00	60,000.00	37,894.00	\$ 6,000.00	2021-12-31	70%
BRM - Messy Dr PW Building Optimization (BB-A1-C8)	Custom Building Optimization 2021	\$ 2,835.00	\$ 5,040.00	88,000.00	22,712.00	\$ 1,975.00	2021-12-31	100%
BRM - Glace Bay Police Building Optimization (BB-A1-C7)	Custom Building Optimization 2021	\$ 1,919.00	\$ 3,640.00	25,000.00	16,403.00	\$ 1,459.00	2021-12-31	100%
BRM - Centennial Arena Building Optimization (FCM - BAS)	Custom Building Optimization 2021	\$ 60,000.00	\$ 17,600.00	125,000.00	78,883.00	\$ 12,500.00	2024-12-31	40%
BRM - C200 Arena Building Optimization - TRANE/C MCO MEASURES	Custom Building Optimization 2021	\$ 200,000.00	\$ 35,000.00	250,000.00	157,725.00	\$ 25,000.00	2022-06-31	70%
BRM - Central Police Building Optimization (BB-A1-C6)	Custom Building Optimization 2021	\$ 5,582.00	\$ 10,380.00	74,000.00	46,687.00	\$ 4,194.00	2021-12-31	100%
BRM - City Hall Building Optimization (BB-A1-03)	Custom Building Optimization 2021	\$ 16,381.00	\$ 48,980.00	347,000.00	218,922.00	\$ 12,286.00	2022-06-31	100%
BRM - Mine's Forum Arena Building Optimization (BB-A1-05)	Custom Building Optimization 2021	\$ 7,378.00	\$ 27,300.00	195,000.00	123,076.00	\$ 5,684.00	2022-06-31	100%
BRM - Arena Building Optimization (BB-A1-C4)	Custom Building Optimization 2021	\$ 7,258.00	\$ 21,980.00	157,000.00	96,051.00	\$ 3,443.00	2022-06-31	60%
BRM - C200 Arena Building Optimization (BB-A1-01)	Custom Building Optimization 2021	\$ 5,385.00	\$ 7,490.00	193,000.00	130,313.00	\$ 2,489.00	2022-06-31	60%
BRM - Strategic Energy Management Pilot Program (SEM)	Custom Industrial Retrofit 2021	\$ 21,760.00	\$ 57,200.00	400,000.00	302,332.00	\$ 16,320.00	2022-06-31	100%
BRM - County Arena Building Retrofit (ACOA - CCRF)	Custom New Construction 2021	\$ 60,000.00	\$ 140,000.00	1,000,000.00	830,300.00	\$ 50,000.00	2022-06-31	10%
BRM - New Port Morier WWTP	Custom New Construction 2021	\$ 941,980.00	\$ 94,980.00	607,000.00	982,986.00	\$ 60,000.00	2022-06-31	10%
BRM - New Glace Bay WWTP	Custom New Construction 2021	\$ 150,000.00	\$ 48,000.00	350,000.00	220,315.00	\$ 35,000.00	2026-04-01	70%
BRM - New Sydney Harbour West WWTP	Custom New Construction 2021	\$ 160,000.00	\$ 48,000.00	350,000.00	220,315.00	\$ 35,000.00	2026-04-01	80%
BRM - C200 Arena New Extension Building (GIC3)	Custom New Construction 2021	\$ 500,000.00	\$ 70,000.00	500,000.00	157,725.00	\$ 25,000.00	2026-04-01	10%
BRM - County Arena Building Optimization (FCM - BAS)	Custom Retrofit 2021	\$ 50,000.00	\$ 35,000.00	250,000.00	157,725.00	\$ 25,000.00	2023-03-31	40%
BRM - Sydney WTP - VFD Installation	Custom Retrofit 2021	\$ 270,000.00	\$ 94,000.00	600,000.00	378,540.00	\$ 69,372.00	2021-12-31	70%
BRM - C200 Arena Building Retrofit (ACOA - CCRF)	Custom Retrofit 2021	\$ 562,410.00	\$ 188,000.00	1,200,000.00	757,360.00	\$ 120,000.00	2022-12-31	50%
BRM - City Hall Building Retrofit (ACOA - CCRF)	Custom Retrofit 2021	\$ 1,519,278.00	\$ 188,000.00	1,200,000.00	757,360.00	\$ 120,000.00	2022-06-01	40%
BRM - C200 Arena Building Deep Retrofit (GICB)	Custom Retrofit 2021	\$ 6,300,000.00	\$ 476,000.00	3,400,000.00	2,145,360.00	\$ 170,000.00	2024-12-31	60%
BRM - Sydney WTP Install Building Roof Solar PV Units	Custom Retrofit 2021	\$ 200,000.00	\$ 14,000.00	100,000.00	65,360.00	\$ 10,000.00	2023-12-31	100%
BRM - Bailey Point WWTP Building HVAC Retrofit	Custom Retrofit 2021	\$ 750,000.00	\$ 35,000.00	250,000.00	157,725.00	\$ 25,000.00	2023-12-31	70%
BRM - Sydney WTP Building Groundwater HVAC	Custom Retrofit 2021	\$ 350,000.00	\$ 70,000.00	500,000.00	315,450.00	\$ 50,000.00	2023-12-31	50%
BRM - Sydney McConnell Memorial Library Retrofit (ACOA-CCRF)	Custom Retrofit 2021	\$ 562,160.00	\$ 86,300.00	635,000.00	400,522.00	\$ 63,500.00	2023-03-31	50%
total		\$ 13,410,723.00	\$ 1,844,719.00	13,197,598.00	8,326,355.00	\$ 1,058,703.00	2026-04-01	57%

2020 Baseline: 23.5 GWh | 16500 tCO<sub>2e</sub> | \$ 3.1M  
 Target Saving : ~8 GWh | ~5500 tCO<sub>2e</sub> | ~\$ 1.2M



# CBRM Energy Projects Fund Applications

## Retrofit

No	App No	Description	Fund Program	Project Type	Project Budget	App Status	Date	Project Fund	CBRM Capital	PBP
1	SWTP & BP WWTP Green retrofit	LCEF	Retrofit	\$ 1,734,740.00	Approved	2021-03-01	\$ 669,544.00	\$ 879,316.00	-	
3	AP-000000569 C200 Arena Green Deep Retrofit	GICB	Retrofit	\$ 5,935,641.03	Submitted	2021-06-17	\$ 5,548,512.82	\$ 1,387,128.21	1.90	
6	FCM-CBR-001 GHG Reduction Pathway Feasibility Study	FCM-CBR	Retrofit	\$ 250,000.00	Approved	2021-06-18	\$ 200,000.00	\$ 50,000.00	-	
7	FCM-CBR-002 County / Centennial Arena BAS	FCM-CBR	Retrofit	\$ 40,000.00	Submitted	2021-06-22	\$ 25,000.00	\$ 15,000.00	-	
8	FCM-CBR-003 C200 / Civic Centre Recommissioning	FCM-CBR	Retrofit	\$ 92,500.00	Submitted	2021-08-04	\$ 55,000.00	\$ 37,500.00	-	
9	CCFR-001 Civic Centre Building Optimization	ACOA-CCRF	Retrofit	\$ 1,519,278.00	Submitted	2021-07-30	\$ 750,000.00	\$ 769,278.00	3.60	
10	CCFR-002 C200 Building Optimization	ACOA-CCRF	Retrofit	\$ 536,411.00	Submitted	2021-08-11	\$ 402,308.25	\$ 134,102.75	0.72	
11	CCFR-003 County Building Optimization	ACOA-CCRF	Retrofit	\$ 641,690.00	Submitted	2021-08-11	\$ 481,267.50	\$ 160,422.50	2.40	
12	CCFR-005 Sydney Library Building Optimization	ACOA-CCRF	Retrofit	\$ 562,160.00	Submitted	2021-08-11	\$ 421,620.00	\$ 140,540.00	2.50	
<b>Total</b>				\$ 12,312,420.03			\$ 8,553,252.57	\$ 3,573,287.46		

**Retrofit Projects Budget: \$12.5 M | Fund: \$ 8.6M | CBRM \$3.6M**  
**Target Annual Saving : \$ 1.2M | PBP 3 Years**

## New

No	App No	Description	Fund Program	Project Type	Project Budget	App Status	Date	Project Fund	CBRM Capital
4	AP-000001061	C200 Arena New Extension	GICB	New	\$ 18,300,000.00	Submitted	2021-06-24	\$ 10,150,000.00	\$ 8,150,000.00
5	AP-000001062	Sydney New Public Library	GICB	New	\$ 34,309,200.00	Submitted	2021-06-24	\$ 13,500,000.00	\$ 20,809,200.00
<b>Total</b>					\$ 52,609,200.00			\$ 23,650,000.00	\$ 28,959,200.00



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# CBRM Energy Project Progress



Benchmarking CBRM Buildings

80% Jan 1 - Apr 30

**\$65K** 950MWh | 570 tCO<sub>2</sub>e | \$135K | \$50K

**New** 335MWh | 201 tCO<sub>2</sub>e | \$45K | \$25K

**\$880K** 1150MWh | 780 tCO<sub>2</sub>e | \$180K | \$128K

**\$10K** 0 tCO<sub>2</sub>e | 25 Years | \$50K

5% Op Savings | \$50K

Support / Media

EnIMS / BAS AI Projects Apr 1 - Dec 31

New WWTP Projects Jun 1 - Dec 31

SWTP & BP WWTP HVAC Retrofit & VFD, PV Jan 31 - Dec 31

Green Choice Program Feb 24 - Mar 31

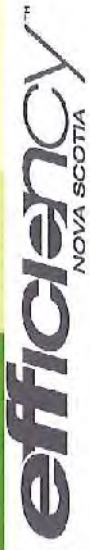
Strategic Energy Management Program Nov 1 - Oct 31

Nov 1 PCP / GCoM Programs



Projects' Fund Applications LCEF (R\$670K)

FCM-CBR (R\$280K) Jun 15  
 GICB (R\$5.5M - **N\$23M**) Jul 6  
 ACOA-CCRF (R\$2.0M) Aug 15



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**CBRM EMP 2021-2025 Summary:**  
 Retrofit Budget: \$12.5M  
 Fund Requested: \$8.5M  
 ENS Incentives: \$772K  
 CBRM Capex: \$3.7M  
 Saving: 7933 MWh | 4760 tCO<sub>2</sub>e | \$1.1M



## CBRM Strategic Energy Management Program (SEM)

The Program objectives is to train, mentor O&M staff to develop Standard Operating Procedure, and continuously improve energy efficiency in operation by 5%.

The Total cost of first year about \$60K.  
CBRM will pay only \$10K

Next Step: Sign MOU

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# The Green Choice Program

## Green Choice Program

PROVINCE OF NOVA SCOTIA

Customer First  
Renewables

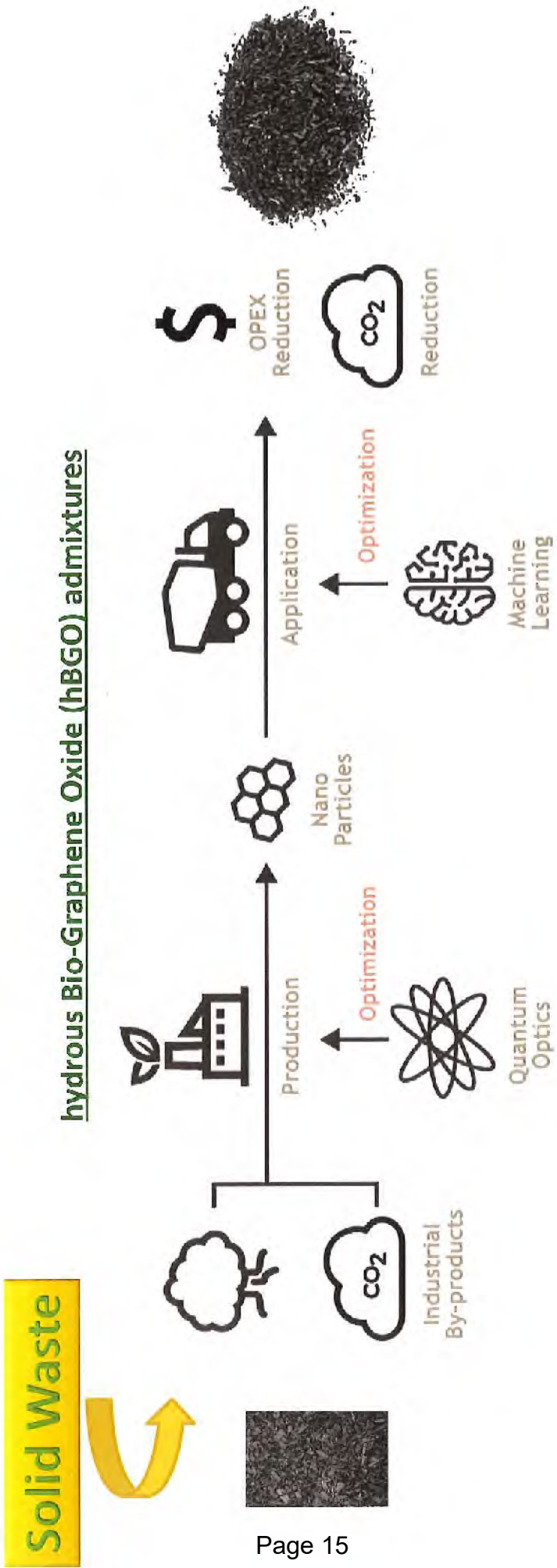
1	2	3	4	5	6
<b>EOI Submission</b> Interested applicants must submit an Expression of Interest (EOI) to be considered for enrollment in the program. This form asks for the quantity of RE that they wish to procure	<b>EOI Review</b> The Minister of Natural Resources and Renewables will review and confirm enrollment of participants	<b>RFP Issuance</b> The Procurement Administrator (PA) will issue a Request for Proposals (RFP) to build RE projects to meet needs of enrolled applicants (up to 500MW)	<b>Final Selection</b> Upon final selection of the RE projects, enrolled applicants will execute a participant agreement with NSPI	<b>PPA Agreement</b> Awarded RE projects will enter into long-term Power Purchase Agreements (PPAs) with NSPI	<b>Build</b> After PPA award, RE projects will be built and connected to the Nova Scotia electricity grid. Enrolled applicants will begin to receive benefits and incur costs associated with the GCP
Q1/22	Q2/22	Q2-3/22	Q2-3/22	Q3/22	Q1/23 +



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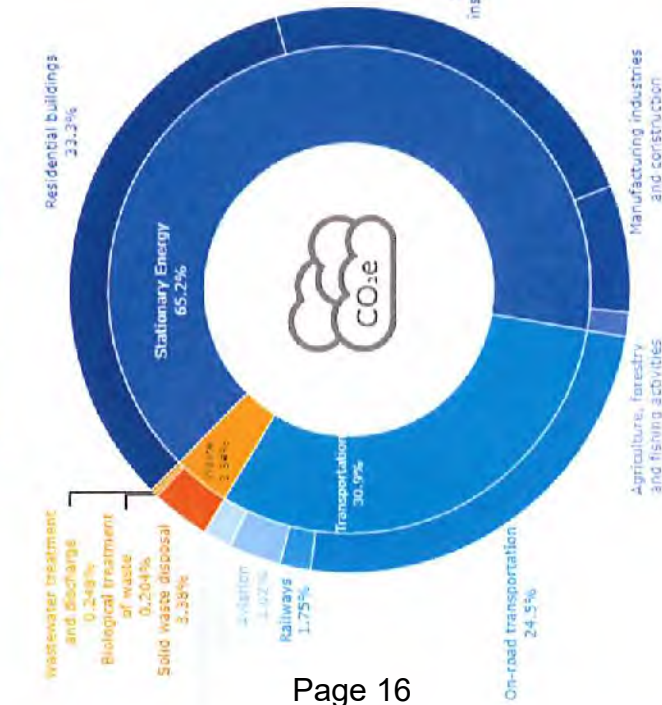
# alterBiota Pilot Project



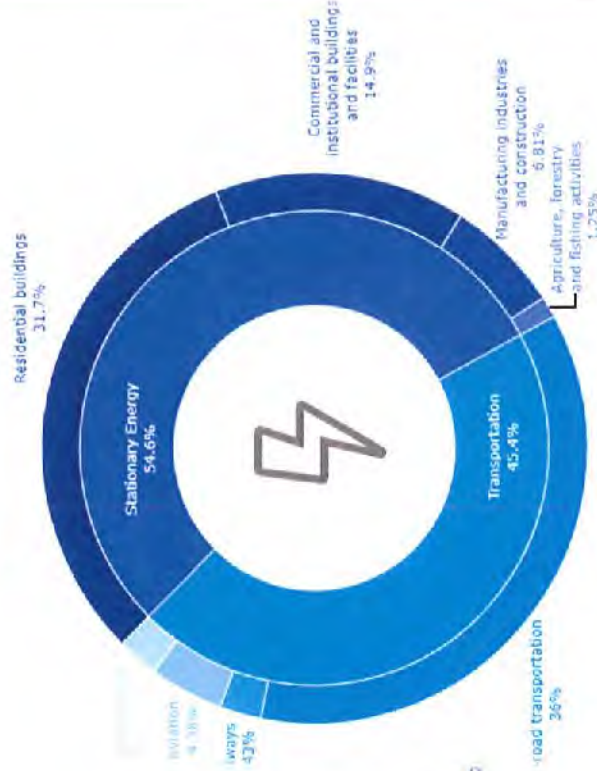
hydrous Bio-Graphene Oxide (hBGO) admixtures

# Municipal Energy + Emission Online Tools - MEEED

**CBRM Emission 2.4%**



**CBRM Energy 1.1%**



## Energy Consumption by Sector

Stationary Energy  
**8,395,041 tCO<sub>2</sub>e**

Transportation  
**6,969,585 tCO<sub>2</sub>e**

Total Annual Energy Consumption  
**15,364,626 tCO<sub>2</sub>e**

Energy Consumption per capita  
**162,959 tCO<sub>2</sub>e**

## Emissions by Source

Stationary Energy  
**1,002,415 tCO<sub>2</sub>e**

Transportation  
**475,096 tCO<sub>2</sub>e**

Waste  
**58,927 tCO<sub>2</sub>e**

Industrial Processes And Product Uses (IPPU)  
**NE ①**

Agriculture, Forestry And Other Land Use (AFOLU)  
**NE ①**

Total Annual Emissions  
**1,536,438 tCO<sub>2</sub>e**

Emissions per capita  
**16,296 tCO<sub>2</sub>e**



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# FCM – ICLEI Partner for Climate Protection PROGRAM (PCP)

Membership is rewarding and entirely FREE



Prepare & Submit PCP Council Resolution

1. Create a Baseline Emissions Inventory and Forecast

2. Set Emissions Reductions Targets

3. Develop a local action plan

4. Implement the Local Action Plan

5. Monitor progress and reporting results

*Moving through these five milestones can save your municipality money, improve air quality, create jobs, improve residents' health and more*

