

Ecology & Action

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IN THIS ISSUE



Thinking Outside the Doctor's Office:
City Planning as Health Care



What Does the COP 15 Target to Protect
30% of Land and Water Actually Mean?



Language and the Land

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Ecology Action Centre

Ecology & Action is published two times a year by the Ecology Action Centre (the EAC), a charitable organization (PM Registration # 40050204).

The EAC is a member-based environmental charity in Nova Scotia / Mi'kma'ki. We take leadership on critical environmental issues from biodiversity protection to climate change to environmental justice. We are grounded in community and a strong voice and watchdog for our environment. We work to catalyze change through policy advocacy, community development and building awareness. We take a holistic approach to the environment and our economy to create a just and sustainable society. Views expressed in *Ecology & Action* are those of the writers and do not necessarily represent the EAC or its supporters.

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Letter from the Centre

WE LOVE HEARING FROM YOU! EMAIL YOUR THOUGHTS TO MAGAZINE@ECOLOGYACTION.CA

What makes an ecosystem healthy? Many would say that a healthy, sustainable ecosystem is one that can maintain its organization and productivity over time in the face of external stresses. This key element – resilience – is a central part of the Ecology Action Centre's strategic direction.

At the EAC we see resilience as part of a call to look ahead multiple generations and work towards a time when ecosystems and communities are flourishing. It means a sharper focus on equipping human and ecological communities for that ability to remain healthy despite external stresses. We hope you'll see this approach visible in different ways in this issue of Ecology & Action, the theme of which is healthy ecosystems.

The theme will naturally bring to mind biodiversity and wilderness protection efforts – like the historic agreement to protect 30% of land and water by 2030 made at COP15 a few months ago, or Nova Scotia's recently announced 14 new protected areas. You'll find articles about both topics in this issue.

You'll also find articles from the perspective of ecosystems as complex, interconnected systems – and not only biological systems. Read about how Indigenous languages tie us to our place within the land and how complete communities and good city planning lead to better health outcomes.

Spring is on the horizon, so we also offer you a few articles that celebrate how community energy can make a big difference to the natural ecosystems we love – from efforts to stop the decline of bat and wild salmon populations in Nova Scotia, to how community-led stewardship of coastal communities in Newfoundland can help us sustainably manage marine resources and maintain sensitive habitats and species.

Ecosystems are both finely tuned and resilient, and each component, down to the very smallest, is important. We hope you enjoy reading about some of the many ways people are ensuring these ecosystems stay healthy for generations to come.

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When you leave a gift to the EAC in your will, your commitment to support environmental protection beyond your lifetime ensures that we can keep our voice independent and strong for years to come. Use your legacy to build a sustainable and equitable future for all.

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What Does the COP 15 Target to Protect 30% of Land and Water Actually Mean?

by IAN MALLOV /// EAC Volunteer

On Sept. 16, 1987, delegates from 24 of the 160-plus independent sovereign states signed the [Montreal Protocol](#),¹ regulating ozone-depleting chlorofluorocarbons (CFCs) and related pollutants. The targets for reduction of these and other compounds were aggressive: capping production growth within four to five years, and rapidly decelerating to zero production – with a few exceptions – within nine years.

The Montreal Protocol has now been signed by all 197 sovereign countries and the European Union. Ozone-depleting chemicals have been nearly completely removed from production and use around the world, and the holes in the ozone layer are diminishing. The Montreal Protocol is in many ways the archetype for a successful, universally adopted and effective international treaty on the environment.

So why not try again, Montreal?

In December 2022, representatives of all countries met again in the same city for a Conference of Parties (COP) of the UN Convention on Biological Diversity, hoping to mirror the success of the summit 35 years earlier. The urgent challenge this time? Reversing a mass extinction.

We are currently in a biodiversity crisis known variously as the Sixth, Seventh, or Holocene [Mass Extinction](#).² Or, more pointedly, the Anthropocene Mass Extinction. Human activity – habitat destruction, over-harvesting, invasive species, pollution and climate change – is driving the disappearance of animals, plants, bacteria and fungi at alarming rates. While species are always going extinct, and new species are always appearing, what qualifies as a Mass Extinction is often taken to be when the rate of species disappearance is over [100 times the baseline rate](#)³ during a non-extinction period.

Representatives from every sovereign state and some Indigenous nations descended on Montreal from Dec. 7-19, 2022 for the 15th COP for countries that are part of the UN Convention on Biological Diversity.

What can be agreed upon, and acted upon in good faith, by the mixture of democracies, autocracies, monarchies, rich, developing, poor and mass-consuming nations? Ecology Action Centre representatives, along with many conservation and Indigenous groups, went to find out.



Meeting held inside the Nature-Positive Pavillion at COP15. PHOTOS: Convention on Biological Diversity

While other international meetings designed to produce international agreements on the environment, especially the better-known 2015 “Paris Agreement,” deal specifically with limiting and adapting to climate change, a major focus of COP 15 (aka “Nature COP”) was perhaps the most basic solution: protecting land and water for biodiversity. Even with relatively straightforward goals on the table, arguments, protests and even a walkout by several nations marked the proceedings, which ranged from contentious to acrimonious to, finally, a fragile united front.

The centrepiece commitment to emerge from COP 15 was the “[30 by 30](#)”⁴ agreement, a target of designating 30% of the Earth’s lands and waters to be under protection by 2030. The ideas for this target were first proposed in the journal [Science Advances in 2019](#), “[A Global Deal for Nature: Guiding Principles, Milestones, and Targets](#)”⁵ authored by scientists from various U.S., U.K. and Asian universities, and the National Geographic Society. Every country except for the United States and the Vatican signed on to the “30 by 30” agreement (the Vatican has minimal natural land; the United States requires international treaties to be ratified by a two-thirds majority in the Senate and most Republicans were opposed, although President Biden has [committed to a similar pledge](#) by executive order).⁶

“Canada, along with like-minded countries, said from the start that 30 by 30 must be our 1.5 degrees for nature,” [said](#) federal Minister of Environment and Climate Change Steven Guilbeault⁷ in a statement while at COP 15, alluding to the galvanizing commitment of the Paris agreement on climate change committed to in December 2015.

But even the “30 by 30” commitment is far more complex than it seems. Which 30% will be protected? What will the protections be? How will governments navigate complex issues with private and corporate landowners, as well as Indigenous Peoples whose rights have long been overlooked?

The answer to the first question is that the agreement specifically targets Key Biodiversity Areas (KBAs). For example, to get to 30% protection, not all protected land and water can be in areas of low population density – areas that have traditionally been “easier” to protect than those in areas with higher human populations and therefore higher demand for other uses of the land and water.



Rally to support strong biodiversity targets held during COP15 in Montreal.

Generally, areas to be protected must have high biodiversity. Protections will include restrictions from mining, oil and gas exploration, forestry and other industrial development, although there are exceptions even to this. Many areas still permit small-scale harvesting of plants and animals, with varying restrictions.

The International Union for Conservation of Nature (IUCN) has designated categories of protected areas depending on the level of human activity permitted: Category IA is a Strict Nature Preserve permitting only very light human use, while Category II is a National Park, and Category VI permits “sustainable use of natural resources.” While the “30 by 30” agreement doesn’t explicitly use IUCN definitions, the 30% protected areas generally span the range of the IUCN definitions. Much of the work to be done involves legal logistics and protections. High biodiversity areas, such as the forests of Papua New Guinea, are often being protected gradually by agreements with Indigenous Peoples, such as those in the [Mount Waigareame Conservation Area](#).⁸

Closer to home, two examples from Nova Scotia illustrate the complexities of selecting land for protection.

1. “About Montreal Protocol” website of the United Nations Environmental Program (UNEP) [unep.org/ozonaction/who-we-are/about-montreal-protocol](#)
2. “What is the Sixth Mass Extinction and What Can We Do About It?” website of the World Wildlife Fund 2023 [worldwildlife.org/stories/what-is-the-sixth-mass-extinction-and-what-can-we-do-about-it](#)
3. “Mass Extinction Event” entry in the online Encyclopaedia Britannica, article by The Editors of Encyclopaedia Britannica and most recently updated by John P. Rafferty [britannica.com/science/mass-extinction-event](#)
4. “COP 15 Ends with Landmark Biodiversity Agreement” Dec. 20, 2022 website of the United Nations Environmental Program (UNEP) [unep.org/news-and-stories/story/cop15-ends-landmark-biodiversity-agreement](#)
5. “A Global Deal for Nature: Guiding Principles, Milestones and Targets” E. Dinerstein *et. al. Science Advances* 2019, 5(4) eaaw2869 [science.org/doi/epdf/10.1126/sciadv.aaw2869](#)
6. [whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/](#)
7. Statement from the Ministry of Environment and Climate Change Canada, Dec. 19, 2022 [canada.ca/en/environment-climate-change/news/2022/12/cop15-statement-from-the-minister-of-environment-and-climate-change.html](#)
8. “More Traditional Clans in the Bismarck Forest Corridor of Papua New Guinea Agree on Legally Protecting Their Forest Lands Together” published June 30, 2022, website of the Wildlife Conservation Society [png.wcs.org/About-Us/News/articleType/ArticleView/articleId/17739/More-traditional-clans-in-the-Bismarck-Forest-Corridor-of-Papua-New-Guinea-agree-on-legally-protecting-their-forest-lands-together.aspx](#)
9. Nash, Trish “Emerging Indigenous Protected and Conserved Areas: The Unama’ki Mi’kmaw IPCA Project” Conservation-Reconciliation.ca Blog April 12, 2021 [conservation-reconciliation.ca/blog/emerging-indigenous-protected-and-conserved-areas-the-unamaki-mikmaw-ipca-project](#)

TAKE ACTION

Protected should mean protected. End of story. And yet, a U.S. golf course developer is once again trying to swindle away the West Mabou Beach Provincial Park to develop a private 18-hole golf course. If we want to achieve our protection targets, then we can’t afford to lose what’s already protected. Learn more and take action at [ecologyaction.ca/save-west-mabou-beach-park](#)

Many Nova Scotians will be familiar with the contentious plan for a golf course which would have cleared Crown land along the Eastern Shore at Owl’s Head in Little Harbour, destroying the habitats for several species within. Controversy erupted when conservation groups, scientists and local interests got wind of the Nova Scotia government’s plan to de-list 285 hectares of land proposed for protection adjacent to land owned by American developer G.S. Beckwith Gilbert.

After intense media coverage, protests and even an unsuccessful court challenge, as of June 2022, some of that land is now designated as Owl’s Head Provincial Park. This protection will now save coastal wetlands, barrens and forests home to endangered species including the piping plover and barn swallow.

Now imagine these types of competing interests taking place over and over with more significant industrial interests at stake, on a global scale, in many jurisdictions without the permitted civic engagement, free press and democratic infrastructure of Nova Scotia – although of course, we still have challenges of our own.

The second example sounds a more hopeful note. An important component of the “30 by 30” commitment is the creation of more Indigenous Protected and Conserved Areas (IPCAs), areas in which conversation is led by Indigenous Peoples with government as a partner. One of these is [Kluskap’s Cave Indigenous Protected and Conserved Area](#)⁹ in Unama’ki/Cape Breton. This IPCA will be an accumulation of land whose stewardship will be undertaken by the Unama’ki Resource Project, a collaboration of five Mi’kmaw groups and the Nova Scotia government. Land and ocean for this IPCA will incorporate areas that, as of now, are under ownership or management by Mi’kmaw peoples, the Crown and private owners. Forestry licences and mineral rights in the area will have to be dealt with. These particular lands were selected because they are home to a designated Important Bird Area, a marine Ecologically and Biologically Sensitive Area, large tracts of wilderness and areas of special cultural significance to the Mi’kmaw, such as Kluskap’s Cave, which in Mi’kmaw stories and legends was the last home of Kluskap on Earth.

There are challenges in protecting this area, including dealing with forestry and mineral licences in the areas, but this is a start in using this protection mechanism in Nova Scotia, which also aids in reconciliation. It is also an exciting time, as perhaps in 10 years, at a future COP 25, we may well have witnessed the most rapid growth in protected areas in history.

Ian (he/him) is a chemist and writer, and EAC member since 2021.

Will the Province Risk Habitat Restoration in the Hopes of Striking Gold?

by **KATHERINE MARTIN** /// EAC Volunteer



Touquoy open-pit gold mine in Moose River, Nova Scotia.
PHOTO: Raymond Plourde

Despite pushback from numerous stakeholders, Atlantic Mining Nova Scotia (AMNS), also known as Atlantic Gold, is proposing an open-pit gold mine at the heart of an ongoing habitat restoration and research project for Atlantic salmon in the province.

Atlantic Mining Nova Scotia

AMNS is owned by St Barbara Ltd – an Australia-based gold-mining company. They currently operate the Touquoy Gold Mine in Moose River and have proposed to extend their operations to Beaver Dam, Cochrane Hill and Five Mile Stream. According to the project's environmental impact statement (EIS), this would result in "approximately 208 ha of direct habitat disturbance." Twenty-six hectares of damage would be on crown lands, creating further cause for an environmental assessment, but the process so far has been cloudy.

In 2022 the project proponent asked for an extension on the time limit to submit information and studies under the Canadian Environmental Assessment Act, 2012. Without said extension, the environmental assessment process would be restarted under the Impact Assessment Act, 2019. AMNS stated there would be minimal changes to the project and all consultation and engagement was underway. At a community engagement meeting, the project has increased from one open-pit mine to four and operations for 10 years instead of six years as originally stated. Because of the already-massive footprint and various changes to the project, stakeholders are calling for an entire overhaul of the project's environmental assessment.