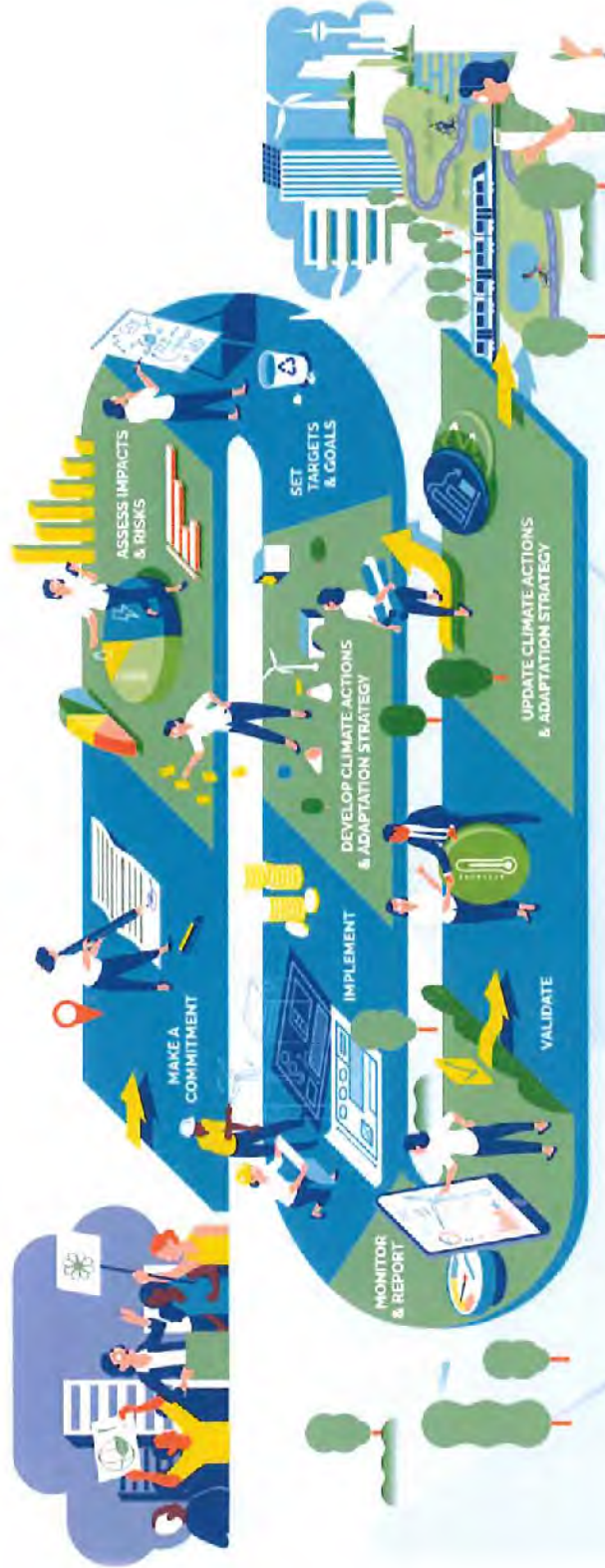


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# GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY (GCoM)

## CITY JOURNEY



All experiences are different! This is a path of reference that you can adapt to your own situation.

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10745  
CITIES

984 MN  
PEOPLE

24 BN  
TONS CO<sub>2</sub> E BY 2030

100+  
GLOBAL PARTNERS

# Q & A

# Thank You



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## **Resolution to Join the FCM–ICLEI Partners for Climate Protection Program**

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**Whereas:** The Federation of Canadian Municipalities (FCM) and International Council for Local Environmental Initiatives (ICLEI) - Local Governments for Sustainability (ICLEI Canada) have established the Partners for Climate Protection (PCP) program to provide a forum for municipal governments to share their knowledge and experience with other municipal governments on how to reduce greenhouse gas (GHG) emissions;

**And Whereas:** over 350 municipal governments across Canada representing more than 65 per cent of the population have already committed to reducing corporate and community GHG emissions through the PCP program since its inception in 1994;

**And Whereas:** the PCP program is based on a five-milestone framework that involves completing a GHG inventory and forecast, setting a GHG reduction target, developing a local action plan, implementing the plan, and monitoring progress and reporting results;

**And Whereas:** that the Cape Breton Regional Municipality review the guidelines on PCP Member Benefits and Responsibilities and then communicate to FCM and ICLEI Canada its participation in the PCP program and its commitment to achieving the milestones set out in the PCP five-milestone framework;

### **Be It Therefore**

**Resolved:** That the Cape Breton Regional Municipality Council appoint the following:

- a) Corporate staff person: Bill Murphy  
Director of Recreation, Parks, Grounds & Buildings  
(902) 563-0846  
[btmurphy@cbrm.ns.ca](mailto:btmurphy@cbrm.ns.ca)
  
- b) Elected Official: Amanda M. McDougall  
Mayor  
(902)-563-5000  
[mayor@cbrm.ns.ca](mailto:mayor@cbrm.ns.ca)

to oversee implementation of the PCP milestones and be the points of contact for the PCP program within the Cape Breton Regional Municipality.

**Councillor Glenn Parnch**  
**District #6 – CBRM**

October 26<sup>th</sup>, 2021

## **PCP Member Benefits and Responsibilities**

The PCP program offers you a proven approach to reducing greenhouse gas (GHG) emissions, and the support you need to achieve success. Being actively engaged in the PCP program gives your municipality the chance to become a leader by taking systematic and organized action on climate change. By participating in the PCP program, Canadian municipalities gain access to the following tools and resources:

- Support and guidance, through the PCP Milestone Framework, to help members reduce GHG emissions.
- Access via the PCP Hub to a network of over 350 local governments across Canada that are taking action on climate change and can help your community succeed by offering their experience and examples.
- Technical support tools, including the PCP Milestone Tool and PCP Protocol.
- Information and access to funding opportunities, such as those offered by FCM's Green Municipal Fund.
- Capacity-building resources, including workshops, case studies and training opportunities.
- Awards and recognition for milestone achievements and for reported measures.

Members of the PCP program have the following responsibilities:

- Move through the Milestone Framework within 10 years of joining
- Report on progress at least once every two years, with our support
- Email us if your contact information changes
- Actively participate in program activities and share your experience with other network members

If your municipality is not able to meet the PCP program requirements, you can always leave the program and rejoin it at a later date. You can also contact the PCP Secretariat anytime for help with submitting documentation to meet the requirements.

## **Supporting Rationale for Consideration**

It is well established that climate change is increasing the frequency of extreme weather events and posing other risks, such as drought, forest fires and rising sea levels, which present serious threats to our natural environment, our health, our jobs and our economy.

The 2016 Paris Agreement, signed by more than 190 countries, including Canada, committed to limit the global temperature increase to below two degrees Celsius and to pursue efforts to limit this increase to 1.5 degrees Celsius, in order to avoid the most severe climate change impacts.

Local governments are essential to the successful implementation of the Paris Agreement.

Canada's cities and communities influence approximately 50 per cent of national greenhouse gas (GHG) emissions and can drive systemic low-carbon practices, including: building high-efficiency buildings, undertaking building retrofits and developing district heating; building active transit, electric vehicle infrastructure and electrified public transit; implementing near-zero GHG waste plans; and delivering high-efficiency water and wastewater services.

Investments in these types of measures also reduce operating costs, help municipalities maintain and plan for future community services, protect public health, support sustainable community development, increase community resilience and reduce a community's vulnerability to environmental, economic and social stresses.

A number of government and international and national organizations have called for greater cooperation among all stakeholders to meet reduction targets, including Canada's Big City Mayors' Caucus, which supports binding GHG emission reduction targets at the international, national and city levels, action plans that cut emissions, identification of risks and mitigation solutions, and regular municipal GHG emissions reporting.

## Appendix C: Proposed New Global Committed Letter

### Global Covenant of Mayors for Climate & Energy Commitment of Cape Breton Regional Municipality – Regional Government Canada



I, **Amanda M. McDougall**, Mayor of the **Cape Breton Regional Municipality**, commit to the Global Covenant of Mayors for Climate & Energy (GCoM), joining thousands of other cities and local governments around the world currently engaged in climate leadership.

GCoM envisions a world where committed mayors and local governments – in alliance with partners – accelerate ambitious, measurable climate and energy initiatives that lead to an inclusive, just, low-emission and climate resilient future, helping to meet and exceed the Paris Agreement objectives.

Whatever the size or location, the mayors and local leaders committed to GCoM stand ready to take concrete measures with long-term impact to tackle the interconnected challenges of climate change mitigation and adaptation, as well as access to sustainable energy.

To implement this vision, we pledge to implement policies and undertake measures to (i) reduce / avoid<sup>i</sup> greenhouse gas (GHG) emissions, (ii) prepare for the impacts of climate change, (iii) increase access to sustainable energy, and (iv) track progress toward these objectives.

Specifically, within three years of this commitment<sup>ii</sup>, we pledge to develop, adopt<sup>iii</sup>, use and regularly report on the following:

- A community-scale GHG emission inventory, following the recommended guidance;
- An assessment of climate risks and vulnerabilities;
- Ambitious, measurable and time-bound target(s) to reduce/avoid GHG emissions;
- Ambitious climate change adaptation vision and goals, based on quantified scientific evidence when possible, to increase local resilience to climate change;
- An ambitious and just goal to improve access to secure, sustainable and affordable energy; and
- A formally adopted plan(s) addressing climate change mitigation / low emission development, climate resilience and adaptation, and access to sustainable energy.

The targets and action plans for mitigation / low emission development must be quantified and consistent with or exceed relevant national unconditional<sup>iv</sup> commitments defined through the UNFCCC (Intended) Nationally Determined Contribution (NDC). The targets and action plans should be in line with National Adaptation Plans, where these exist; and should be consistent with the principles around energy access and urban sustainability embodied in the Sustainable Development Goals (SDGs).

We will explore the allocation of adequate staff resources and institutional arrangements. This includes governance processes, municipal structures and budget allocations to deliver on this commitment and secure continuity.

We acknowledge that there may be additional regional- or country-specific commitments or requirements that we commit to follow, and that may be agreed through our city networks or through our direct engagement with local partners of GCoM.

Mayor Amanda M. McDougall and Council of the Cape Breton Regional Municipality acknowledge that continued engagement in GCoM and associated Regional or National Covenants, as established, is contingent on complying with the above requirements within established timeframes.

**Name and title of person signing this commitment:**

Cape Breton Regional Municipality  
320 Esplanade  
Sydney, Nova Scotia B1P 7B9  
Website: [www.cbrm.ns.ca](http://www.cbrm.ns.ca)

Name of Mayor: Amanda M. McDougall

Main Contact: Mayor's Office  
Telephone: 902-563-5000  
Email: [mayor@cbrm.ns.ca](mailto:mayor@cbrm.ns.ca)

98,725 Inhabitants, 2430 sq. kilometres

Canada

[www.cbrm.ns.ca](http://www.cbrm.ns.ca)

---

**OFFICIAL SIGNATURE**

Mandated by CBRM Council on October 26, 2021.

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<sup>i</sup> "Avoid emission" via low emission development

<sup>ii</sup> Flexibility is allowed to suit differentiated local circumstances and needs.

<sup>iii</sup> According to the city and local government's procedures

<sup>iv</sup> Many countries have submitted two sets of NDC targets: unconditional targets, to be implemented without any explicit external support; and conditional targets. The latter are more ambitious than unconditional targets and require external support for their fulfilment. The cities and local governments committing to the GCoM are required to commit at least to the equivalent of their country's unconditional targets, but are encouraged to be more ambitious where possible.

# End-of-life Fishing Gear Management Program



*Conducting a feasibility study  
in NS municipalities*

1

## Coalition History

- Founded in November 2018
- Comprised of over 30 members
- Incorporated non-profit in 2020
- Have Board of Directors

## MISSION

*Working together to develop sustainable solutions for end-of-life and abandoned, lost, and discarded fishing and aquaculture gear*



2

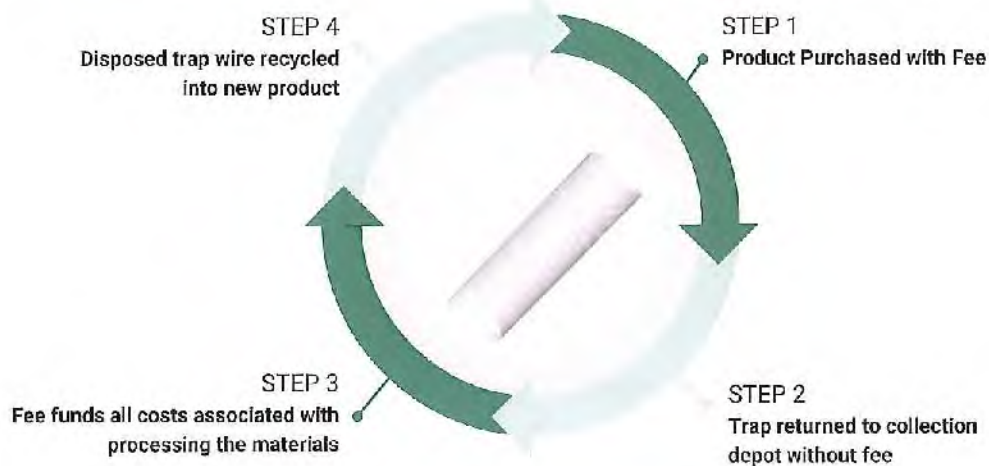
## End-of-Life Fishing Gear Management



- **Goal:** to design a (voluntary or regulated) management program model for end-of-life fishing gear across Eastern Canada
- **Objectives:**
  - research current waste/recycling practices and design program options;
  - engage stakeholders and rights holders;
  - create and implement model program pilot in municipality(ies), including removing stockpiles of wire lobster traps.

3

## Basic Principle of Program



4

## Proposed Study: Lobster Wire Trap Recycling



- **Goal:** conduct a study to test the feasibility and costs of the FGCAC's wire trap recycling program in NS municipalities.
- **Objectives:**
  - Work with AIM, all involved municipalities, and other stakeholders to ensure study success
  - Remove about 115,000 wire lobster traps for recycling, based on successful funding opportunities
  - Gather evidence of required logistics and true costs for implementing the financially self-sufficient wire lobster trap recycling program
- **Costs:** \$350,000 to \$530,000

5

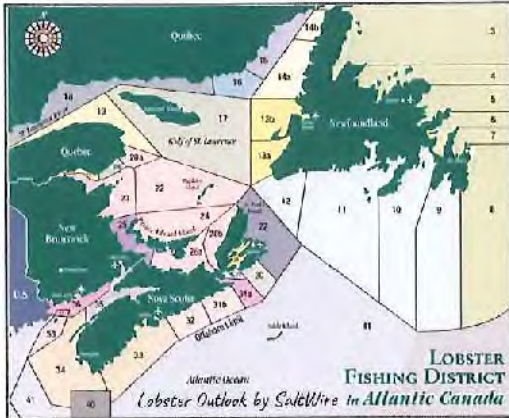
## Funding Opportunities



- **FCM's "Study: Waste stream management":**
  - covers 50% of maximum eligible project costs of \$350,000 up to **\$175,000**
  - Can collect and recycle up to **115,000 wire traps**
  - **Requires a 10% cash contribution (\$35,000)** of eligible costs from a lead municipality, with maximum eligible project costs of \$350,000.
- **Divert NS Research & Development Fund:**
  - Can supplement the FCM funding
  - FGCAC sent LOI, requesting up to **\$75,000**
- **Divert NS Municipal Efficiency Fund:**
  - Can supplement the FCM funding
  - A Municipality must apply to this fund

6

**Thank you!**



- Are you interested in partnering on this study?
- May we proceed with the funding application processes with your permission?
- Do you have any questions?

7

  
**FISHING GEAR COALITION**  
 OF ATLANTIC CANADA

**CONTACT US:**

<p><b>Sonia Smith</b>  <i>Program Manager</i>  <a href="mailto:sonia.smith@fgcac.org">sonia.smith@fgcac.org</a></p>	<p><b>General Inquiries</b>  <a href="mailto:info@fgcac.org">info@fgcac.org</a></p>
<p>Learn more by visiting our website at: <a href="http://www.fgcac.org">www.fgcac.org</a></p>	

8

## Fee Collection Options: Estimated Costs for NS



	<b>1) Regulated "User-Pay" Product Stewardship</b>	<b>2) Voluntary "User-Pay" Product Stewardship</b>	<b>3) Regulated Extended Producer Responsibility (EPR)</b>
<b>Program cost</b>	± \$478,870	± \$619,600	± \$443,800
<b>Fee to Apply</b>	\$0.08/kg wire roll	\$0.19/kg wire roll	\$0.07/kg wire roll
<b>Example</b>	\$2.16 added to 27 kg (60 lb) wire roll	\$5.13 added to 27 kg (60 lb) wire roll	\$1.89 added to 27 kg (60 lb) wire roll

9

September 28, 2021

To: Cape Breton Regional Municipality (CMRM)  
% Marie Walsh  
320 Esplanade  
Sydney, Nova Scotia  
B1P 7B9

Re: Funding Application for FCM *Study: Waste stream management*

The Fishing Gear Coalition of Atlantic Canada (FGCAC) is seeking funding from the Federation of Canadian Municipalities (FCM) to support their project on managing end-of-life fishing gear in Nova Scotia, specifically for wire lobster traps. The FGCAC wants to directly support municipalities' waste reduction and diversion for end-of-life fishing gear through the FCM funding.

As part of the FGCAC's current End-of-life Fishing Gear Management Project under funding with Fisheries and Oceans Canada, we are developing a waste management program model that is well-researched, satisfies stakeholders and rights holders concerns, and provides a financially self-sufficient waste management program for wire lobster traps in Nova Scotia and eventually across Atlantic Canada.