“The Beaver Dam Mine infrastructure placement (i.e., mine site footprint or layout) will result in approximately 208 ha of direct habitat disturbance, of which 26 ha, or 14%, is on crown land.”

- Beaver Dam Mine Project EIS Update
Version 3, Atlantic Gold (2021).

With AMNS's history of breaking environmental laws and the impacts of their ever-growing proposed open pit mine, various stakeholders in the province are extremely concerned about the damage this mine could cause. AMNS was charged in provincial court under the Fisheries Act and the Environment Act in February 2022. The company paid over \$250,000; with \$10,000 being court fines and \$120,000 directed to both the Environmental Damages Fund by the Government of Canada and the Nova Scotia Salmon Association (NSSA). The NSSA was not in favour of the handout, rather in opposition of the project moving forward altogether.

Salmon habitat restoration efforts in jeopardy

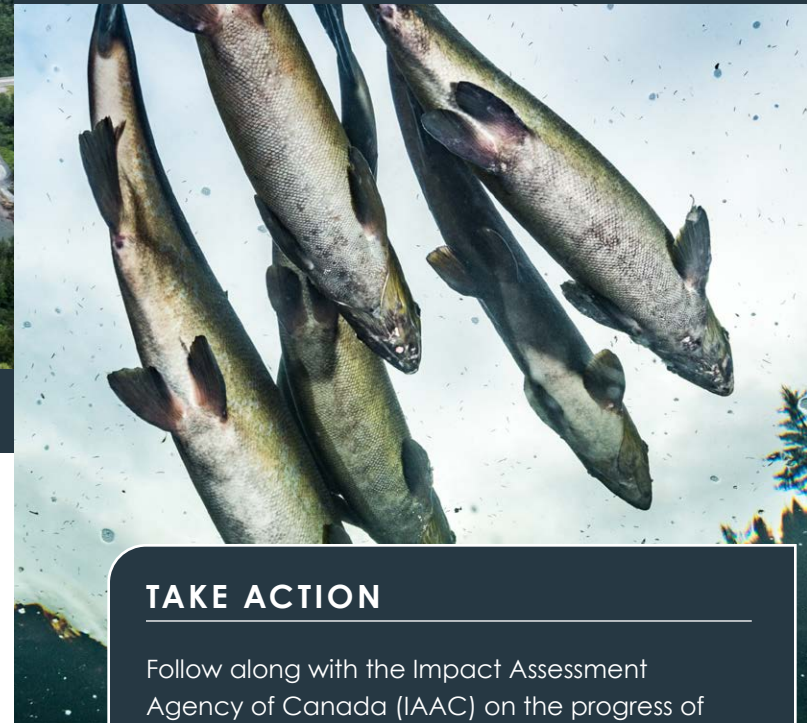
The NSSA released a 24-page document outlining their opposition to the project and the detrimental impacts it could have on the environment. Their six major concerns included:

- The sensitivity of the West River Sheet Harbour restoration efforts.
- Inadequate coverage in the EIS about the affected watersheds.
- The proximity of the project to the Killag River.
- The spatial extent of the project.
- Minimal benefits to Nova Scotia from the proposed mine projects in comparison to the NSSA's restoration efforts.
- An overall lack of confidence in AMNS to conserve and protect the environment.

The NSSA is responsible for helping replenish the Atlantic salmon species in the province through their acid rain mitigation initiatives in the West River Sheet Harbour watershed, established in 2001. Human impacts on watersheds have decreased the Atlantic salmon populations drastically.

Studies by the Norwegian Institute for Water Research in partnership with the NSSA determined potential solutions including physical habitat restoration like river clearing, and both in-stream and air-dosed limestone deposits. The NSSA's work to implement these initiatives has allowed the juvenile salmon population to soar from 3,000 to 11,000 in the Killag River alone! The NSSA operates the only in-stream lime dosing operations in North America.

Atlantic salmon swimming in the Gaspé Peninsula, Quebec.
PHOTO: Nick Hawkins



TAKE ACTION

Follow along with the Impact Assessment Agency of Canada (IAAC) on the progress of the project and respond during the EA public comment period to voice your concerns. Write to your federal member of parliament (MP) and provincial member of the legislative assembly (MLA) and tell them that you oppose the Beaver Dam Mine Project.

Atlantic salmon in Nova Scotia

The Atlantic salmon is a key species in Nova Scotian watersheds. Despite habitat restoration efforts, the adult salmon population in the province has faced major decline over time and is nearing extirpation.

The Committee on the Status of Endangered Wildlife in Canada recognizes the species to range from 'threatened' to 'endangered' throughout the province, yet it is only federally seen as endangered in the inner Fundy region.

The Atlantic salmon is resilient and adaptable with a complex lifecycle. These fish are anadromous, meaning they live in both freshwater and saltwater depending on their stage of life. The pea-sized orange eggs are deposited in the gravel of streams in the fall to hatch in the spring. The hatchlings are known as alevin and feed on microscopic nutrients until they become a fry. The fish have internal and external changes that prepare them for saltwater as they become parr. These fish swim against the current in streams where they change into juveniles, or smolt. Smolt remember their location as they journey downstream so they can return for spawning. They finally reach maturity as adult salmon for spawning. They return to their place of birth, laying up to 1,500 eggs per pound of adult salmon.



A lime dozer that the NSSA set up on the Killag River to restore wild Atlantic salmon habitat near the site of the proposed Beaver Dam mine.
PHOTO: Raymond Plourde

Millbrook First Nation opposition

These fish have provided valuable resources for First Nations communities while holding cultural, social and economic importance since time immemorial. Chief Robert Gloade of Millbrook First Nation submitted a letter on behalf of the community in opposition to the AMNS project. A Traditional Land and Resource Use Study and Community Consultation Report have been completed and a Health and Wellness Study is underway to document various concerns that have been heard from citizens.

The EIS document submitted to the Impact Assessment Agency of Canada by the Beaver Dam Mine Project explicitly states that the current land-use for the First Nation community is important and would be heavily impacted by this project.

“There are a number of activities associated with the harvest and use of plants, animals and fish within the project area that relate to historical traditions and customs of the Mi'kmaq that are still practiced today... This means the area was, and still is, an important resource area for the Millbrook First Nation community members and by extension, all Mi'kmaq of Nova Scotia.”

- Beaver Dam Mine Project EIS Update
Version 3, Atlantic Mining (2021).

This is not the first project that has been opposed by numerous stakeholders within the province. Only time will tell if protection of this ecosystem will be prioritized over economic gains for AMNS.

Katherine (she/they) is a fourth-year biology student at Dalhousie University. They love to advance their knowledge on coastal ecosystems and climate change adaptation.

Community-Led Planning for the Future of Gros Morne



by **REBECCA BRUSHETT** and **LAURA KARAHKA** /// EAC Staff

Hiker overlooking Bonne Bay u-shaped fjords and surrounding communities of Gros Morne, Newfoundland and Labrador.

The area in and around Gros Morne National Park, and its neighboring coastal communities, is one of the most amazing spots in Atlantic Canada to explore pristine rivers, glacially carved fjords, bays and harbours teeming with marine life.

Since 2020, the EAC has been working with communities in the Gros Morne region to create a community-led marine spatial plan that identifies best-fit areas for commercial fishing, tourism and recreation, and potential areas for increased marine protection. Healthy marine ecosystems are critical for many things that are important to the local community, including healthy fisheries and businesses, clean waters for leisure and life, biodiversity and the blue economy. When designed properly and centred on community needs, marine protected areas are one of the best tools available to safeguard marine species and habitats.

Why the Gros Morne region? With a national park already protecting the land, protecting the connected coastal and marine environments could be a great next step. Establishing areas for marine protection in this region would create one of the only “land and sea” protected sites in eastern Canada. With this in mind our remote EAC team members, Rebecca Brushett and Brittney Garcia, are working with the people of the Gros Morne region to better understand what is happening now and what is important to them for the future.

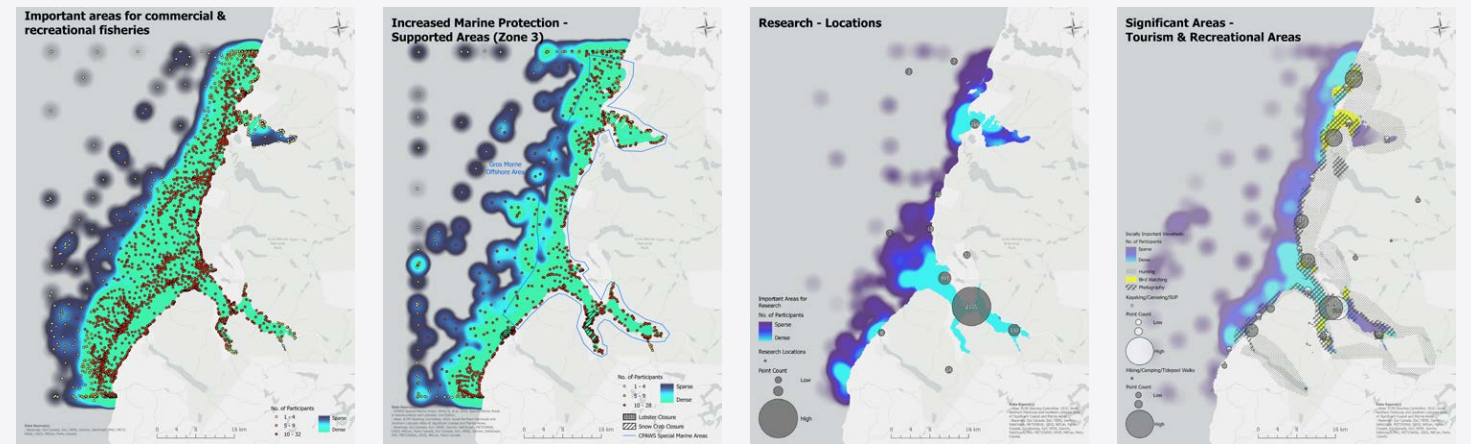
“I started this project as my thesis focus in 2015 during my Master of Arts in Environmental Policy degree when industry was hoping to frack in one of the small rural communities of Gros Morne,”



Rebecca connects with local community members at one of many engagement sessions. PHOTOS: Tom Cochrane

shares Rebecca, who lives in nearby Norris Point. “I realized a marine spatial plan had to be created that included the region’s voice, along with scientific experts, to identify best-fit areas for supported future economic development, but also important areas for increased marine protection. Without this, our coastal communities and sensitive marine environments would continue to be vulnerable to outside interests with a very different agenda for the future of this region.”

The Gros Morne project involves working with many communities and stakeholders to gather information on marine values and uses throughout the region. We are working actively with the Qalipu First Nation, municipal governments, fish harvesters, local NGOs, academic institutions, tourism operators and others to gather input and develop the marine spatial plan together.



These four maps visually display areas that community members have identified as significant to fisheries, tourism, and research, as well as those where they were in support of potential increased marine protection.

Thus far, we have engaged with more than 200 community stakeholders. The people of Gros Morne have contributed their thoughts through surveys and mapping exercises to help identify important marine areas and uses. Results from surveys gave us incredible insight into what people support in relation to future sustainable economic development. We also found that more than 80% of local folks are either in favour of marine protection for the Gros Morne region or would like to learn more.

Survey responses also helped us understand how the local community prioritizes different developments that might be influenced by potential marine protection. More than 85% were in favour of further eco-tourism development in the area, 58% in favour of shellfish aquaculture development, and only 24% in support of potential finfish aquaculture development.

With a deeper understanding of the community’s values thanks to community engagement, we hope to empower the community in the management of their own local waters going forward. We now better understand key areas for folks like inshore fish harvesters and local tourism operators, as well as habitats that need increased conservation measures to ensure marine biodiversity and coastal communities in this region are looked after for generations to come.

What’s next? Later in 2023 we will share the full results of our community consultations in an atlas-style marine plan. Our work with a Geographic Information System specialist will help us build interactive maps based on research on the local marine environment (some from as early as the 1960s!) and input from community engagement. The resulting community-led marine spatial plan will highlight the values of the people of Gros Morne and can be used to inform future plans, projects and government decisions that will impact the area.

As Marine Planning and Engagement Coordinator with EAC, **Rebecca** (she/her) works with communities in the Gros Morne region to ensure sensitive marine ecosystems are protected and our marine resources are used responsibly.

Laura (she/her) supports the various projects and campaigns of EAC’s Marine Team as Communications and Administration Officer.

By coming together with the people of Gros Morne, we are showcasing the connections coastal communities have to the ocean, and the potential for community-led plans to support sustainable coastal futures. With more than 90% of our survey respondents interested in continuing to be informed and consulted about this work, we are confident that community involvement will continue to strengthen these efforts and create a well-rounded plan and sustainable future for Gros Morne.

Our work in partnership with the **Atlantic Healthy Oceans Initiative (AHOI)**, a non-profit in Gros Morne, is also essential to this project. With AHOI’s research-grade underwater remote operated vehicle (ROV), we are able to build on historical research from the Bonne Bay Aquarium and Research Station and collect exciting new baseline information on the health of our ocean in Gros Morne.

The ROV can dive up to 300 metres deep while collecting high-definition photos and video footage. Information gathered on these dives will feed into the community-led marine spatial plan, helping us identify areas in need of enhanced marine conservation.