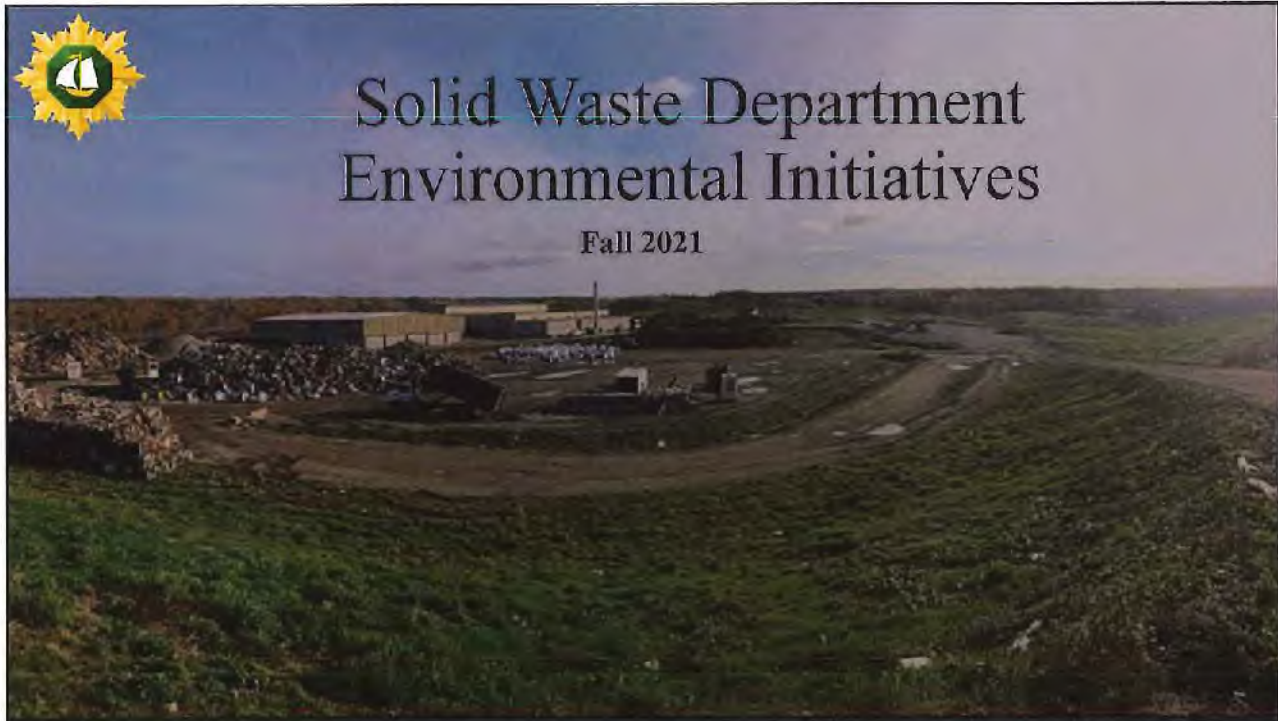
The purpose of the FCM's "*Study: Waste stream management*" funding is to assess the feasibility (e.g., technical, financial) of the FGCAC's End-of-life Fishing Gear Management Program as well as its potential environmental, economic and social impacts. This funding supports our program to assess whether it meets necessary requirements, has a solid business case, and the ability to deliver strong environmental, financial, and social benefits directly to your municipality and eventually through replication in other municipalities.

**Why this will support CBRM:** We want to partner with CBRM for this feasibility study because the seafood industry is a major economic driver in CBRM and we are seeking to support the Municipality in managing fishing gear waste. In the process of designing the FGCAC's End-of-life Fishing Gear Management Program, wire lobster traps will be removed and recycled. We want to ensure that current practices by the Municipality to coordinate metal recycling is incorporated and improved within our program.

**Requirements from CBRM:**

- Staff to support logistics and administration of the model program feasibility study.
- Storage space for wire traps.
- The following documents:
  - Council resolution committing to develop the plan and to include a sustainability vision, goals, and targets in the plan.
  - Municipal sustainable community plan or strategy, such as an integrated community sustainability plan (ICSP), Local Agenda 21 plan, or official municipal plan that includes sustainability goals.
  - A letter indicating the amount of cash contributions to the initiative.
- Allow the FGCAC to use the above documents and others (ex: letter of support) provided by the Municipality for additional supporting funding opportunities with the Municipality as a partner.

Detailed information on the funding can be found here: <https://fcm.ca/en/funding/gmf/study-waste-stream-management>



# Solid Waste Department Environmental Initiatives

Fall 2021

1

 A circular diagram with six segments representing the waste management cycle: Reuse / Recycling (top), Manufacture (top-right), Producer (right), Brand Owner (bottom-right), Consumer (bottom), and Waste Generation (bottom-left). The Waste Collection segment (left) is highlighted with a star.
 

**Extended Producer Responsibility  
Paper & Packaging Products**

Extended Producer Responsibility (EPR) is a policy approach that shifts the responsibility and costs of managing specific wastes/recyclables from municipalities to producers.

CBRM's curbside collection program contains paper and packaging products (PPP) that are funded by EPR in other provinces across Canada.

Every province from Quebec west to British Columbia have implemented EPR. (except Alberta)

This represents 82% of the Canadian population.

2



## Extended Producer Responsibility

Provincial legislation is required for EPR to happen in Nova Scotia.

Legislation would shift some of the cost of recycling programs away from tax payers to the producers and manufacturers who design and develop these products.

In 2019 the Regional Chairs Committee in partnership with the Nova Scotia Federation of Municipalities submitted a proposal for EPR for PPP to the NS Government.

NSFM also confirmed EPR for PPP is a priority for municipalities. This policy tool will benefit the environment and the economy.



3



## Extended Producer Responsibility

### Why Nova Scotia needs EPR.....

- Solid Waste costs have doubled provincially in the last 15 years.
- The marketing of recyclable materials has become increasingly challenging and unpredictable.
- The current system in place is unsustainable.
- Nova Scotia consumers are already paying for the cost of PPP programs in other provinces but, because NS does not have an EPR program for PPP in place, NS does not receive any benefits.



4



## Extended Producer Responsibility

### What this means.....

- The selling price of a box of cereal in Nova Scotia is helping to fund recycling programs for the same packaging else where in Canada were EPR for PPP exists..
- NS Municipalities would no longer have to manage the risk of rising costs and fluctuating commodity markets with EPR in place for PPP.
- It is estimated a Nova Scotia EPR model could generate a financial benefit of up to 16m per year for this province.



5



## CBRM's Trashformers Program

### Who they are.....

The Trashformers are a group of students hired by ACAP Cape Breton each year to clean up litter and debris. The students also promote and create awareness about the serious issues associated with this behaviour.

The program has grown during the last 11 seasons.

### What they do.....

Their job is to remove litter and debris from communities, watersheds and beaches across our beautiful municipality



6



## CBRM's Trashformers Program

### Is this program needed.....

Unfortunately, CBRM along with the rest of the province must have programs in place to deal with the accumulation of litter and debris across our communities.

The Trashformers is an important program funded by the Solid Waste Department that temporarily resolves the visible issues associated with litter.

Unfortunately, it's only temporary. The program does not stop littering from happening.



7



## CBRM's Trashformer Program

### Much more needs to be done.....

Understanding the reason why people litter.

Keeping the litter issue in the spotlight.



8



## CBRM's Illegal Dumping Program

**Illegal Dumping is treated as a serious problem in CBRM.**

The Solid Waste Department in partnership with an assigned constable from the CBRPS have developed an enforcement program that deals with illegal dumping.

The assigned constable has been responsible for responding to all alleged dumping complaints reported to the department.



9



## CBRM's Illegal Dumping Program

### What is being done.....

During the last decade, the departments has incorporated stricter measures and policies to address illegal dumping.

Tougher penalties and fines have increased under the Solid Waste Resource Management By-Law. The fine enacted under the by-law is 697.50.

Charges are the norm when there is sufficient evidence. A warning is issued if there is insufficient evidence to move forward with charges.

10



## CBRM's Illegal Dumping Program

### What is being done.....

The partnership with the Regional Police Service allows the department to respond to, investigate and when warranted file charges with the courts.

The community has been very responsive to the Department's approach.

We need to make it difficult and costly for a person to continue this act of dumping.

11



12



## CBRM

*Wastewater Operations*

*Council Session*

*October 26<sup>th</sup>, 2021*

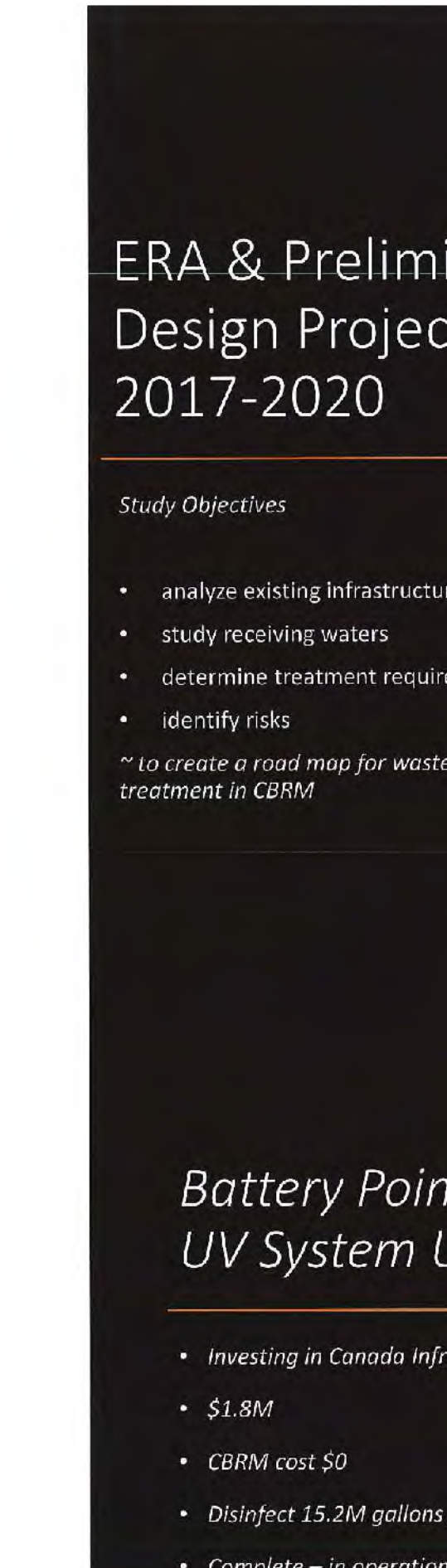


## Municipal Wastewater Treatment

- Safeguard Public Health
- Improve the quality receiving waters
- Comply with Provincial and Federal regulations



Environment and  
Climate Change Canada  
Environnement et  
Changement climatique Canada



# ERA & Preliminary Design Project 2017-2020


## Study Objectives

- analyze existing infrastructure
- study receiving waters
- determine treatment requirements
- identify risks

*~ to create a road map for wastewater treatment in CBRM*



Environmental Risk Assessments and Preliminary Design of Seven (7) Future Wastewater Treatment Systems in CBRM



## Battery Point WWTP UV System Upgrade

- Investing in Canada Infrastructure Program
- \$1.8M
- CBRM cost \$0
- Disinfect 15.2M gallons per day
- Complete – in operation

# Lagoon Upgrades – UV Systems

- ICIP
- Total capital cost \$2.2M
- CBRM capital cost \$0
- Disinfect 470,000 gallons per day
- On-line in 2021



# Sydney Harbour West WW Collection and Treatment Project

- *New Build Canada Fund*
- *Total capital cost \$58M*
- *CBRM capital cost \$19.3M*
- *Service 7000 residents*
- *Treat 5.3M gallons per day*
- *On-line in 2022*



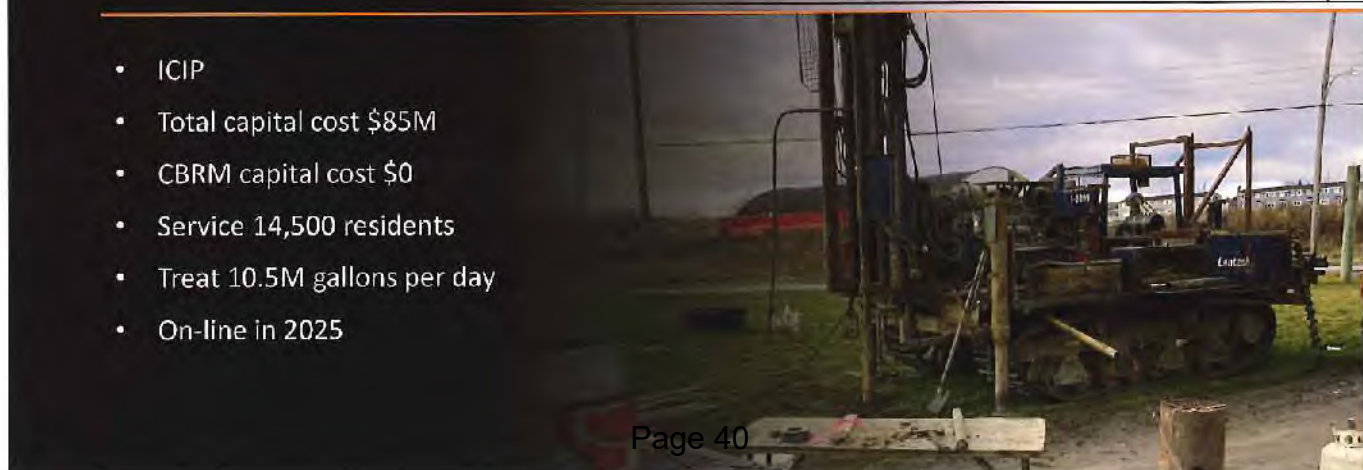
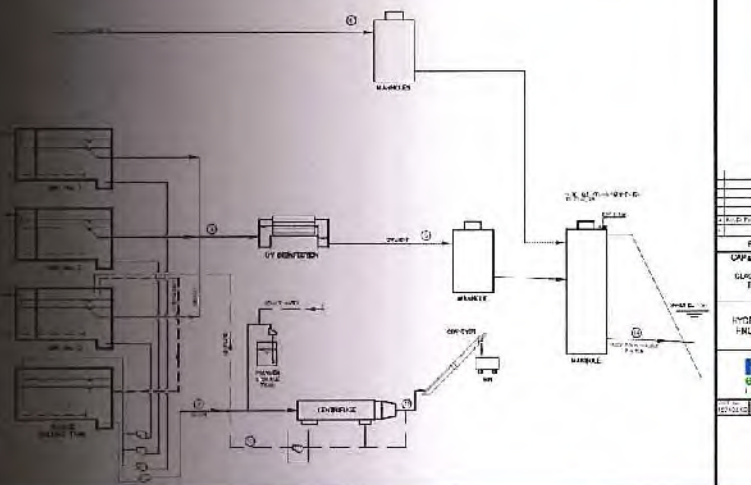
# Port Morien WW Collection & Treatment Project

- ICIP
- Total capital cost \$8.4M
- CBRM capital cost \$0
- Service for 413 residents
- Treat 400,000 gallons per day
- On-line in 2023



# Glance Bay WW Collection & Treatment Project

- ICIP
- Total capital cost \$85M
- CBRM capital cost \$0
- Service 14,500 residents
- Treat 10.5M gallons per day
- On-line in 2025





# Remaining WW Systems

The next phase...



# Thank You!

# Working Towards Environmental Sustainability Through Effective Utility Management in CBRM



*Greg Campbell, P. Eng*  
*Manager of Technical Support Services - Utilities*  
*CBRM Water Utility*

October 2021

1

## Acknowledgements

- *K. Brothers & G. MacDonald, Hydrotech Consulting*
- *D. Brushett, Efficiency NS*
- *W. MacDonald, Director EPW*

2

## Environmental Sustainability

- What is Environmental Sustainability?

Definition:

*“responsible interaction with the planet to maintain natural resources and not jeopardize the ability for future generations to meet their needs”*

<sup>1</sup> *What is environmental sustainability?* (n.c.). The Balance Small Business. <https://www.thebalancesmb.com/what-is-sustainability-3157875>

3

## Why Practice Environmental Sustainability in the Water Utility?

- Importance of Water as a Natural Resource
  - Core to Sustainable Development
  - Critical to Healthy Ecosystems
  - Essential to Human Survival
- Environmental Stewardship in CBRM
  - Responsibility for Management of Water as a Resource

4

## Overview

- Water Loss Reduction Program
- Success in CBRM
- Further Opportunities for Success

### GOAL:

Demonstrate How Environmental Considerations are Drivers for Management Decisions in the Utility

5

## Water Loss Program - Getting Some Attention!

- Partnership with Efficiency NS
- Feasibility Study
- Business Case for Project
- Environmental Stewardship and Responsible Management of Water as a Resource
  - Supported by Council in Mandate to Reduce Energy Consumption (2015)

6

## Water Loss Reduction Program Theory

- Analyze and determine the volume and value of water losses in the Sydney and Pottle Lake systems
- Calculate the power use and cost per ML of water supplied
- Calculated the marginal cost of water:
  - Power and chemicals costs combined
- Project realistic loss reductions targets over time
- Projected the power and marginal cost savings from those water loss reductions targets
- Review current loss control activities and practices

7

## Environmental Considerations

- Reduction in Power and Chemicals
- Reduced Energy Consumption = Reduction in Carbon Footprint
- Reduction in Chemicals = Reduction in Energy
  - Production of Chemicals
  - Transportation of Chemicals
  - Further Reducing Carbon Footprint
- Reduction in Chemicals Discharged Directly to Environment
  - Leakage ends up in natural water courses (Chlorine, Fluorine, PO, etc)
- Reduce the Amount of Water Withdrawn from Natural Environment

8

### Water Loss Feasibility Study Process:

- Utilized world class methods and best management practices to assess water use and losses: IWA & AWWA
- Involved a broad cross section of utility staff in workshops and information assembly for the study
- World Class performance indices for water loss assessment:
  - Comparison water loss data sets from Canada and Europe
- Researched deep into water billing information (meter sizes, age, volumes/flow rates) to search for increased revenue opportunities and accurate water accounting

9

### Standard Water Balance

*“Top Down Assessment”*

System Input Volume	Authorised Consumption	Billed Authorised Consumption	Billed Metered Consumption	Revenue Water		
			Billed Unmetered Consumption			
		Water Losses	Unbilled Authorised Consumption	Unbilled Metered Consumption	Non Revenue Water	
				Unbilled Unmetered Consumption		
	Real Losses	Apparent Losses	Unauthorised Consumption			
			Customer Meter Inaccuracies			
		Real Losses	Leakage on Transmission & Distribution Mains			
			Leakage and Overflows at Reservoirs			
		Leakage on Service Connections up to metering point				

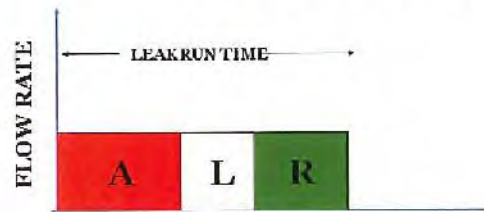
Hydrotech Consulting

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## Excessive Leak Run Time

Manage Leakage "Run Time" to Reduce Losses

$$\text{Leak Volume Loss} = (\text{Leak Run Time} \times \text{Flow Rate})$$



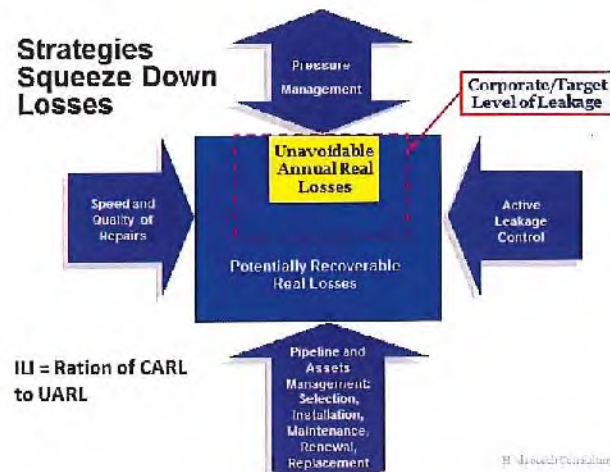
LEAK RUN TIME = \*Awareness + Location + Repair Time

\* Awareness time different for Reported & Unreported Leaks

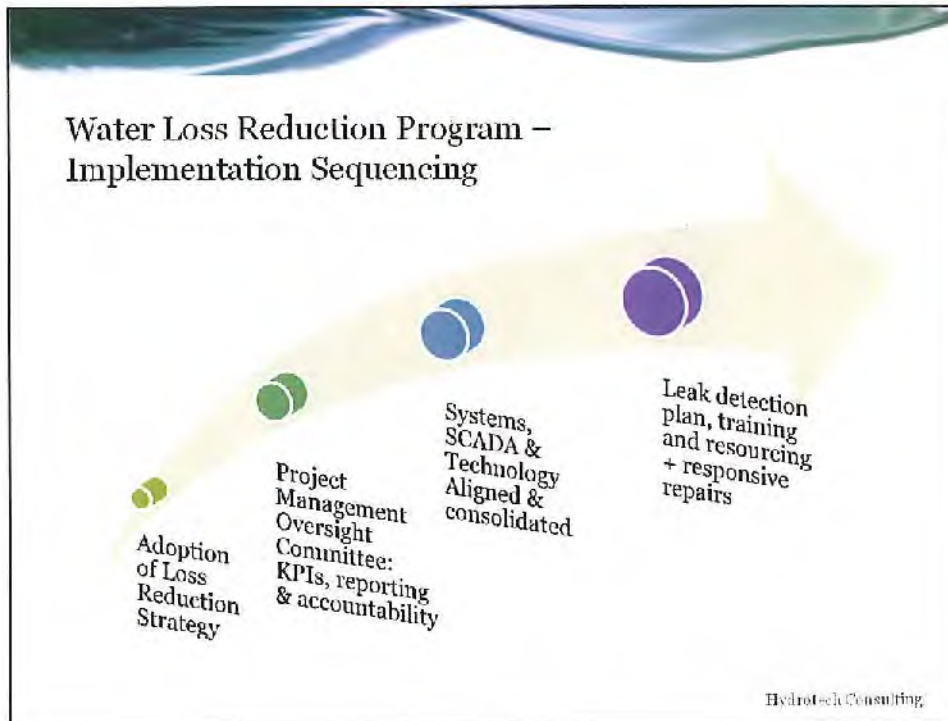
Hydrotech Consulting 47

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## Four Strategies to Manage Real Losses



12



13

### Leakage Power and Chemicals Cost Assessment

- Assessed the value of lost water potential savings:
  - Power + chemicals = \$ 181,290 in 2 yrs. w/50% reductions in each system
    - 2 Year Targets – 6 Months!
  - Power + chemicals: \$ 295k/yr. in 5 yrs. w/70%-87% for Sydney & Pottle
    - 5 Year Targets – 2 Years!
  - Energy savings in the range of 1.8 gWh in power!
- All CBRM water systems to \$536k/yr. and 2.3 gWh in 5yrs.
- Boosted systems power costs, deferred maintenance to pumps & equipment and PRV's were not assessed and offer more savings
- Other social, infrastructure and *environmental* costs not included

14

### Current Best Performance by System

CBRM Water System	Initial ILI 2016	Initial avg. daily input: IGD	Daily Input IGD: Best to Date	Daily Vol. Reduced IGD	ILI = equiv. Based on avg. day target
Pottle System	16	2,638,000	1,460,000	1,178,000	8
Sydney System	6.8	3,128,000	2,300,000	828,000	8
New Waterford	11.2	1,240,000	843,000	397,000	8.5
Glace Bay	6.7	1,924,000	1,520,000	404,000	8.5

15

### Further Opportunities For Environmental Stewardship

- Further Commitment of Resources to Water Loss
- Water Conservation & Education
  - Continued Support ACAP
- Source Water Protection
  - Continued Support to ACAP, Universities,
- Pressure Reduction Strategy



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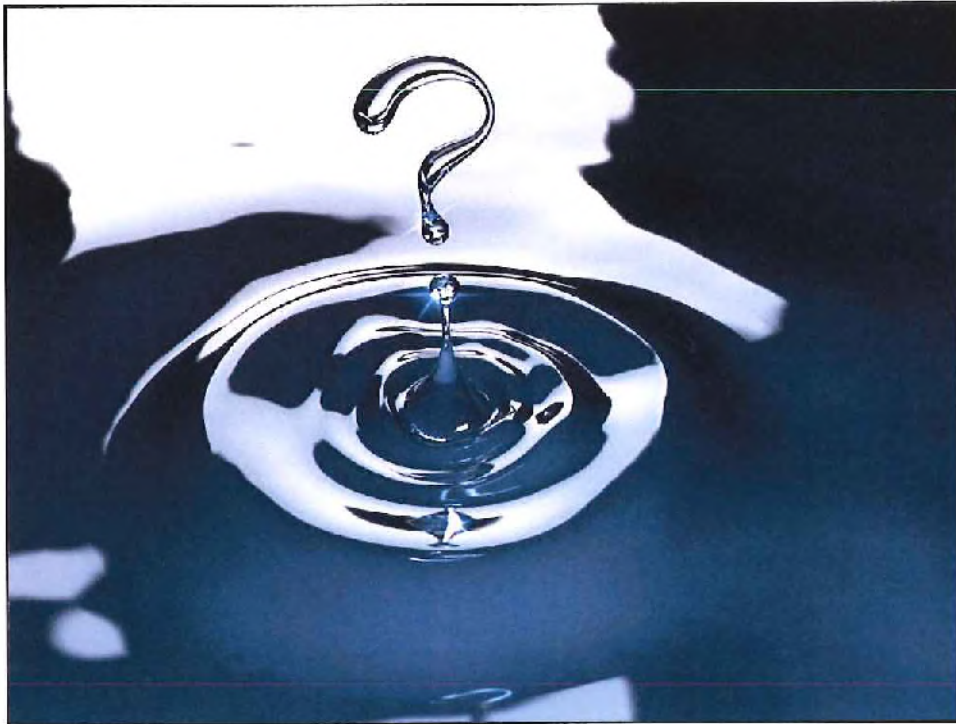
### Conclusions

- Water Loss Reduction
- Success in CBRM
- Further Opportunities for Success

GOAL:

Demonstrated How Environmental Considerations are Drivers for Management Decisions in the Utility

18



19



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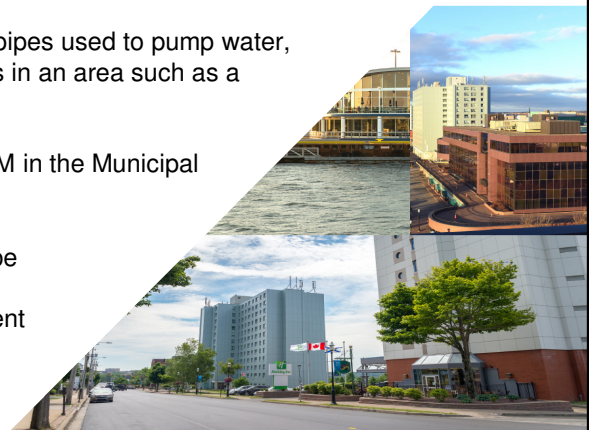
# Downtown Sydney District Energy

1

## Downtown Sydney District Energy

### Background

- District Energy (DE) is a system of underground pipes used to pump water, used for heating and cooling, to multiple buildings in an area such as a downtown district
- First identified as a potential opportunity for CBRM in the Municipal Climate Change Adaptation Plan (2014)
- Preliminary study in 2019 showed that DE could be financially viable and have positive environmental impacts, but further analysis required for investment
- CB Partnership commissioned detailed study in 2020/21, with work recently completed



2

## Downtown Sydney District Energy

### Project Goals

- Improve environmental performance of buildings' heating and cooling systems.
- Ongoing operational cost savings to customers.
- Green economy jobs
- Stable, long-term, alternative revenue generation for CBRM

**7** AFFORDABLE AND CLEAN ENERGY



**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE



**11** SUSTAINABLE CITIES AND COMMUNITIES



**13** CLIMATE ACTION



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REGIONAL MUNICIPALITY

Cape Breton  
Partnership

3

## Downtown Sydney District Energy

### Alignment with Council's Economic Development Strategy

**CBRM** Collaborative  
Community  
Planning  
**FORWARD**

- CBRM Forward economic development consultants and technical advisory committee (TAWG) members have been kept well informed of this project from the beginning of the CBRM Forward Initiative.
- In addition, this project is in alignment with Council's strategic direction of pursuing new revenues in addition to property taxes.
- The **CBRM's Economic Development Strategy** remains on track to be completed this fall, through the CBRM Forward initiative.



CAPE BRETON  
REGIONAL MUNICIPALITY

Cape Breton  
Partnership

4

## Downtown Sydney District Energy

### Technical Analysis

Wastewater Energy Recovery	Ground Source Geothermal
<ol style="list-style-type: none"> <li>1. Easily accessible</li> <li>2. Abundant</li> <li>3. Already “owned” by CBRM</li> <li>4. Free, renewable source of thermal energy</li> </ol>	<ol style="list-style-type: none"> <li>1. Local geology is very suitable for geothermal heat exchange</li> <li>2. Higher demand for heat requires more space for bore wells</li> </ol>
Harbour Water Energy Recovery	Biomass-based Heating
<ol style="list-style-type: none"> <li>1. Great source of cooling, but very limited heat available in winter months</li> </ol>	<ol style="list-style-type: none"> <li>1. Abundant source material available through solid waste</li> <li>2. Would require combustion and associated emissions in downtown core</li> <li>3. Would not address cooling needs</li> </ol>



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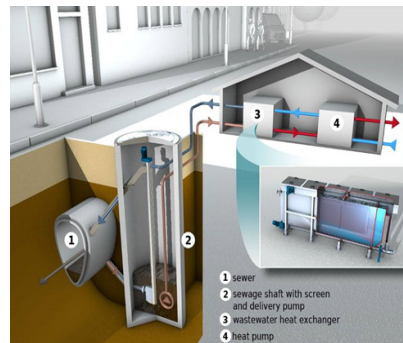


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## Downtown Sydney District Energy

### Technical Analysis – Wastewater Energy Recovery

- Closed loop system (no odors)
- Sewer access equipment would be completely underground
- Heat recovery uses established technology, heat exchangers and heat pumps. Same equipment used to make C200 ice and heat arena



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6

## Downtown Sydney District Energy

### Technical Analysis – Distribution System

- Insulated pipes installed within public right of way
- Two pairs of hot and chilled water (Supply and Return for each)
- ~1500m of piping for main distribution system
- System sized to allow future expansion



7

## Downtown Sydney District Energy

### Environmental Analysis – Wastewater Energy Recovery

- System will eliminate fossil fuel combustion at customer buildings entirely
- System will utilize on-site renewable electricity generation and storage
- 75% GHG reduction for participating buildings by using grid electricity. Reductions increase further with installation of on-site solar generation
- 10,516 tons CO2 emissions eliminated annually

UNIT (30 YEAR PROJECT LIFE)	BUSINESS AS USUAL BASE CASE	GRID SUPPLIED DISTRICT ENERGY SYSTEM	DISTRICT ENERGY WITH SOLAR PV
Electric Consumption (mWh)	19,007	3,602	2,633
Fuel Consumption (MMBtu)	52,132	0	0
Elec GHG Emissions (tonnes)	246,753	46,762	34,601
Fuel GHG Emissions (tonnes)	115,504	0	0
Total Emissions (tonnes)	362,257	46,762	34,601
GHG Emission Savings (tonnes)	0	315,495	327,656



8

## Downtown Sydney District Energy

### Financial Analysis – Wastewater Energy Recovery

- Full Class D capital budget estimate of **\$37,920,000** (includes HST and contingency)
- System will decrease utility costs for building owners
- Based on current customer interest, system is projected to be cash flow positive in year 1 of operation
- Will contribute to current construction industry boom in CBRM.
- System will require multiple, full-time, O&M staff when operational



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REGIONAL MUNICIPALITY



9

## Downtown Sydney District Energy

### Funding Analysis – Wastewater Energy Recovery



- Investing in Canada Infrastructure Program (ICIP) – Climate Change Mitigation Stream
- Access to 73% capital funding
  - ICIP Contribution: \$27,681,600
  - CBRM Contribution: \$10,238,400
- Application currently being reviewed by provincial government
- To make a decision, Province of Nova Scotia needs:
  - Non-binding letters of interest from building owners



CAPE BRETON  
REGIONAL MUNICIPALITY



10

## Downtown Sydney District Energy

### Property Owner Support and Interest

- **56** – Non-binding letters of intent distributed to property owners
- **12** - Attendees at a recent information session held on October 18<sup>th</sup>.
- **3** - Non-binding letters of intent have already been submitted



11

## Downtown Sydney District Energy

### Next Steps

1. Continue to gather Letters of Interest from local building owners, whose signature indicates their interest in participating in a DE System that:
  - a) Provides at least 10% energy savings to customers of the system; savings measured from current heating costs
  - b) Reduces greenhouse gas emissions on average throughout the system by at least two thirds
  - c) Delivers the service rapidly. Current goal is to have this system in service before the 2024 heating season
2. Work with provincial government to complete funding application



12



Dr. Kathleen Aikens  
Executive Director

Jen Cooper  
Habitat Restoration Lead

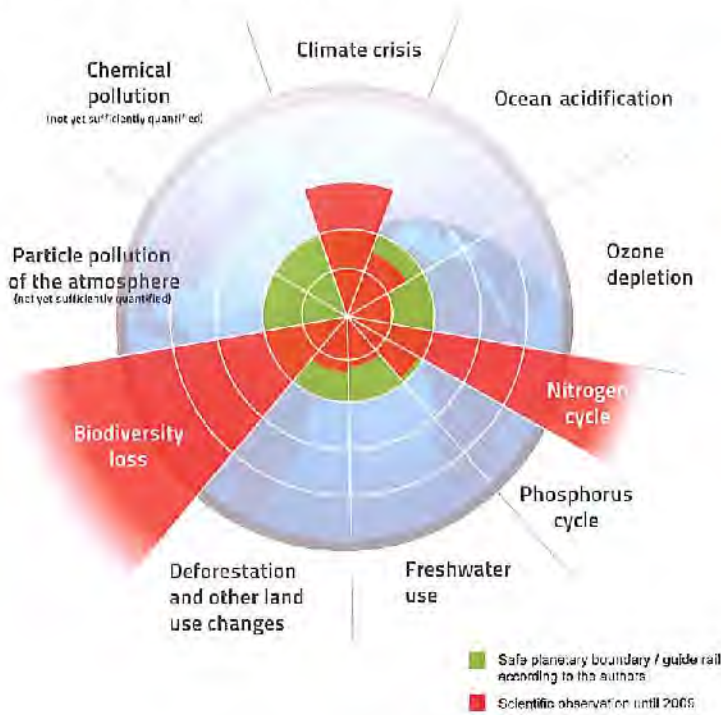
## Eco-partnerships with the CBRM



ACAP Cape Breton is an environmental non-profit organization that offers the knowledge that Cape Bretoners need to make greener choices, and works directly on **practical solutions that help protect and restore our natural environment.**

Since its beginning in 1992, ACAP Cape Breton has evolved into a dynamic group that integrates environmental, social and economic factors into projects focusing on **action, education and ecosystem planning.**

# Planetary Boundaries

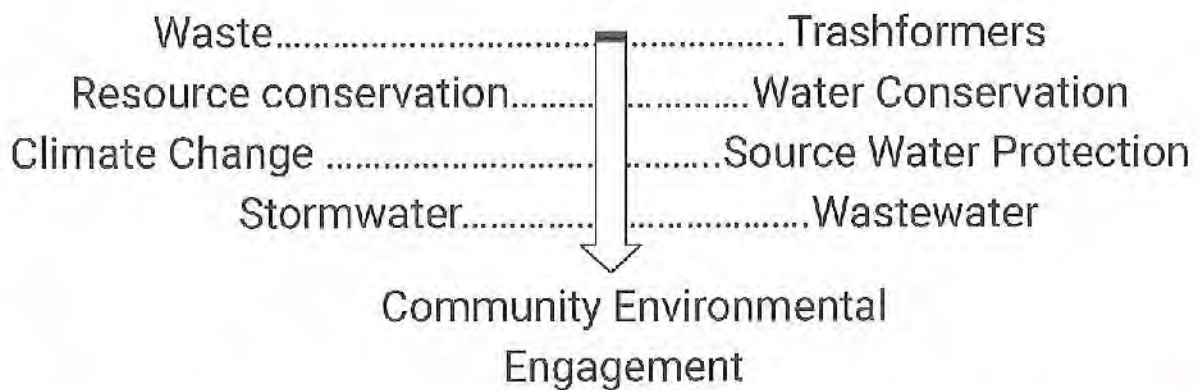


# Regenerative solutions



## Challenge

## Ecopartnerships



# Engagement through ReConnecting

Reconnecting people with their place in nature: fosters belonging and instills a sense of stewardship; increases civic participation; provides capacity-building opportunities (training) & citizen science.

Trashformers - Community clean-ups

WC - Water conservation experiments with students

SWP - Community watershed walks

WW - Stormwater education demonstrating how to effect change from your own yard.