AHOI’s ROV which will be used to gather baseline data of marine habitat and species in the Gros Morne region. PHOTO: Atlantic Healthy Oceans Initiative (AHOI)

Thinking Outside the Doctor's Office:

CITY PLANNING AS HEALTH CARE

by **SYDNEE BLUM** /// EAC Volunteer

Take a moment to think about what living a healthier life would look like for you.

Perhaps, like me, you have visions of brown rice dinners and early morning jogs around the neighbourhood. Or perhaps your sights are set a little bigger, to a way of living where health care extends beyond the individual or the doctor's office, and into our infrastructure and institutions.

Increasingly, city planners are working in tandem with public health researchers, engineers and healthcare professionals to design a new kind of neighbourhood. In 2018, as the result of this collaboration, the World Health Organization (WHO) came out with their Healthy Cities Vision. Building off the social determinants of health, including economic stability, access to education, access to health care, social inclusion and built environment, the Healthy Cities Vision provides a model for communities to incorporate health care into their infrastructure to affect the health outcomes of its inhabitants.

To better envision how this works, we need to think of our cities as a complex network of individuals who interact with their physical environment to shape and change themselves, the environment and the people around them - in other words, an ecosystem. Within this framework, the people of Halifax become no different than the animals that live in our forests and wetlands. And like clear-cutting a forest or reintroducing native plants to a marsh, changes in our urban ecosystems can dramatically affect the well-being of the individuals within them.

So, what would it take for the people of Halifax to thrive? Luckily, the WHO has done the heavy lifting for us.

At our most basic - like a frog in a pond needs unpolluted water - people need safe and clean physical environments. Beyond basic sanitation, this includes having access to safe housing and infrastructure. In a city where 34% of tenants report living with mold and 89.9% live in a rental that needs repairs, and where most of the homes built before 1960 are serviced by lead pipes, it's clear these needs are not being met.

Sydnee (she/they) is a community organizer currently completing a degree in oceanography. When she's not writing a strongly worded letter to city hall, you can usually find her looking for mushrooms or down at the water watching seagulls.



TAKE ACTION

Build healthy cities and health care will follow! Change starts at the community level, so get together with your neighbours and attend your local city planning meeting, or start a community garden, and, most importantly, pester your elected officials to demand action on the healthcare crisis.

Next, we need to build cities that put a healthy lifestyle within reach. Returning to our initial vision, how can someone eat healthier when the nearest grocery store is an hour away by bus, and the cost of food is prohibitive? How can we live active lives when our green space is being sold to the highest bidder, and our communities are designed for cars and not for people? Even with what little of these green spaces we have, barriers like accessibility and affordability keep them out of reach for many.

It's clear we need to transform our approach to city planning to build complete and connected communities - ones that divest from car culture and place essential resources like food, education and, yes, doctors within the neighbourhoods they serve. We need accessible, affordable housing and public infrastructure like parks, benches, walking trails and active leisure spaces; and finally, we need to build a solidarity economy that prioritizes sustainability and social prosperity over financial profits.

Research shows that when given the resources they need to thrive, individuals in an ecosystem, whether people in a city or frogs in a pond, will take these resources and live healthier lives. The science is there; now it's up to us to ask: what do we need to demand from our governments to make this happen, and what can we do for our communities to make this a reality now?

Chipko – A Movement of Ecofeminists

by **SONALI SHARMA** /// EAC Volunteer

1975 was a historic year. The World Conference on Women held in Mexico City caught special attention from participants around the world because of a woman environmentalist.¹ It was Vandana Shiva speaking before the gathering about the struggle of rural women during the "Chipko Movement."

Chipko, in the local language, means "to hug".² But what exactly did these women hug?

The timber merchants came to the Terai region of the Indian state of Uttarakhand. They came with a hidden purpose of massive ecological destruction. In 1974, a 50-year-old illiterate woman named Gaura Devi predicted deforestation and loss of topsoil as the outcomes of the logging activity. Along with her, 27 other women from the village of Reni in Chamoli District rushed out of their homes to hug the trees to protect them from being felled.³

To the wood loggers, Gaura Devi said, "This forest is our mother's abode. We obtain vegetables and medicinal plants from it. Do not clear the lavish forests".⁴ The love that these women showed for the forests highlights the bond between women and nature (ecofeminism). Injuries to nature are a direct harm to womanhood.

A Chipko woman by the name of Chamundeyi from Nahi Kala said, "The forests are used by us for growing jora, jhangora, chillies, and mandua. It is food for our families and us".⁵ Further a unified singing entered the ears of the hills: "Offer me an oak tree, and I will offer you pots of milk and grain baskets".⁵ The feminine principle is related to food production. It is founded on the idea of a close connection between trees, agriculture, and animals. Women have been said to play a key role in maintaining this link.

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Photo: Wikimedia Commons/Indiatimes.com

A hidden story lies behind the origin of the popular Chipko Movement. In 1730, members of the Bishnoi community from the Khejarli village in Rajasthan, under the leadership of Amrita Devi, blocked the path of the king's men. The King of Jodhpur had sent his men to cut the Khejri trees (*Prosopis cineraria*) for lime burning during palace construction. The brave ecofeminist and 363 villagers died in the conflict to save the trees. On hearing of the loss of lives, the king felt sorry for his actions and withdrew his plan to chop down more trees in the near future.⁶

The Chipko Movement saw a revival of women's power and their concern for the Himalayan ecology. It is important that we know their lesser-known names. Bachni Devi, Gaura Devi, Mira Behn, Bimala Behn, Hima Devi, Sarala Behn, Suraksha Devi, Viruksha Devi, Sudesha Devi, Gunga Devi, Itwari Devi, and Chamun Devi—these were the real change makers who conserved the organic food system by protecting the water, soil, trees, cattle and genetic diversity.⁵

The movement was based on the Gandhian philosophy of non-violence. It not only included voices that spoke against environmental harm but also those that stood up against power, caste and gender disparity. In 1987, the Chipko Movement was awarded the Right Livelihood Award, or the alternative Nobel Prize.¹

Sunderlal Bahuguna, a prominent male activist during the Chipko movement, said, "Men are the messengers, women are the actual leaders".⁷

At the beginning of the 1980s, the prime minister of India, Mrs. Indira Gandhi, issued a 15-year ban on the cutting of trees located at 1,000 m above sea level in the Himalayan forests.⁸ Thus, the Chipko Movement emerged as a source of moral and ecological conscience among the locals as well as the rest of the world.

Sonali (she/her) is a post-graduate in Environmental Studies. Her interests revolve around reading, writing, research and social work.