## The Trashformers

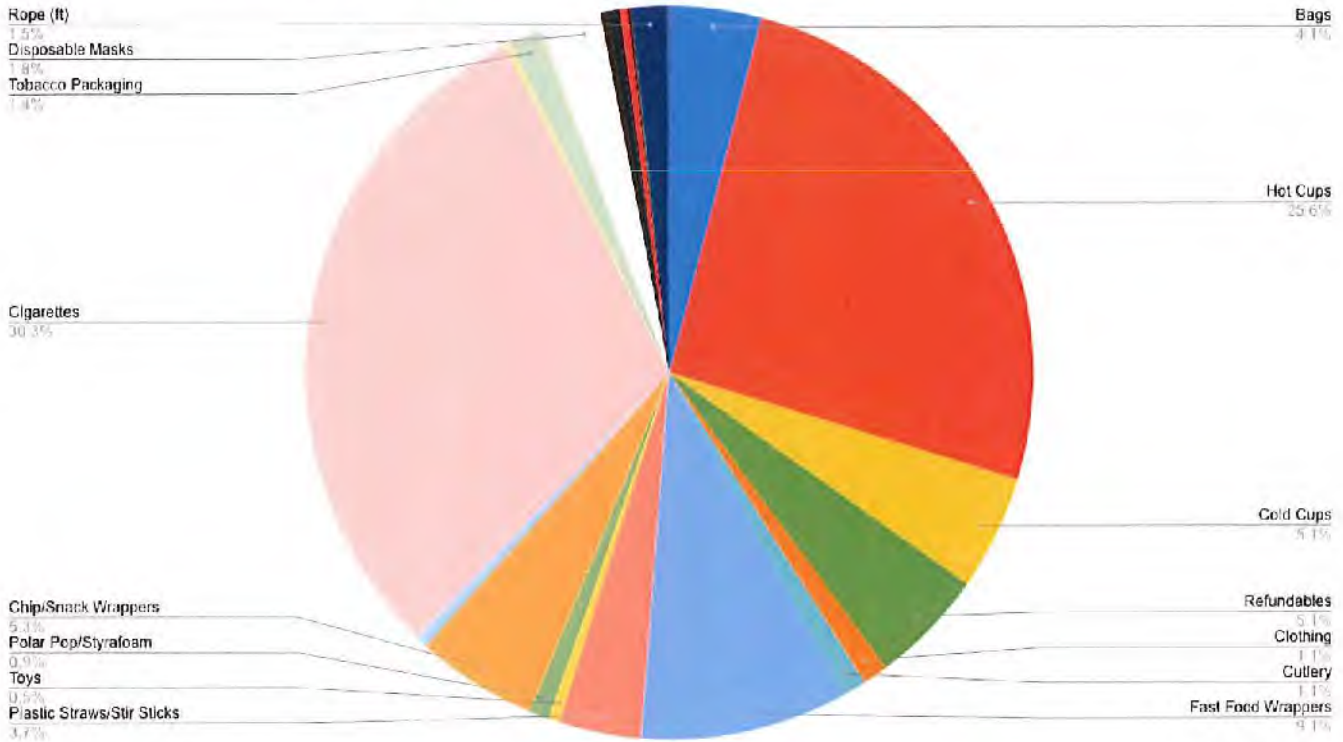
Waste: A 7 tonne problem  
in the CBRM

- Accidental and incidental
- Deliberate
- Misconceptions

**Clean-up + education**



## TOTAL COLLECTED TRASHFORMERS 2021



## 'Pee bottles' dubbed most shocking item collected in 2021 by ACAP Cape Breton's Trashformers

Nearly 15,000 pounds of trash collected this year

Jessica Smith | Posted: Sept. 24, 2021, 2:10 p.m. | Updated: Sept. 24, 2021, 5 p.m. | 9 Min Read



### 'It's just insane': Food packaging, PPE litter skyrockets in Cape Breton during pandemic

Jessica Smith | Posted: July 8, 2021, 1:43 p.m. | Updated: July 9, 2021, 4:59 a.m. | 9 Min Read



NSEN Cape Breton Eye Summary: Community-led Environmental Action!

With Ally Chant and Jessica Frenette!



## 2021 Impacts

Media: CB Post articles, Radio interviews, Podcast participation, Documentary interview, Invited webinar

Social media: 115,000 impressions

Community clean-ups

# Water conservation



**Education Legacy:** impact on thousands of children + youth (700+ in Fall 2021 alone)

**Capacity-building:** training the next generation



# Water conservation



**Developing new curriculum & piloting water conservation action projects**

- Opportunities to integrate climate education
- Mentoring & workforce training for youth





2019: a powerful report analysing the benefits of environmental education

20 years of research and 119 articles, 98% of the studies documented positive outcomes.

Environmental knowledge = the tip of the iceberg

Achievement, Creativity, Wellbeing, Civic Engagement, STEM skills

## Climate Change and Source Water Protection



Monitoring to inform adaptation

Creating avenues for people to engage with their water source



# Stormwater



## SPECIAL REPORT

TD Economics



June 9, 2014

### URBAN FORESTS: THE VALUE OF TREES IN THE CITY OF TORONTO

#### Highlights

- Urban forests are made up of the trees, shrubs and other flora and fauna that line the streets, parks and ravines of our cities.
- Urban forests do more than beautify the scenery. They represent an important investment in environmental condition, human health and the overall quality of life.
- The trees in the City of Toronto's urban forest are worth an estimated \$7 billion, or about \$700 per tree.

<https://www.td.com/document/PDF/economics/special/UrbanForests.pdf>



# Legacy

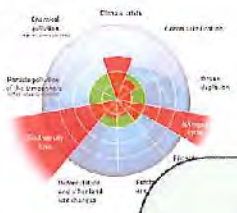
"We have allowed through silence the capacity for nature to cleanse to be compromised."

- Albert Marshall at The People of the Lakes Speak conference, 2017



# Moving forward together

Planetary Boundaries



## The Intact Foundation

We know municipalities play a critical role in protecting communities from the impacts of climate change. And we want to help.



FEDERATION  
OF CANADIAN  
MUNICIPALITIES

FÉDÉRATION  
CANADIENNE DES  
MUNICIPALITÉS

- Potential to amplify impacts & funding
- Education & community action
- Collaboration with other organizations
- Nature-based solutions & intact ecosystems (resilience & regeneration)

Thank you!  
Questions?





1

This is a presentation slide with a white background. In the top right corner, there is a small version of the "Foundation Clean" logo. The main title, "Clean Energy Financing", is centered in a large, bold, green font. Below the title, the text "Presented by Katie Giles" is centered in a smaller, black font. At the bottom of the slide, there is a thin green horizontal bar that contains a small white square with the number "2" inside it.

2

## About Clean Foundation

- We are a Nova Scotia-based independent, non-governmental environmental charity that began in 1988
- We support the fair transition to a cleaner economy and greener society and strive to inspire environmental change through our outreach, engagement and education opportunities.
- From superhero puppets to home efficiency, and from watershed action projects to workplace lunch and learns, there's something for everyone.
- Check out everything we do: <https://cleanfoundation.ca/programs/>

3

3



## Clean Energy

The Clean Energy team is involved in a wide range of energy efficiency, energy poverty reduction, clean energy promotion, and workforce training initiatives.

We are passionate about acting on climate change while working at the crossroads of environment and social equity.

4

4

## What we do

- Cut greenhouse gas emissions while helping Nova Scotians save money on their heating and electricity bills.
- Reduce energy poverty and energy insecurity.
- Partner with Mi'kmaq and African Nova Scotian communities on climate action.
- Promote clean energy including solar.
- Offer clean energy training opportunities, especially to under-represented communities.
- Help rural municipalities reduce their carbon footprints.
- Pilot innovative energy solutions such as **Clean Energy Financing**.



5



## Our expertise

- We have deep experience in residential energy efficiency, energy poverty reduction, energy efficiency training, home energy analysis, and energy public engagement.
- Our certified Energy Advisors are some of the best in the business, with a combined 65 years of experience.
- Our Energy Advisors have performed over 7,500 home energy audits.
- We are experienced in developing energy partnerships with First Nations, municipalities, and civil society groups.
- We are a national leader in innovative clean energy financing.



6

6



# Program Overview



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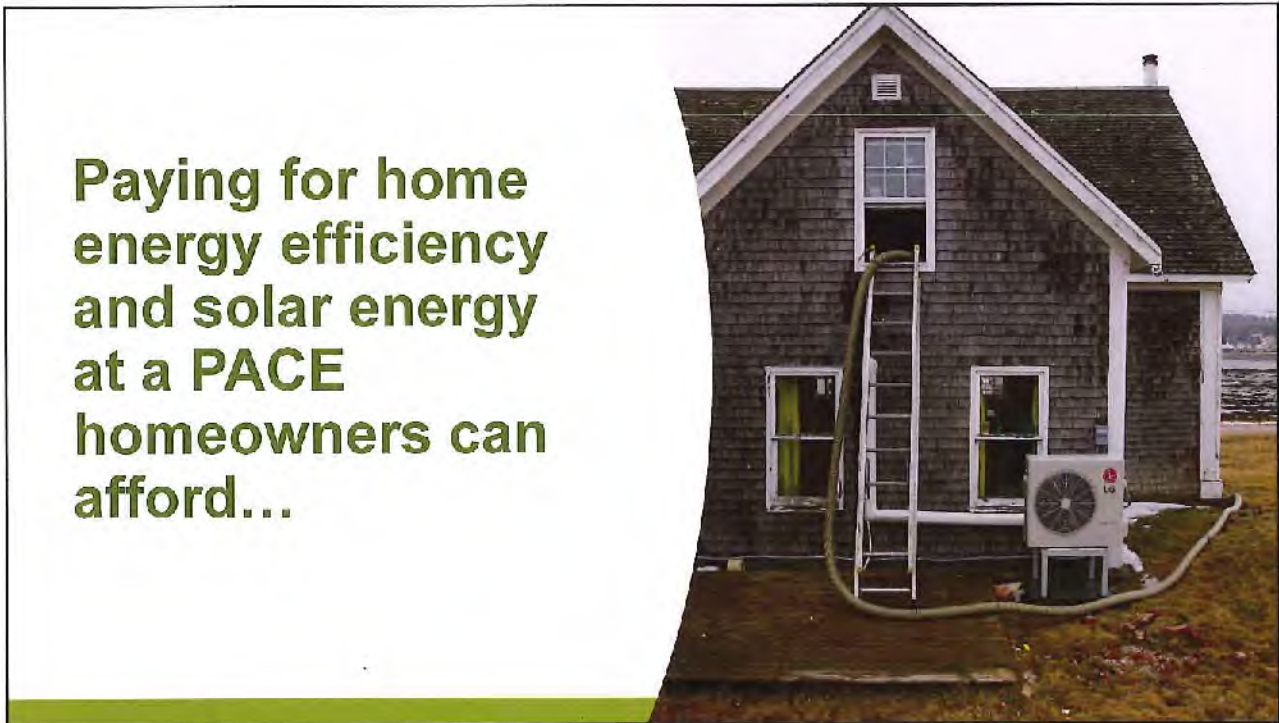
7



## Challenges for homeowners wanting to do home energy efficiency upgrades...

- They don't know enough about their energy consumption
- They don't know what the most cost-effective energy efficiency measures are
- They don't know who to trust or talk to
- They may have trouble getting the necessarily capital and money upfront

8



**Paying for home energy efficiency and solar energy at a PACE homeowners can afford...**

9

A woman with long dark hair, wearing a blue cardigan over a white patterned shirt and dark pants, is standing in a doorway. A ladder is leaning against the wall behind her. The scene is brightly lit, suggesting a window nearby.

**Clean** Foundation

### Property Assessed Clean Energy Financing (PACE)


- Low interest financing for clean energy upgrades
- Financing attached to the property tax account


**Clean Energy Financing**

*"For every dollar you spend on an energy efficiency upgrade there should be a dollar saved in your energy costs."*

10

## Who Does Clean Energy Financing Benefit?






**Home/Warming**

**\$0**


Free Home Energy Assessment and possible free upgrades for homeowners who qualify based on income level



**Clean Energy Financing**

**\$250**

Low interest financing for homeowners who don't have the up-front capital. Fee includes the cost of the Home Energy Assessment and tailored upgrade advice. Homeowners are eligible for provincial and federal retrofit incentives



**Home Energy Assessment**

**\$199**


Access to rebates for homeowners who have the up-front capital to complete upgrades.

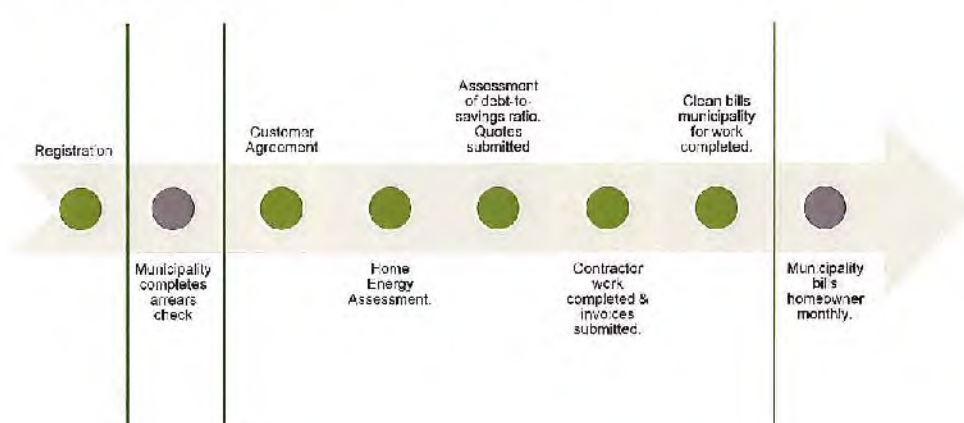
11

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## Clean Energy Financing Steps

A turnkey program with Clean providing the majority of the admin work.





The diagram shows a horizontal arrow pointing right, divided into seven segments by vertical lines. Each segment contains a colored circle (green or purple) and a text label describing a step in the process.

12

12

## Why Clean Energy Financing?

### Accessibility

- Own a single detached, semi-detached or row house
- Live in a participating municipality
- No municipal arrears

### Affordability

- Low interest over 10 years (depending on your municipality)
- Money saved through energy upgrades meets or exceeds the cost of the financing.
- Investment pays for itself over the payback period.

### Expertise

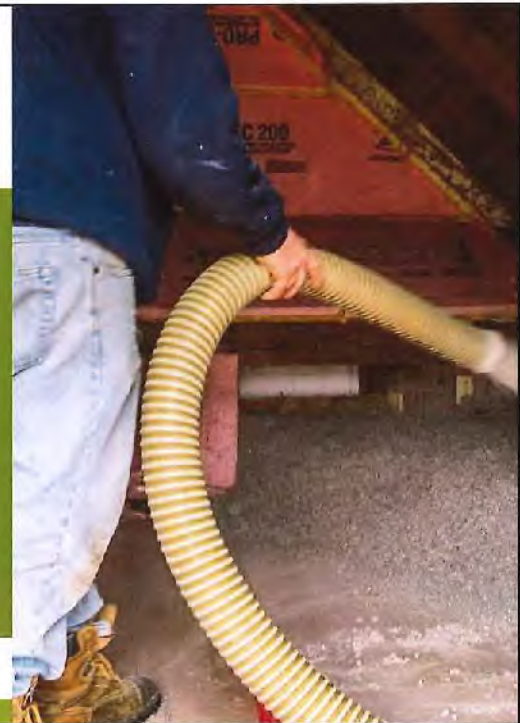
- Recommendations based on an NRCan Home Energy Assessment
- Evaluated by a Certified Energy Advisor.

13

13

## Potential Upgrades

- Insulation
- Draft-Sealing
- Windows
- Heat Pumps
- Hot Water Tank
- HRV
- Enabling Upgrades
- And many other retrofits!



14



- The CEF program launched on July 12, 2016
- There are currently 9 participating municipalities. With 2 more joining soon.
- Average payback = 6.8 years
- Estimated GHG Savings Per Year = 357.77 (tonnes CO2e)
- Estimated Annual Energy Savings = 3450.1 GJ

15

15

## Municipal Process

By-Law	Onboarding	Financing Payments
<ul style="list-style-type: none"> <li>• Municipalities must approve a PACE by-law that allows the municipality to offer financing to property owners.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean Foundation will collaborate with the municipality to create a program tailored to each municipality's needs.</li> </ul>	<ul style="list-style-type: none"> <li>• Financing payments are collected by the municipality monthly.</li> </ul>



16




## Onboarding Package

- One-time start-up fee. The Department of Natural Resources and Renewables can provide funding which can be used to cover the onboarding fee for municipalities
- Marketing package Clean is well positioned to design the marketing strategy. We have over 20 years of energy program experience, including marketing and delivery, a dedicated external relations team, and references who will attest to our high standards of service and client engagement.
- Program Design & Customization
- Evaluation (Interviews and report writing)

17

## Customization

- Payback Period
- Interest rate
- Default interest rate
- Debt to savings ratio
- Total available funding
- Max financing per home
- Arrears or credit check
- Length of contract with Clean



18



## Contact Information

**Katie Giles:** [kgiles@cleanfoundation.ca](mailto:kgiles@cleanfoundation.ca)

**Want more information about the Clean Energy Financing program?**

- Visit our website: [cleanenergyfinancing.ca](http://cleanenergyfinancing.ca)
- Call us toll-free:  
1-844-727-7818
- Email us: [cleanenergyfinancing@cleanfoundation.ca](mailto:cleanenergyfinancing@cleanfoundation.ca)

**Want more information about PACE programs in Nova Scotia?**

- Visit: <https://novascotiapace.ca/>

19

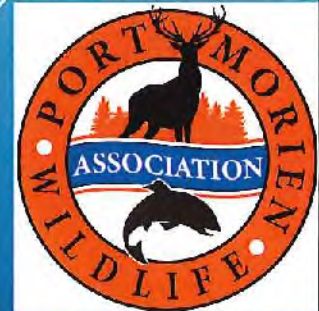
19

*Thank you!*

20

# PORT MORIEN WILDLIFE ASSOCIATION WHAT WE DO!

2021



1

- ▶ Non-Profit Organization founded in 1928
- ▶ We are very active with our own local initiatives which will be addressed during this presentation.
- ▶ Our organization is responsible for many of the regulations that are now the laws that govern hunting and fishing in our great Province.
- ▶ We have about 120 members, but have a limited number of active members.

## PORT MORIEN WILDLIFE ASSOCIATION

2

- ▶ At the local level our goal is to sustain a healthy environment through conservation and enhancement of the resources
- ▶ This is necessary for future generations to experience and enjoy fishing and hunting in a responsible way.
- ▶ To achieve this goal we engage the public in education campaigns and emphasize the importance of healthy ecosystems in their natural undisturbed state.
- ▶ Healthy ecosystems provide mankind with climate regulation, water filtration, and recreation.

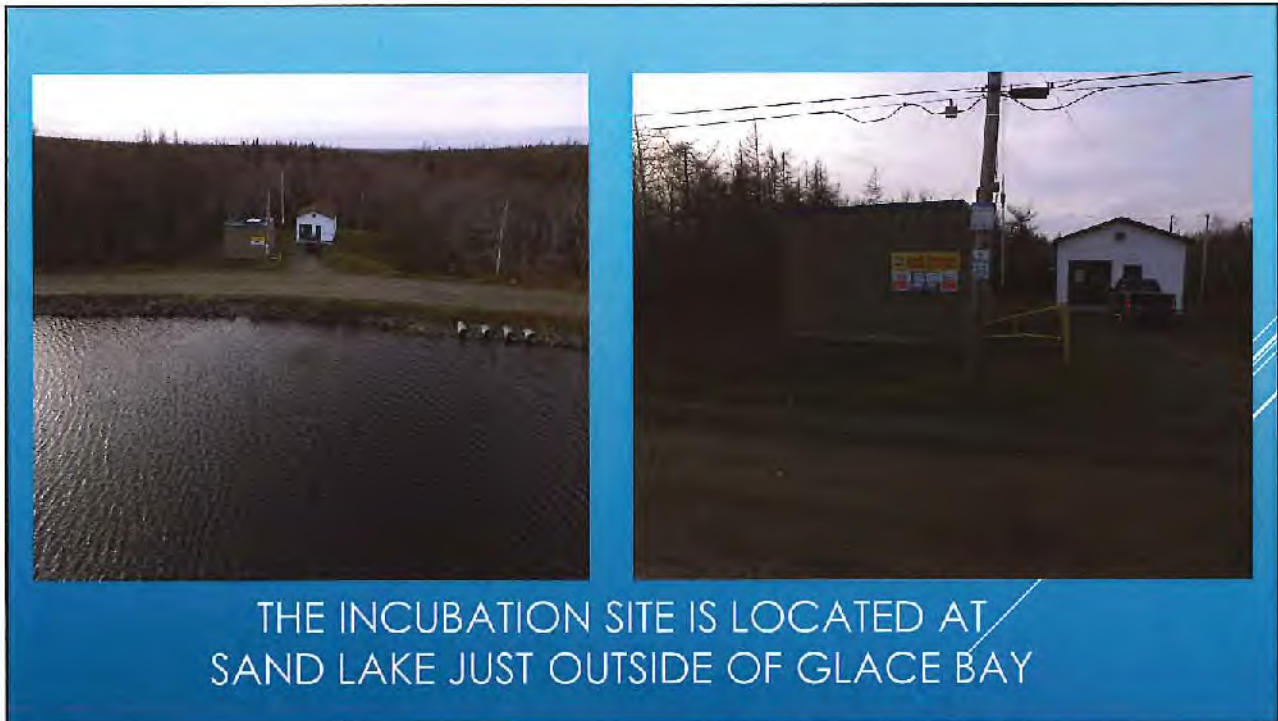
## WHAT WE ADVOCATE.

3

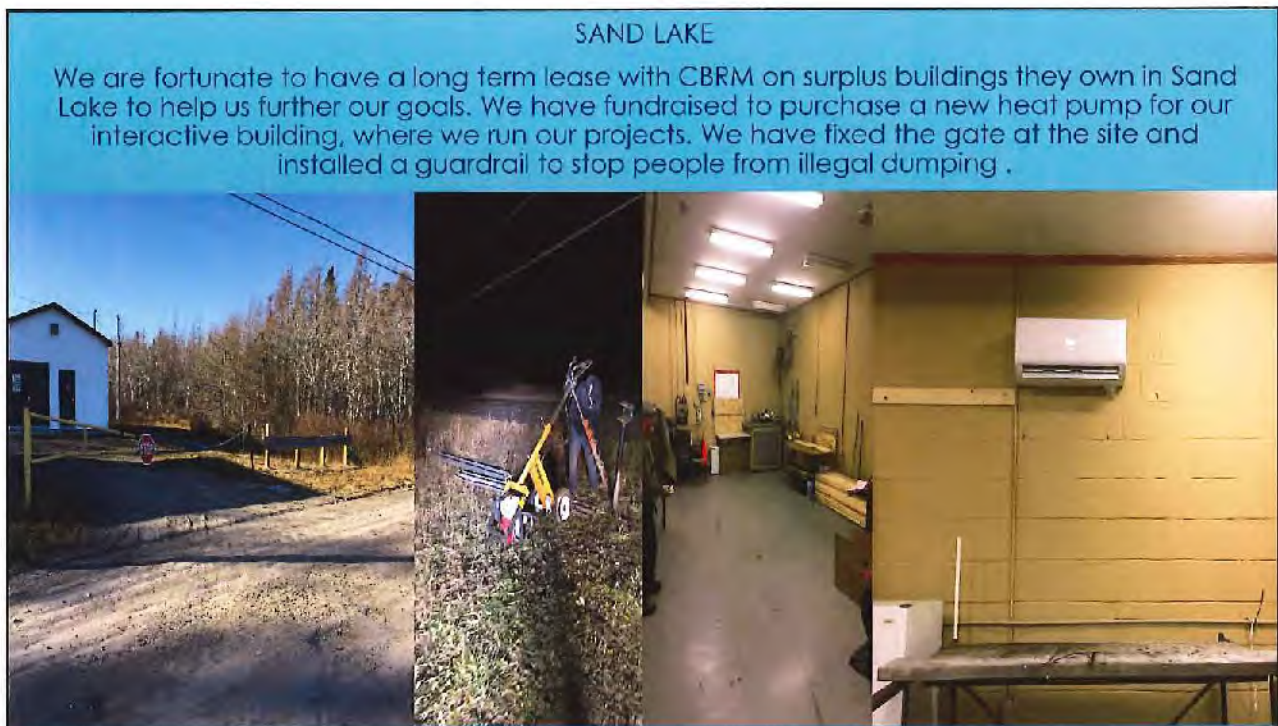
- ▶ Our association has a mutually beneficial working relationship with CBRM Water Utility and since 2014 have leased two surplus Water Utility owned buildings adjacent to the lake that now serves as our base of operations. We are currently building an egg incubation system for raising trout using water sourced directly from the lake. This new incubation system will significantly enhance our fish stocking program.
- ▶ The leased building allows for construction of an efficient incubation system that will draw water directly from the lake and the warmth and shelter of the building will eliminate freeze-ups that we frequently deal with during critical life cycle stages of trout development.

## SINCE ACQUIRING THE BUILDINGS AT SAND LAKE.

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### INCUBATION SITES

Here are some pictures of the old trout incubation location and the new tank being put in place to raise trout eggs at our Sand Lake Incubation site.



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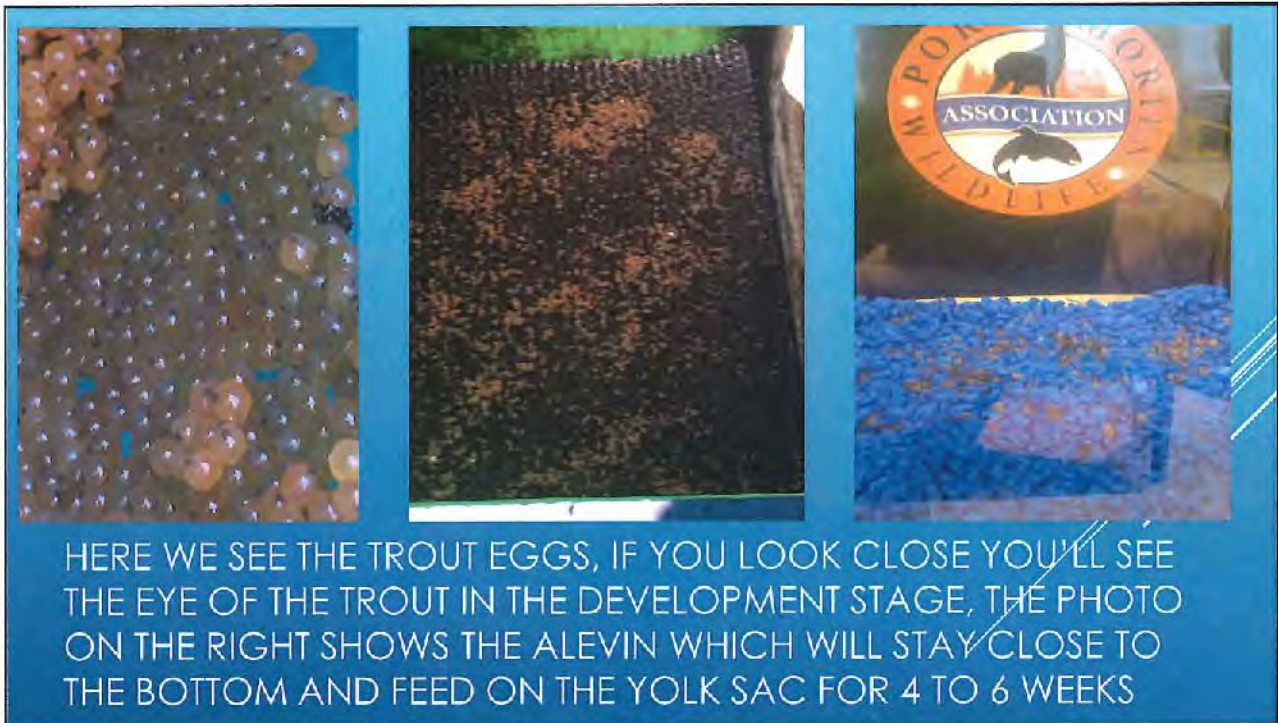


THE POOL IS SET UP TO HOLD THE WATER  
WE THEN PUMP WATER INTO & OUT OFF THE POOL TO  
AERATE THE WATER FOR OXYGEN

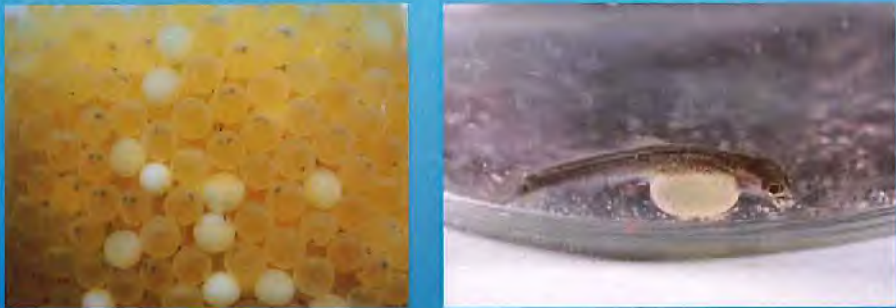
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AS YOU CAN SEE HERE THE WHITE EGGS ARE DEAD, WHILE THE ORANGE COLOR EGGS HAVE 2 EYES THEY ARE FERTILIZED THE PHOTO ON THE RIGHT SHOWS A FRY THAT WILL LIVE OFF THE SAC FOR WEEKS

11

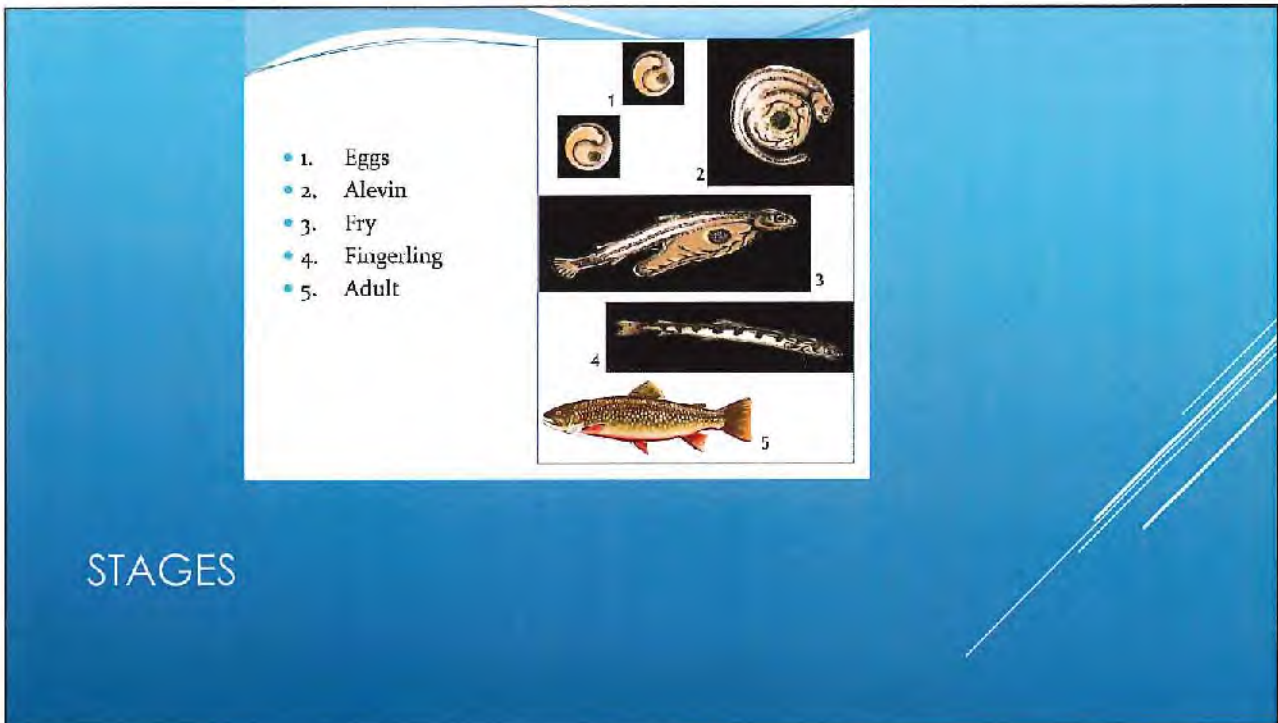


AFTER THE ALEVINS FEED OFF THE SAC THEY TURN INTO FRY LIKE THE PICTURES HERE. ONCE THE SPECKLE TROUT HAVE GROWN TO THIS SIZE WE RELEASE THEM AROUND CAPE BRETON IN LOCAL WATER WAYS AND LAKES

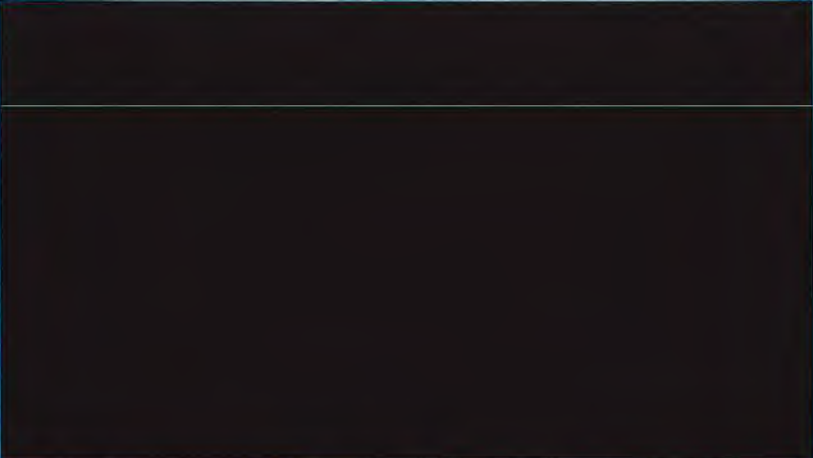
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HERE IS A VIDEO OF THE PROCESS  
LINK:  
[HTTPS://WWW.YOUTUBE.COM/WATCH?V=E9UO2PZ1A5A](https://www.youtube.com/watch?v=E9UO2PZ1A5A)

15



WE SECURED AND PROTECTED 122 ACRES OF  
LAND AT MORRISON LAKE THAT THE  
FERGUSON FAMILY DONATED. PMWA  
PARTNERED WITH DUCKS UNLIMITED IN THE  
TRANSACTION.

16

BOBLNWA\_Table.pdf

Area	Category	Area	Category
...	...	...	...

WE WORKED WITH PWGSC TO ENSURE ACCESS TO BIG GLACE BAY BEACH IS OPEN TO THE PUBLIC

17

BARRIER FREE projects we have completed and revitalized .  
 We are working with Inland Fisheries on possible future sites for Barrier Free Fishing which gives people with disabilities a chance to fish.

SPORTSMAN MEMORIAL PARK,  
 RIVER RYAN REVITALIZATION PROJECT

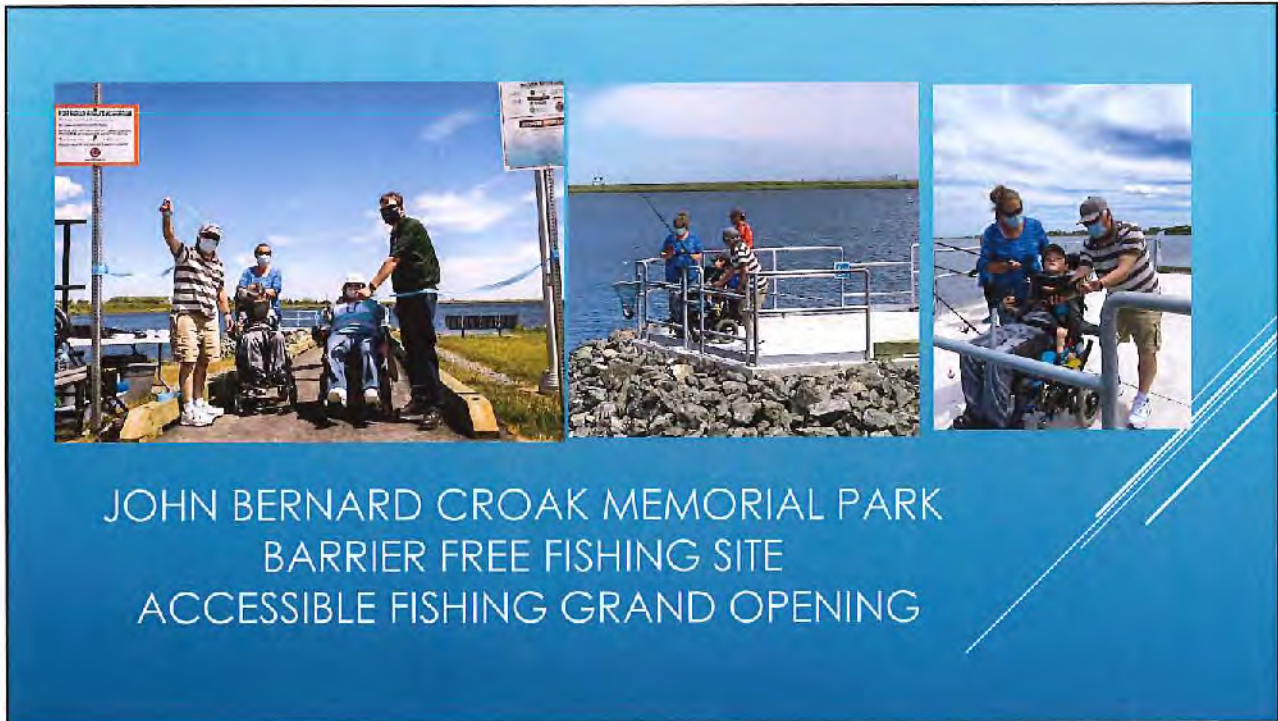
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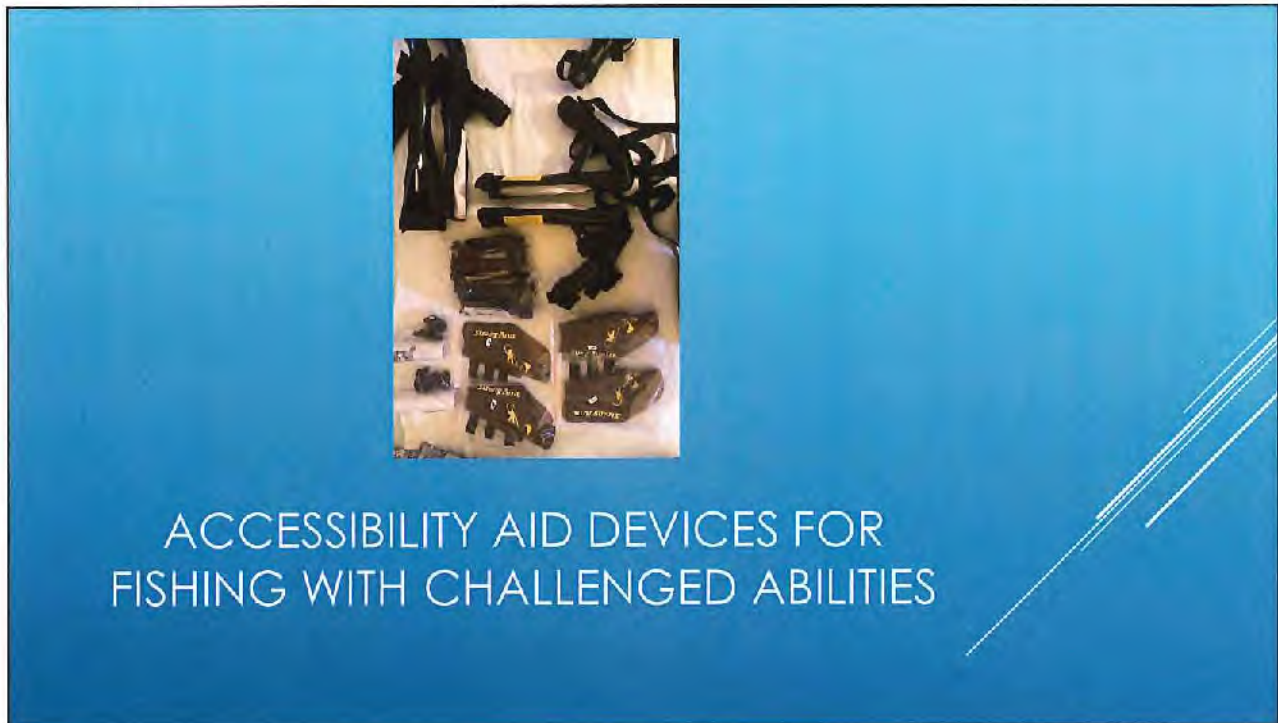
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22

- We have hosted the first ever Lead Ammo and Tackle Exchange in Industrial Cape Breton 2016.
- A presentation was made explaining the effects lead causes to eagles, loons etc.
- Halifax Wildlife did the Exchange for us
- Over 6000 rounds of lead ammo and 5 lbs of lead fishing weights were removed from use and replaced with non toxic alternatives.
- This couldn't have happened with out the contributions made by hunters and trappers to the Nova Scotia Habitat Conservation fund. This fund is solely funded by hunters and trappers who purchase licenses in Nova Scotia.