Protecting the Spaces We Love:

NOVA SCOTIA'S PROTECTED AREAS NETWORK

by PAIGE CROWELL /// EAC Volunteer

Long Lake Provincial Park,
PHOTO: Paige Crowell

Peaceful Acadian forests, sweeping coastal vistas and productive wetlands. These are some of the natural havens found in Nova Scotia, and by 2030, 20% of the province's lands and waters will be formally protected. At least, that is one of the most important goals put forth in the province's *Environmental Goals and Climate Change Reduction Act*, passed in 2021. This vision builds on the *Nova Scotia Parks and Protected Areas Plan*, which has served as the foundation for area-based conservation in the province since 2013. In the last ten years, the province has increased the total share of Nova Scotia's protected lands by over 50%, earning it a B score in the Canadian Parks and Wilderness Society's 2021 report *The Grades Are In: A Report Card On Canada's Progress in Protecting its Land and Ocean*, behind only Quebec and the Northwest Territories.

To support the goal of 20% protected lands by 2030, the provincial government recently announced \$20 million in funding to support NGOs in acquiring and protecting private land. Accompanying this funding announcement was a commitment to protect an additional 9,300 hectares of crown land, which will push the total share of protected areas in Nova Scotia above 13%. Future protection will be further supported by a protected areas strategy in development by the province and scheduled for release by 2024. A significant amount of additional Crown and private lands will need to be protected in order to reach the 20% by 2030 goal.

As Nova Scotia continues to expand its network of protected places, different designations are available under different legislation. Below are the most common types of terrestrial protected areas in Nova Scotia, and how protected they really are from human activities and impacts.

Protected area - NATIONAL PARK

Examples - Cape Breton Highlands National Park, Kejimikujik National Park

Purpose - Protecting and presenting outstanding representative examples of natural landscapes and natural phenomena.

Enabling legislation - *Canada National Parks Act*

Protection - National Parks are managed by Parks Canada. A national park reserve indicates a national park subject to Indigenous land claims negotiations, such as Sable Island National Park Reserve. National parks allow recreational activities such as camping and hiking in designated areas. Fishing with a permit is allowed, but hunting, or the use of firearms or motorized vehicles off-road are not permitted. Use of motorized watercrafts is only allowed in designated areas. Collecting plants, animal parts, rocks or wood is not allowed. Attempting to pet, harass or feed wild animals in national parks is also prohibited. Area closures and restrictions may be implemented to protect natural or cultural resources. Development of infrastructure may be permitted.

Protected area - PROVINCIAL NATURE RESERVE

Examples - MacDonalds Pond Nature Reserve, Shut-in Island Nature Reserve

Purpose - Preserve and protect, in perpetuity, representative (typical) and special natural ecosystems, plant and animal species, features and natural processes.

Enabling legislation - *Special Places Protection Act*

Protection - Provincial nature reserves are managed by the Department of Natural Resources. Scientific research and education are the primary uses of nature reserves. Activities that might degrade the reserve are restricted or prohibited. This includes forestry, mining and road-building. Access for environmental and nature appreciation is generally permitted; however, activities such as hunting, fishing and camping, as well as the use of vehicles, are restricted.

Protected area - PROVINCIAL PARK

Examples - Blomidon Provincial Park, Five Islands Provincial Park

Purpose - Protect nature and support a wide range of heritage values and opportunities for outdoor recreation, nature-based education and tourism.

Enabling legislation - *Provincial Parks Act*

Protection - Provincial parks are managed by the Nova Scotia Parks and Recreation Division, and allow recreational activities such as camping and hiking in designated areas. Fishing is permitted, however hunting and trapping are not. The use of firearms or motorized vehicles off-road are not allowed. Fires are allowed within designated areas, and fire wood cannot be transported into or out of the park. The Provincial Parks Act grants the provincial cabinet powers to decrease the size of a park, terminate the status of a park, grant leases for park land and to regulate the use of lands in a provincial park.

Protected area - NATIONAL WILDLIFE AREA

Examples - Chignecto National Wildlife Area, John Lusby National Wildlife Area

Purpose - Wildlife conservation, research and interpretation.

Enabling legislation - *Canada Wildlife Act*

Protection - National Wildlife Areas are managed by the Canadian Wildlife Service of Environment Canada, and restrict most human activities, including hunting, fishing, hiking, camping, industrial activity and disturbance or removal of materials from the area. However, permits may be issued for prohibited activities, provided they promote the protection and conservation of wildlife.

Protected area - PROVINCIAL WILDERNESS AREA

Examples - Blue Mountain - Birch Cove Lakes Wilderness Area, Eastern Shore Islands Wilderness Area, Tobetic Wilderness Area

Purpose - Protect the natural environment while providing opportunities for education, research, wilderness recreation and community stewardship.

Enabling legislation - *Wilderness Areas Protection Act*

Protection - Provincial Wilderness Areas are managed by the Department of Environment and Climate Change. Activities such as hiking, canoeing, skiing, birdwatching and kayaking are encouraged. Hunting, trapping and fishing are permitted. Other activities, such as using vehicles, building structures or trails and damaging or removing plants are also prohibited, except in certain circumstances as outlined in the Act. Commercial resource development, such as forestry, energy infrastructure and road building, is not permitted. Interests, such as mineral exploration licences and campsite leases, can be honoured in certain circumstances if these existed prior to designation of the wilderness area.

TAKE ACTION

To learn more about protected areas in Nova Scotia or to find a protected area near you, visit <https://novascotia.ca/nse/protectedareas/>

Protected area - MIGRATORY BIRD SANCTUARY

Examples - Amherst Point Migratory Bird Sanctuary, Kentville Migratory Bird Sanctuary

Purpose - Protection and conservation of migratory birds.

Enabling legislation - *Migratory Birds Convention Act*

Protection - The Canadian Wildlife Service of Environment Canada is responsible for the management of migratory bird sanctuaries, although the sanctuaries can be located on federal, provincial or private land. Access to most sanctuaries is not restricted, however human activities that could harm migratory birds, their nests or their eggs are prohibited.

Protected area - INDIGENOUS PROTECTED AND CONSERVED AREAS (IPCA)

Examples - Kluskap's Cave Indigenous Protected and Conserved Area

Purpose - To protect areas that Indigenous Peoples identify as holding ecological and cultural significance.

Enabling legislation - *Created by the Indigenous Circle of Experts (ICE)*

Protection - IPCAs are a newly recognised category of protected area that Indigenous Nations have identified for conservation under their inherent authority over their lands and water. IPCAs emphasise the connection between a healthy environment and a thriving culture and can come in various forms, but all share three qualities: they are Indigenous led, they represent a long-term commitment to conservation, and they elevate Indigenous rights and responsibilities. There are still questions around how IPCAs will be implemented under Canadian laws, but the federal government has shown increasing recognition that they are an integral part of both reconciliation and reaching our national protection targets.

The continued maintenance and transparent expansion of Nova Scotia's protected areas network is critical to supporting the province's ability to meet its environmental goals, and to ensuring the long-term protection of Nova Scotia's biodiversity and natural heritage, for the benefit and enjoyment of future generations.

Paige (she/her) is a conservation biologist living and working in Halifax. In her spare time, she enjoys being in and on the water.