## LEAD AMMO AND TACKLE EXCHANGE

23

- After our hosting of the lead ammo and tackle exchange we felt the need to further educate the public on the use of lead and the effects on the eagles and birds of prey.
- We drafted a prospal to seek a deceased eagle for educational presentations. After many departments saying no and a year of looking at ways to further our goal we convinced NS DNR to approve a permit for PMWA to possess an Eagle .
- The deceased (electrocuted) Eagle was taxidermy for display purposes and our members travel with it to educate the public.
- We have also acquired (Gifted from CBU) a Common loon, Red Throated Loon an a Heron to accompany the display.

## ACQUIRING OF BALD EAGLE



24

### EAGLE PROJECT

Our organization has acquire a deceased bald eagle that we intend to taxidermy. We have obtained an Educational Permit from DNR with the intention of educating hunters, trappers, anglers, the general public and school children on the effects lead has on these magnificent birds of prey. Special thanks to DNR and Mi'kmaq Leaders on making this goal of education by awareness possible. We also got a chance to see Eagles being cared for at Cobequid Wildlife Rehabilitation Centre.



25



PHOTOS OF THE EAGLE EDUCATION ON THE EFFECTS OF LEAD  
SPORT RECREATION SHOW / BLESSING EAGLE MEMBERTOU

26

- ▶ Each year we make the public aware of the dangers of thin ice and ice safety via the media, educating anyone that enjoys winter activities to take the necessary precautions.



27

We have worked closely with CBRM council members and their illegal dump site police officer to share ideas as well as clean up many illegal dump sites in CBRM.

PMWA worked with Councillor Amanda McDougall on the issues of illegal dumping within CBRM and her district. When CBRM wanted to get rid of the heavy garbage collection, Councillor McDougall stepped up to voice hers and our concerns, that without this program many more illegal dump sites would or could happen. With her help we managed to have this clean up continued for the 2017 year. Many issues continue with illegal dumping as we have ideas they continue to go unheard by CBRM. Litter is also a huge issue.



28



## PHOTOS OF LITTER AND ILLEGAL DUMPING

29

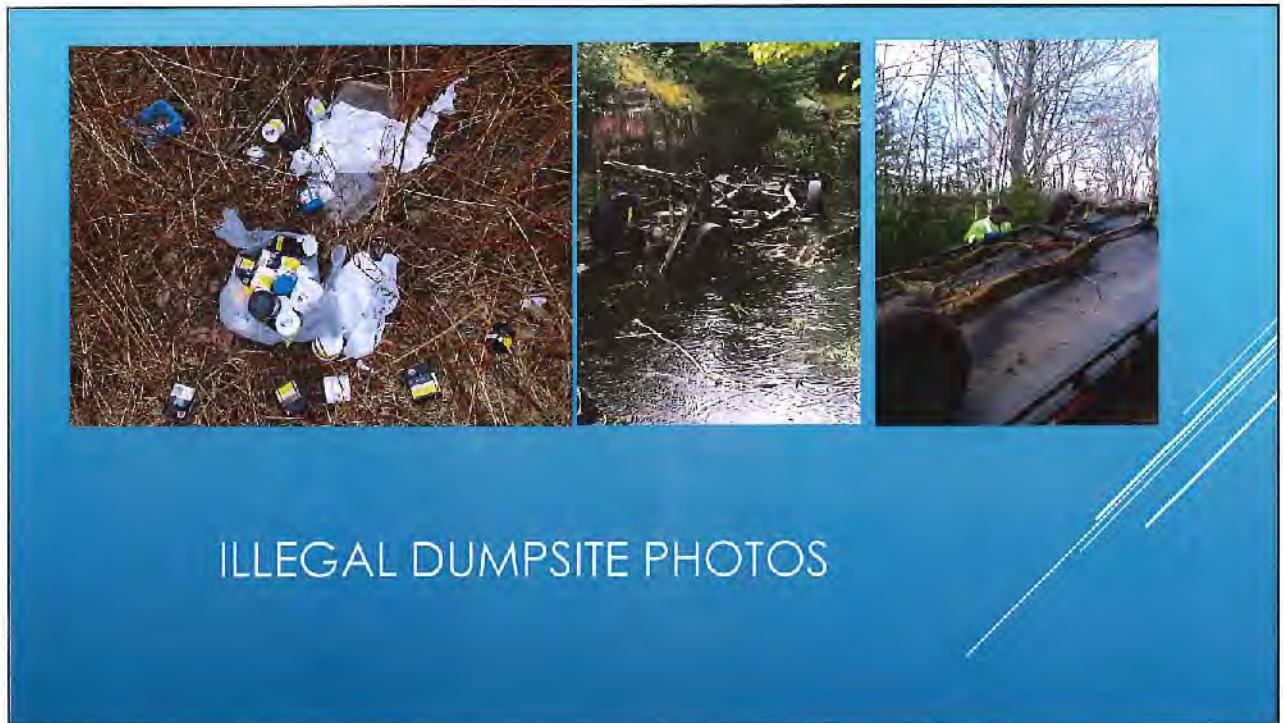
- ▶ We as a club have volunteered time to clean up these illegal sites
- ▶ We have worked with the media to try and educate the public that this is not acceptable
- ▶ We have addressed our concerns with CBRM Police
- ▶ We have installed signs supplied, to problem areas
- ▶ Have worked with the local councillors to voice our concerns on the proposed loss of heavy garbage
- ▶ Currently have proposed ways to address those found guilty of this
- ▶ License suspensions and fine collection through renewal of licenses
- ▶ Our Organization and the Isle Royale ATV Club took the active role on removing an abandon truck in the south west brook behind CBU when other provincial depts said leave it. This removal was covered solely by the ATV Club.

## ILLEGAL DUMPING AND ABANDON VEHICLES

30



31



ILLEGAL DUMPSITE PHOTOS

32

## ENVIRONMENTAL ISSUES

There was a vehicle over a cliff in CBRM that was left by all levels of government and their departments. The lack of response from those departments has prompted our group to be more vocal on this issue. We have been talking to federal and province governments to be better stewards of what they are mandated to protect (oceans and waterways).



33

- ▶ Installed 4 aquariums in local schools so that school children can raise speckle trout eggs to fingerlings, as part of the schools curriculum on life cycles.
- ▶ We educate the teachers and students so they can have a better understanding of life cycle of the speckle trout which is presented through the Fish Friends Program
- ▶ We then have a field trip day where the students get to release the fish first hand.
- ▶ Followed by a taxidermy display presented by our members.
- ▶ Though fund raising we acquired a third aquarium for placement in a third school
- ▶ Pre-Covid – 19 we were in Donkin, Bresdor, Seton and Mira Riverside schools.
- ▶ The fish friends program and Learn 2 fish are both department of education approved.

## FISH FRIENDS PROGRAM

34

### FISH FRIENDS

Our fish friends program is one of our most popular events and even rain doesn't dampen this fun day that is proven in the pictures below. Children were even introduced to a Jack-o-lope.



35



### FISH FRIENDS PROGRAMS IN 4 LOCAL SCHOOLS

36



37

### PMWA STOCKING PROJECTS

Our Stocking efforts continue in many lakes and waterways in CBRM. Our community hatchery (incubation-site) was a success with a very little mortality rate. The stocking and raising of trout eggs by our members wouldn't be possible without the hard work and dedication of staff from Inland Fisheries.

The first photograph shows a blue truck parked on a muddy bank next to a lake, with several people standing around it. The second photograph is a close-up of a fish, possibly a trout, with its mouth open. The third photograph shows a person wearing a black shirt and gloves, handling fish in a white container on a boat or in the water.

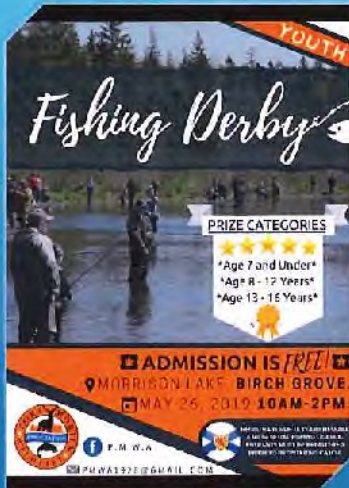
38



STOCKING LAKES WITH NS INLAND FISHERIES, KIDS HELPED WITH THE LEARN TO FISH

39

### FREE KIDS FISHING DERBY



In May each year we hold our free kids fishing derby and on average about 250 kids take part. For the kids that don't have fishing gear we supply it with old fishing gear that we repair. This couldn't take place without the many members, volunteers and the financial contributions we receive from local businesses.

CBRM Festivals and Events Grant contribute financially to helping us with this project as well as the East Cape Breton Community Health Board through their Wellness Grant project.

**A HUGE THANK YOU GOES OUT TO ALL WHO MAKE THIS POSSIBLE.**

40



41



42

### HCF FUNDED PROJECTS

We received funding approval through the Habitat Conservation Fund for a Loon Nesting Platform and Bat Box Nesting projects. We hired a student who was attending Holland College taking their Wildlife Tech Program to facilitate both projects. We also hired a summer grant worker who we had assist on both projects. So far the projects have gotten plenty of media coverage and we have been contacted by many people who helped us to gather data. Many Loon Nesting Platforms and Bat House Nesting Boxes have been installed across Cape Breton. We even have Bat Houses installed at the Donkin Mine site, thanks to Kameron Coal.



43



INSTALL AND MONITOR BAT NESTING HOUSES  
FUNDED BY THE NS HABITAT CONSERVATION FUND

44

### Ducks & Bats

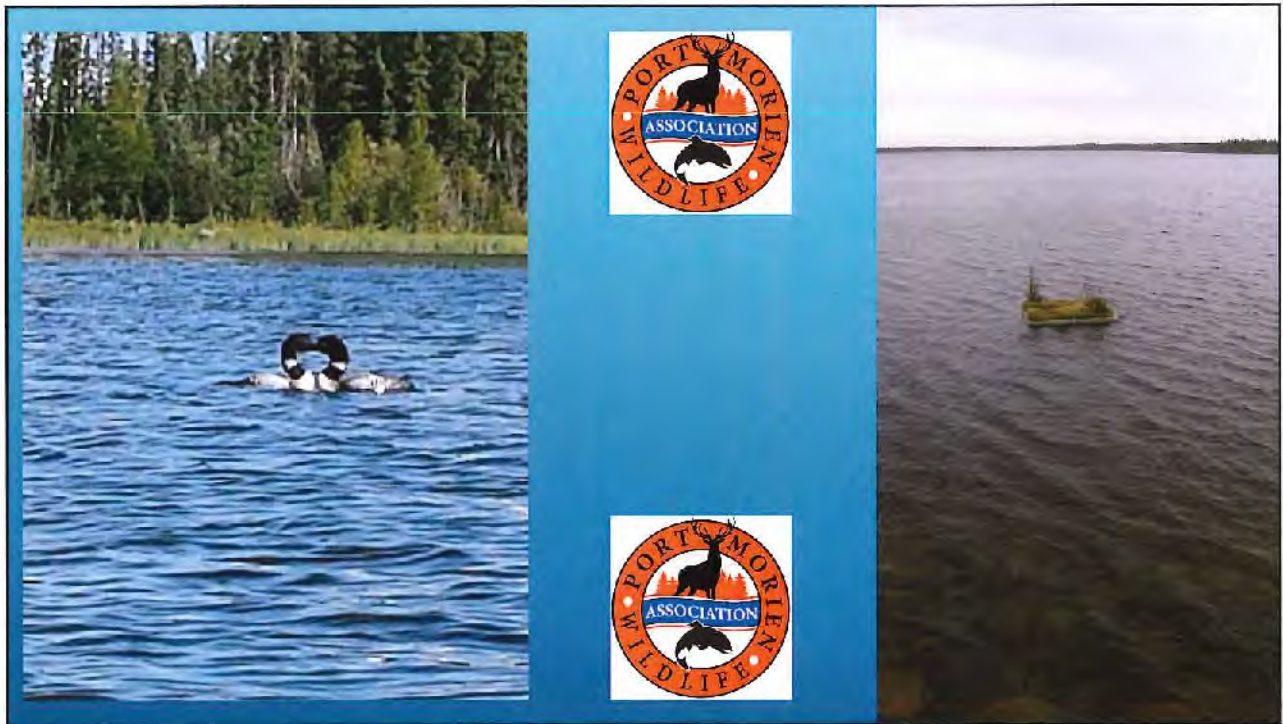
We install Wood Duck nesting boxes and Brown Bat nesting boxes in and around Cape Breton. Even local Councillor Amanda McDougall showed interest in these projects and she jumped at the chance to install not only the Wood Duck boxes but the Brown Bat boxes in her district. GPS points are recorded for tracking and monitoring.



45



46



47



48

- ▶ We were successful in acquiring Nova Scotia Habitat Conservation Fund Grants which are solely funded by hunters and trappers across the province through the purchase of hunting and trapping license.
- ▶ We initiated a Common Loon nesting habitat enhancement project as their numbers and breeding success rates have been in decline.
- ▶ In our conservation efforts with the Brown Bats we built and installed Bat Houses as their numbers are extremely low due too the white nose syndrome.
- ▶ With the above grants we where able to hire a young student from Holland college to facilitate these grants. We have also been able to get a Federal grant to have a summer student get hands on experience with the above projects.

## THE GRANTS

49

### PARTNERSHIP

We have partnered with Ducks Unlimited in building Wood Duck nesting boxes. DU contributed financially to the project. With this funding PMWA was able to get three local schools (GB High, BEC an OVEC) with their wood working classes to build these boxes. We will be installing some and distributed some to clubs in Cape Breton who wish to install them.

50



INSTALL WOOD DUCK NESTING BOXES  
BUILT BY OVEC STUDENTS OF GLACE BAY

51

### WETLANDS CONSERVATION

PMWA has been working with Ducks Unlimited, Kameron Coal and on restoring and protecting wetlands in the Donkin-Port Morien Area under the Wetlands Conservation Act. Which will bring 320k over the next 5 years to Cape Breton.



52



WETLAND AREAS WHERE WORK WAS DONE  
BEAVER POND DAM HOMEVILLE AND SCHOONER POND DONKIN  
MANY YEARS OF GOV RED TAPE TO COMPLETE.

53



WETLAND AREAS WHERE WORK WAS DONE  
BEAVER POND DAM - HOMEVILLE  
SCHOONER POND - DONKIN

54



WE WERE ASKED TO DISCUSS OUR BYLAW  
REQUEST ON FEEDING WILDLIFE  
WE ACKNOWLEDGE IT MAY NOT BE POPULAR  
OUR CONCERNS ARE SAFETY RELATED

55

- ▶ The Health and Safety of all users of CBRM Parks and Public Places is our reason for this bylaw dealing with feeding birds and waterfowl.
- ▶ This presentation addresses concerns we encountered at JBC Memorial Park
- ▶ Bird feces carry a large number of communicable diseases that can be viewed in the provided links.
- ▶ Residents in and around JBC Park Glace Bay are complaining that waterfowl are crossing the road on to their property.
- ▶ Feces in the water is creating bacteria and its just a matter of time and we could see Blue Algae.

REASON FOR THE BYLAW.

56

- ▶ Our organization, PMWA spent over \$2000.00 for sods and landscaping at the JBC Memorial Park as part of the Accessible Fishing Facility that we constructed there.
- ▶ People decided to feed waterfowl with bread and bird seed. This encourages wildlife to return which in turn leads to extensive damage to the area where the waterfowl are being fed.
- ▶ Not only does feeding wildlife and waterfowl cause damage it also causes health risks from communicable diseases from their feces that can become airborne.
- ▶ If you walk in the feces you can carry and spread diseases. The park and walking track have become contaminated with feces from waterfowl that are being fed by residents. Many people have stopped using the park due to this issue.

## ISSUES WITH FEEDING WILDLIFE

57

- ▶ The wildlife and waterfowl come to depend on the free food from those that feed them. With this feeding continuously happening they lose the need to migrate.
- ▶ During the breeding seasons the waterfowl become aggressive to the park users. Sometimes this can cause injuries.
- ▶ What we ask of CBRM is to implement a bylaw much like Truro, Lunenburg or New Glasgow have.
- ▶ In the bylaw we ask that it is specific to feeding wildlife and waterfowl in public parks and spaces within CBRM, as this issue isn't just confined to one park in CBRM.
- ▶ Our organization, (PMWA) had the water tested on Aug 13,2021. We had a concerned citizen express concern that the water may be contaminated. So having a vested interest we did our due diligence, and contracted All-Tech Environmental Services, Sydney to test the water at JBC park. Results provided. This resident also contacted NSE with their concern.

## ISSUES WITH FEEDING WILDLIFE

58

- ▶ The general public's affection toward birds translates into a serious underestimation of the health risks associated with pest birds. People who would never tolerate a colony of rats living in their attic will turn a blind eye towards pigeons entrenched in the rafters of their roof. Yet, in terms of disease and damage, the two pests are quite similar. In order to better understand how nuisance birds spread disease we need to understand the basics of disease and transmission.
- ▶ **What is a Disease?**
- ▶ When normal body functions become disrupted due to a foreign invader or an internal malfunction, we call the disruption a disease. Diseases caused by foreign invaders are called infectious diseases. The invading agents that account for the majority of infectious diseases are grouped in the following five categories; viruses, bacteria, mycotic (fungal), protozoal and rickettsial. From a layman's standpoint, the classification and definitions of disease are less important than how these diseases spread and how can we protect ourselves from them. Diseases need to be transported from place to place in order to spread. Birds are a perfect mechanism for spreading disease because they travel great distances, carry over forty types of parasites and can host internally over sixty types of infectious diseases.
- ▶ Fortunately, human interaction with most bird species is minimal, thus drastically reducing any health threat from most birds. However a few bird species have successfully adapted to our urban environment. The pigeon, starling, house sparrow along with other species have learned to thrive living in our buildings, parks and eating our food. Their adaptation to our communities has brought them into close proximity to humans.

## BIRDS AND DISEASES CARRIED BY BIRDS

59

- ▶ The five types of infectious agents listed above can be associated with birds in the following ways: the disease lives in the bird and is passed on when the bird defecates; the disease lives in the birds surrounding environment and is spread by the birds lifestyle; the disease lives inside a parasite that the bird hosts. From understanding how the bird carries diseases we can demonstrate the four ways the diseases are passed by the bird to humans.

## HOW PEST BIRDS HARBOR AND SPREAD DISEASE

60

The most obvious example is when the diseased bird directly defecates into a human food or water source. In the summer of 93, New York faced a health crisis when several hundred people came down with a mysterious ailment. The illness was traced to sea gull droppings in an old city reservoir. Health inspectors are quick to shut down a food processing plant if nuisance birds are found inside. Besides direct contamination, airborne spores from drying feces in air ducts and vents can settle on exposed food and transfer disease. Several thousand cases of food poisoning (Salmonella) every year are attributed to this disease transmission route.

### **FOOD & WATER CONTAMINATED WITH BIRD FECES**

61

As bird feces, or the contaminated soil it rests on, dries or is disturbed, microscopic pieces break off and become airborne. These airborne particles can contain dormant fungi and/or bacteria. When breathed into the lungs, the warm, moist environment of the lung lining provides a breeding ground for the infectious agents. Common symptoms of this type of infection are flu like in nature: coughing, elevated temperature, restricted breathing and general body fatigue, and last roughly two to four days. The vast majority of the time, the bodies defenses, will contain the invaders even before minor symptoms appear but in a small percentage of cases, major infection causing long term disability and even death occurs. It is worth noting that there is no known medical cure for internal fungal infections. After the Northridge earthquake, several thousand people came down with flu like respiratory symptoms. The ailment was called Valley Fever and was caused by people breathing in dust and airborne debris filled with histoplasmosis spores and related fungal agents stirred up by the earthquake.

### **INHALATION OF FECAL DUST FROM BIRD DROPPINGS**

62

Infection occurs when a worker or resident gets fecal dust or droppings in an open wound or cut. This commonly occurs when handling old rusty, sharp porcupine wire ledge products which are covered with bird feces. The wound site becomes red, puffy and puss-filled. Antibiotics are often needed to cure the infection. In some rare cases, infection of the blood (Sepsis) or internal infection can also occur causing serious illness or death. Proper attire and care must always be used when cleaning a bird site or installing bird control products. If a cut or injury occurs, thoroughly wash and disinfect the wound and cover with a sterile bandage to minimize risk of infection.

### **DIRECT CONTACT WITH BIRD FECES**

63

Pest birds harbor ticks, fleas, mites and other ectoparasites. Parasites transfer disease in the following manner. The parasite bites an infected animal and sucks in blood containing the germ. Example when bug bites its next victim it passes along the germ to the new victim, much like ticks and passage of Lyme disease. This occurs because parasites inject some of their saliva into the host when feeding. Over forty types of parasites live either on the birds, in their nests or in the places they roost. They are responsible for the transmission of several hundred viral and bacterial agents. These diseases include plague, encephalitis, pox and meningitis. Control of these parasites is a crucial phase of the bird control project. Unless the parasites are exterminated when the birds are excluded from a site, the mites, fleas, ticks etc. will seek a new host, often the human inhabitants. Therefore, a proper bird control project will always include parasite extermination.

### **PARASITES ASSOCIATED WITH BIRDS**

64

- ▶ Using our understanding of how nuisance birds play a role in disease transmission, we can develop a few guidelines when dealing with bird infestations.
- ▶ First and foremost, bird infestations are to be taken seriously but not irrationally. When evaluating a health risk potential look for the following: droppings or nesting materials inside air vents, birds around food or beverage production facilities, or large amounts of droppings in enclosed areas. These are the types of situations where disease can be spread. Remember, pigeons walking around your park bench is not cause for panic, but large amounts of birds defecating in a park or, living in the roof-top air ducts of a restaurant is a serious health concern requiring action.
- ▶ Second, pest control professionals and DIY people must take the proper precautions when tackling bird control projects. Respirators, goggles and protective clothing must be used when cleaning up bird sites, particularly enclosed areas out of the sun with large amounts of droppings and nesting material (please see our separate information).
- ▶ Finally, it is not enough to remove the birds, it is crucial to exterminate all the ectoparasites and thoroughly disinfect the site.

## HOW TO HANDLE PEST BIRDS PROBLEMS FROM A HEALTH PERSPECTIVE

65

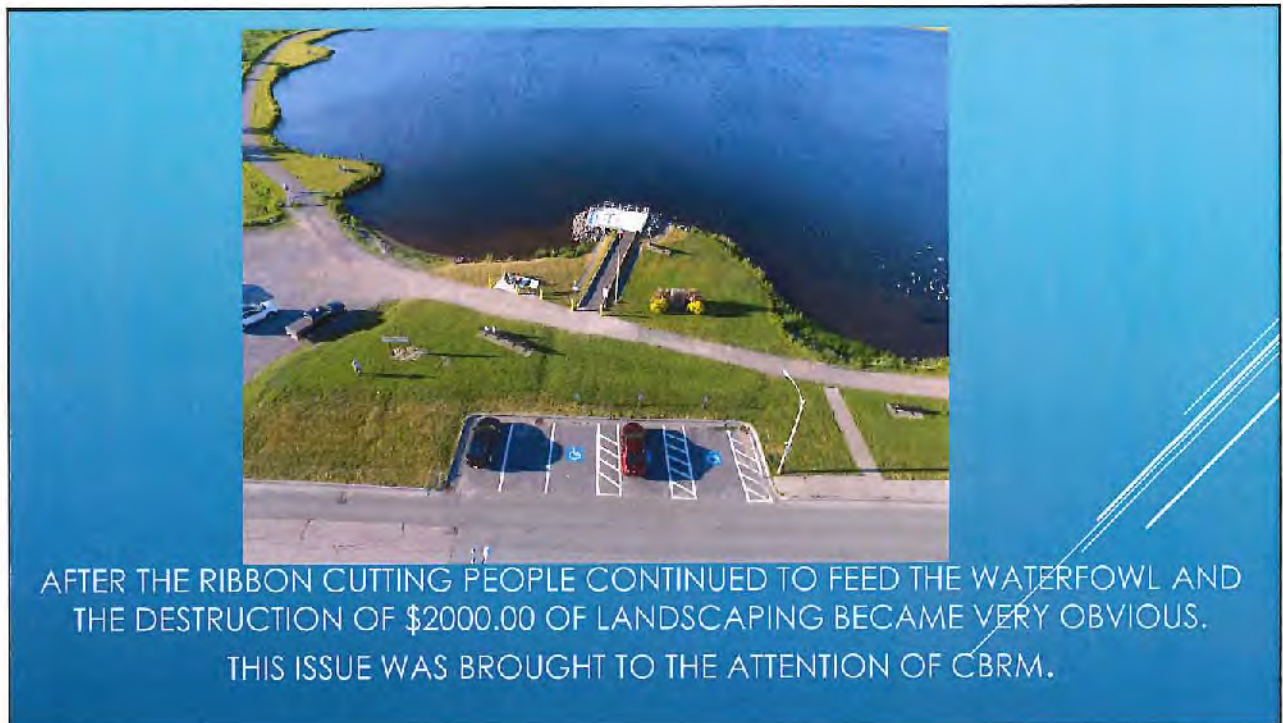


MAY 13, 2021 SOD AND LANDSCAPING DONE.

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67

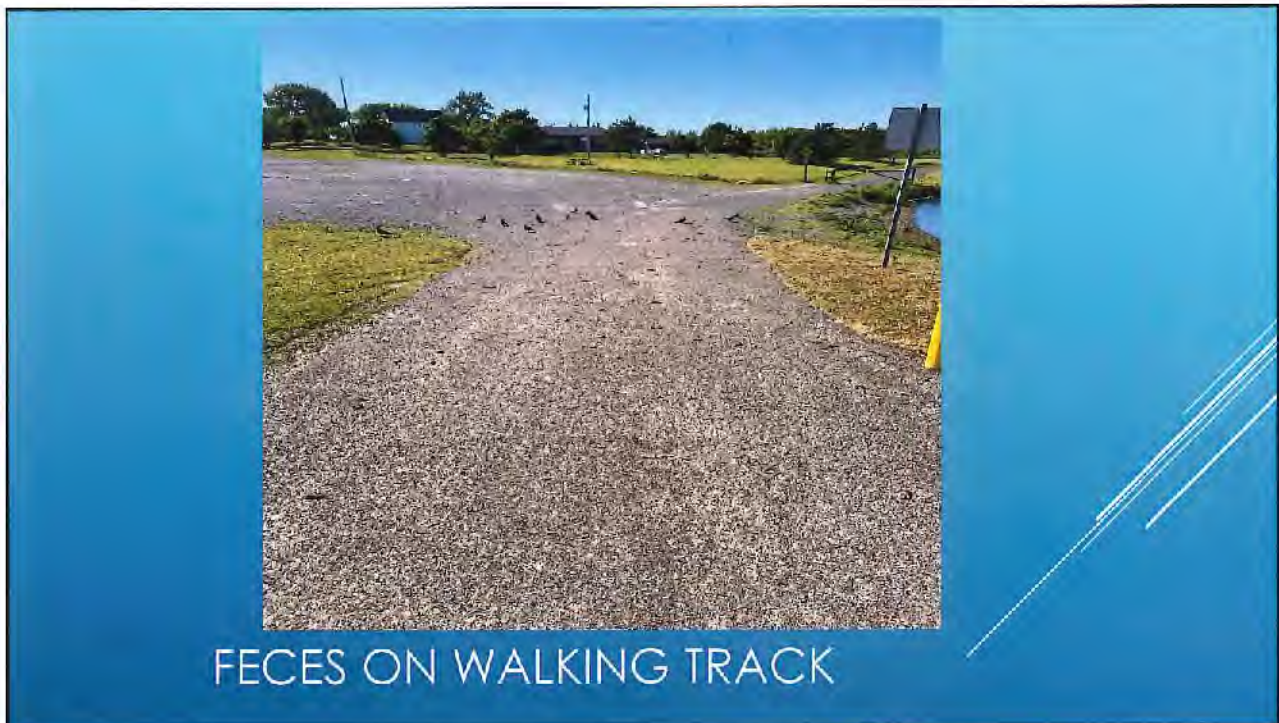


68



ONE WEEK AFTER OUR GRAND OPENING JUNE 24, WATERFOWL HAD PRETTY MUCH DESTROYED THE LANDSCAPING, BY EATING AND FECES.

69



FECES ON WALKING TRACK

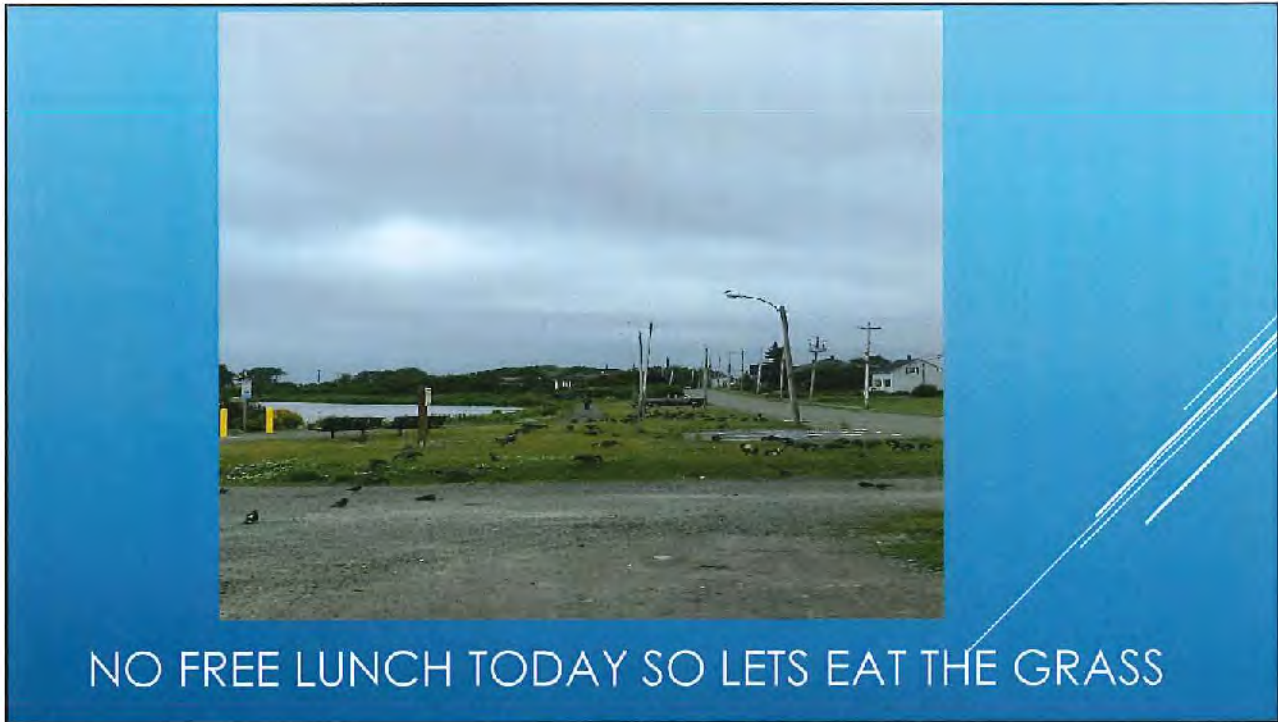
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76



VIDEO: FEEDING WATERFOWL.

77



VIDEO : FEEDING WATERFOWL AND OTHER BIRDS

78



EAGLE EYE DETERRENTS INSTALLED  
FUNDED BY SUSTAINABILITY GRANT

79



THE LASER LIGHT DETERRENT  
FUNDED BY SUSTAINABILITY GRANT

80



## SPRAY DETERRENT BEING APPLIED FUNDED BY SUSTAINABILITY GRANT

81

<https://www.ccohs.ca/oshanswers/diseases/psittacosis.htm>

[https://www.lhsa.ca/pdfs/safety\\_talks/working\\_around\\_bird\\_and\\_bat\\_droppings.pdf](https://www.lhsa.ca/pdfs/safety_talks/working_around_bird_and_bat_droppings.pdf)

<https://novascotia.ca/natr/wildlife/living-with-wildlife/feeding-wildlife-full>

<https://nslslegislation.ca/sites/default/files/legc/statutes/wildlife.pdf>

<https://www.saltwire.com/atlantic-canada/news/local/town-committed-to-enforcement-of-by-law-prohibiting-feeding-deer-146372/>

[https://www.google.ca/search?q=bird+deterrent+reflector+canada&source=lmns&bih=749&biw=375&client=safari&hl=en&sa=X&ved=2ahJKEwIDx6C34y0vAivHrIkKHxSAwYQ\\_AUoAHo:CAAAQAW](https://www.google.ca/search?q=bird+deterrent+reflector+canada&source=lmns&bih=749&biw=375&client=safari&hl=en&sa=X&ved=2ahJKEwIDx6C34y0vAivHrIkKHxSAwYQ_AUoAHo:CAAAQAW)

<https://www.nshealth.ca/news/canopy-being-removed-new-waterford-consolidated-hospitals-main-entrance>

<https://www.saltwire.com/cape-breton/news/new-waterford-hospital-to-have-canopy-removed-385841/>

## LINKS FOR ADDITIONAL INFORMATION

82

- ▶ We have contacted Canadian Wildlife Service Environment and Climate Bruce Pollard who provided some additional ways to address the issue at the following link.
- ▶ <https://www.canada.ca/content/dam/eccc/migration/main/mbc-com/6d2b89>
- ▶ Bruce Pollard is willing to discuss the issue with CBRM council.

## ECCC, AND CWS LINKS

83

- ▶ <https://www.canlii.org/en/ns/laws/regu/ns-reg-28-57/latest/ns-reg-28-57.html>
- ▶ <https://www.canada.ca/en/public-health/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2019-45/issue-4-april-4-2019/article-2-increased-risk-lick-borne-diseases-climate-change.html>
- ▶ <https://www.canada.ca/content/dam/phac-aspc/documents/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2019-45/issue-7-8-july-4-2019/ccdrv45i78-eng.pdf>
- ▶ [https://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/public-health/communicable-disease-prevention/communicable\\_disease\\_vector\\_borne\\_disease\\_management-evidence\\_review.pdf](https://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/public-health/communicable-disease-prevention/communicable_disease_vector_borne_disease_management-evidence_review.pdf)

## VERY IMPORTANT LINKS TO ADDITIONAL INFORMATION.

84

- ▶ <https://nationalpost.com/pmnl/news-pmn/canada-news-pmn/wildlife-scientists-warn-about-possible-trichomonosis-cases-in-n-s-n-b>
- ▶ [https://www.phac-aspc.gc.ca/publicat/daio-enia/pdf/nat-ai-guide-2006\\_e.pdf](https://www.phac-aspc.gc.ca/publicat/daio-enia/pdf/nat-ai-guide-2006_e.pdf)
- ▶ <http://www.environment.gov.sk.ca/Default.aspx?DN=a4c89b9f-acd3-475c-bb31-3b60bfc3e566>
- ▶ <https://ipac-canada.org/west-nile-virus-resources.php>
- ▶ <https://novascotia.ca/natr/wildlife/living-with-wildlife/feeding-wildlife-full.asp>
- ▶ <https://novascotia.ca/dhw/cdpc/lyme.asp>

VERY IMPORTANT LINKS CONTINUED

85

#### FINAL WORD

- ▶ In 2021 Port Morien Wildlife Association turned 93 years old, can you believe it. Now 93 WOW
- ▶ We continue to hold regular meetings and are always recruiting new active members.
- ▶ Membership cost \$10.00 annually
- ▶ Going forward, we plan to continue to meet our organizations goals.
- ▶ Hope this gives everyone a idea of the work we do.

THE END

86