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Language and the Land

by **RAYMOND SEWELL** /// Community Member

PHOTO: Raymond Sewell

The original languages of Turtle Island are tangled with landscape and philosophy. Indigenous literature holds the worldview that land is sacred and moreover our place in it is amongst the plants and animals. Indigenous oral story literature places people amongst *msit no'kmaq* (all our relations) – which includes everything that lives. Human beings are not separate from or greater than other living things.

You can see this worldview in our stories and in our language. When an L'nu person writes a story, it tends not to be from a human perspective alone. They tell you what the trees were doing, the skies, the wind, what the animals were doing – our stories include the landscape. The stories are sensory: they are of the environment. Our stories are intentional as they are old. They are language and culture invested in land for cultural posterity. They are succession planning. The words are sewn into the fabric of the land, as the land is indivisible from our experience.

In spending time with elders on the land, I experienced that *l'nui'suti*, the language, holds the philosophies of our people. When I would go on medicine walks with my father and identify plants, he taught me that plants with names have medicinal qualities – you learn about the use from the name. We would offer tobacco and pray, always, before extracting a plant for medicinal use. I was taught that when you take from the land you replace or give back as much as you have taken. All of this is present in the language; we encoded so much cultural meaning in the Indigenous names and our articulations of the land. The language roots life in nature and our place in it.

This is why Indigenous languages of Turtle Island have faced constant attack since the onset of the colonial project. In denying us access to our languages, our cultural knowledge was debased, and we lost our nomenclature and data sovereignty. The colonial project relies on land being void of spirit or meaning. The colonial project separated L'nu from all our relations and synthesized us in a crude binary. In separating the people from the earth mother, the colonial project cultivated the land at will. There was and is unprecedented destruction of ecosystems: it is arboricide, and genocide.

The normative systems embedded in Indigenous language are a threat to this colonial project. This is why languages were systematically stamped out as part of colonization. When Indigenous practices survived, they were mystified – removed from their context on the land and made “other.” Enforcing the use of English and other colonial languages like French and Spanish had the intent of changing our understanding of the world. The syntax and semantics of European languages were used to change the thought patterns in our minds, to make us conform to colonial exploitation.

We have and continue to be measured by an imperial standard that was placed on our society. When European settlers came to Turtle Island, they fancied our languages, societies and technologies as infantile and primitive. We were measured against the beliefs of their worlds, stripped of our own histories and data systems. As French poet Marc Lescarbot writes in 1607:

My Reader, ... you will occasion me to provide you with ... the beauties of the said province, on which it has rained to God to extend his blessings abundantly this year, & invite the French to cultivate it, & by this means bring to the sheepfold of Jesus Christ so many peoples who still remain in the world without police or religion, the loss of which accuses our tardiness before God.

Lescarbot represents the thinking that drove the colonial project. Sadly, these ideas still exist today in colonial nostalgia, which is very much engrained in Canadian culture. This nostalgia ignores the reality that colonization is ongoing and seeks to silence any contrary thinking that would criticize its focus on resource extraction. The idea that Canada is somehow “post-colonial” is an attempt to rinse their hands of the brutal violence that is the foundation of this country. Just because the British Empire ended does not mean the effects disappear for us. There is a firmly established rhetoric that modern Canadian ideals are inherently wholesome or benign – but my realization is that they are not. It is colonization with a smile.

Despite the best efforts to stamp them out, Indigenous worldviews are alive and well in our communities. Although our languages have been replaced with English for many of us, we continue to think in our traditional ways. Indigenous people are adept at sharing L'nu ideas in English. L'nu people embrace technology and define ourselves now. We invest plenty of effort in describing our reality in our own terms. We have plenty of intellectuals, elders, storytellers, community members and academics who are usually all of the above. We continue to articulate our experience.

In contrast to today's eco-trendiness, our technology was always “green,” and always supportive of the earth mother's right to flourish. Companies today pride themselves on going paperless; we carry our stories in oral histories. Our technologies go back

TAKE ACTION

Support Indigenous language reclamation and land-based learning! Here in Mi'kma'ki, consider donating to a Mi'kmaw-led organization like Reclaiming Our Roots (transfer to info@reclaimingourroots.ca) or Ulnooweg Education Centre (ulnoowegeducation.ca)

to the earth. Our technology worked within the means of the earth's network, without taking more than we needed and always giving back.

And so, the sophisticated languages spoken across Turtle Island continue, despite every attempt to extinguish them. Learning Indigenous languages is an act of re-matriation, as is practicing our cultural rituals. Colonial fronts are still being fought every day. They are fought by Indigenous people who rise and pray with the dawn, fulfilling their role as Pesky Turtle Islanders. Engaging in even the smallest amount of ritual makes us non-conformists and targets of imperial violence. Everyone knows the earth is sacred. The Elder raising their hand and dropping tobacco against the white light of dawn is a big threat to the extraction project. Telling stories of the animals and what they are doing in their environment is resistance. Repositioning ourselves as being of the land is resistance. Speaking our histories is resistance. There are public discussions being had around re-appraisals of history – as though the colonial project is facing injustice. I am from the renamed. Returning the posture of our matriarchs, languages and views is my purpose. A return to form is needed for the protection of the planet.

Raymond (he/him) is a professor of Indigenous Literature and Culture in the English department at SMU. Raymond is a composer, singer-songwriter, and poet from Winnipegjuig.

Tiny Organisms Are Having a Huge Impact on Land Protection in Nova Scotia

by MARGARET MCLENNON /// EAC Volunteer



Extinction Rebellion members and allies at the Last Hope Camp. PHOTO: Simon Ryder-Burbidge

Imagine, for a minute, a microscopic organism stopping a 30-tonne tree harvester. It might seem hard to believe, but an often-overlooked rare species of lichen called the frosted glass whisker is doing just that.

This tiny, cryptic and globally rare stubble lichen is just one of many seemingly insignificant species helping to protect large tracts of land in Nova Scotia.

Their allies in conservation include groups like Extinction Rebellion, Canadian Parks and Wilderness Society and the Nature Conservancy of Canada. The federal **Endangered Species Act** works as a conservation shield to keep development projects threatening to harm important habitats at bay.

The frosted glass whisker was one of three rare, sensitive lichen species found growing on oak and maple trees in an Annapolis County forest.

When scientists discovered the lichen species and reported their findings, officials put logging on hold in the area in January 2022 because all three are endangered and require particular management techniques.

As a member of the Extinction Rebellion protest group camped in the area **shared with Saltwire**, stopping the cutting is a step in the right direction — but it doesn't protect the forest from being harvested in the future.

An official with Nova Scotia's Natural Resources Department said that buffers would be placed on the Crown land in Annapolis County to protect these at-risk species.

Frosted Glass-Whiskers (*Sclerophora peronella*). PHOTO: Troy McMullin

Saved by the upswept moonwort (and friends)

In November 2022, ecologists warned that plans to build a golf course in Cape Breton's West Mabou Beach Provincial Park would further endanger many unique and rare species. But Acadia University biologist Alain Belliveau **came forward with his 2018 study of the park**, which revealed that the distinctive dunes and wetlands are home to at least 17 endangered species of flora and fauna. At-risk species found in the study include a rare fern known as the upswept moonwort and four at-risk bird species.

The Canadian Parks and Wilderness Society and Nature Nova Scotia have been working to oppose the golf course developers and emphasize the importance of protecting this biodiverse stretch of beach.

Grassroots conservation action

Elsewhere in Nova Scotia, other endangered species like the long-leaved panic grass have helped protect land and permanently conserve fragile ecosystems.

Early in 2022, the **Nature Conservancy of Canada (NCC) purchased 950 hectares of land**, including about 25 kilometres of lakefront shoreline and 130 hectares of freshwater wetlands in the Wabanaki-Acadian Woodland near Upper Ohio. Before the NCC's purchase, the property was divided into 24 individual parcels, creating the potential for 24 separate developments that would fragment the land and ecosystems.

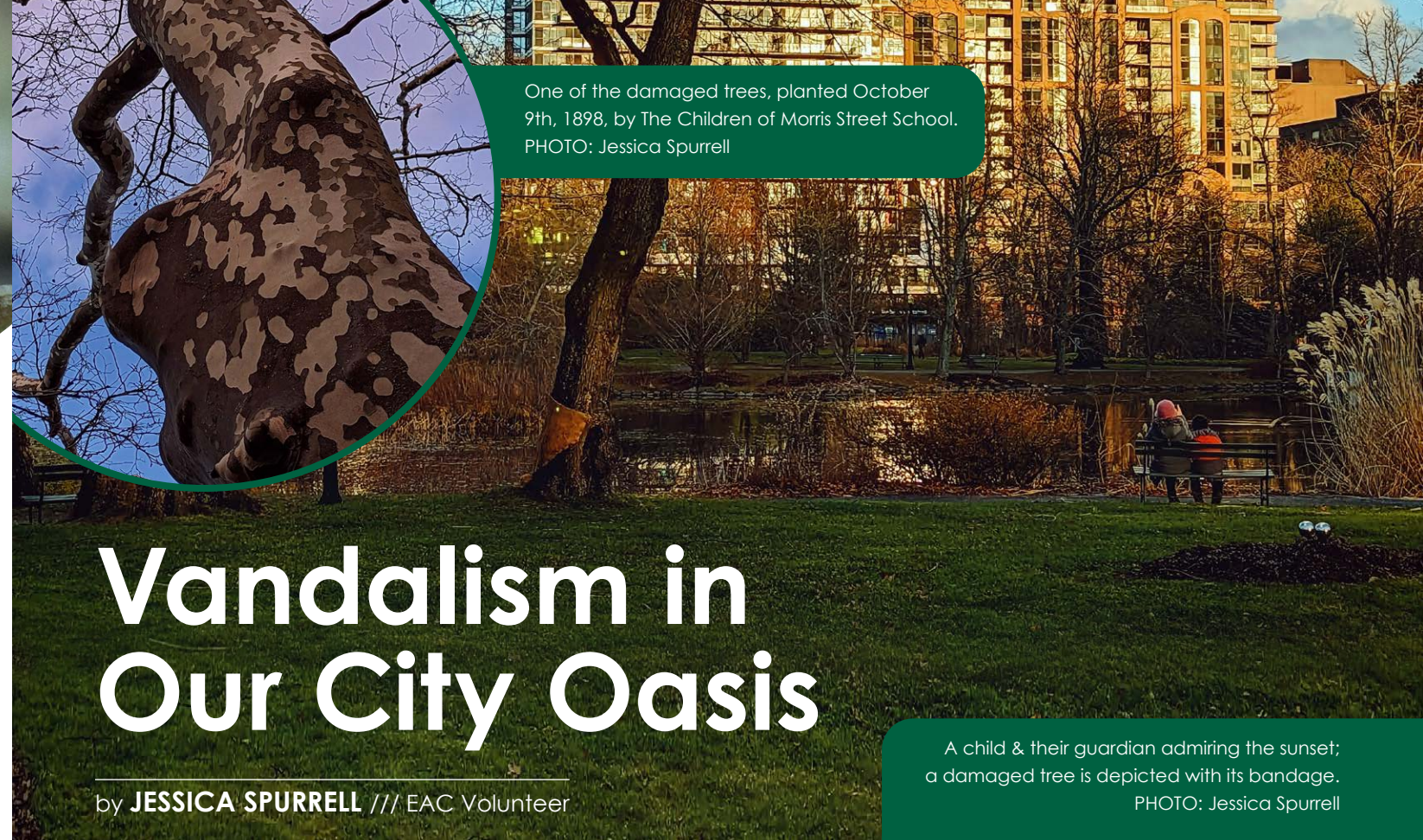
A survey of the land by the NCC discovered 300 different plants, including rare species such as Virginia meadow beauty, swamp loosestrife, 66 different bird species and a rare patch of mature forest containing eastern hemlock, maple and white spruce trees.

These cases show how some small yet essential species can make a big impact. By working together with conservationists and the Endangered Species Act, these often-tiny organisms have joined forces to significantly influence the protection of their habitats.

TAKE ACTION

Learn more about species at risk and the act on the national website: laws.justice.gc.ca/eng/acts/s-15.3/

Margaret (she/her) is a recent Dalhousie graduate who double majored in Environment, Society and Sustainability and International Development studies. She is now living and working in Vancouver.



One of the damaged trees, planted October 9th, 1898, by The Children of Morris Street School. PHOTO: Jessica Spurrell

Vandalism in Our City Oasis

by JESSICA SPURRELL /// EAC Volunteer

A child & their guardian admiring the sunset; a damaged tree is depicted with its bandage. PHOTO: Jessica Spurrell

Halifax's first city-owned public garden was officially opened in 1867, and after many additions, is now known as our city oasis, the Halifax Public Gardens. With parts of the garden first established in 1832, it became an ever-growing symbol of our community's history, and our resilience towards a better future.¹ The Gardens were not always a free, openly shared, communal space, however. Initially, they were restricted to upper classes, with memberships that were affordable to few. But despite its origins as an elite, colonial space, the Gardens have since been reclaimed by the public and now serve as an important green space where Haligonians can connect with nature right in the middle of the city.

In July 2022, 32 trees in the Gardens were damaged by vandals using a hatchet. Of these trees, four have since been removed due to irreparable damage.² Deeply stripping a tree's bark deteriorates the tree's ability to transport nutrients, effectively killing it. The cultural significance of the Gardens greatly surpasses any monetary value we assign to them. As some of the trees date back 50-200 years, they are essentially irreplaceable. The vandalism was not simply an act against the Gardens, but an act against our community and its morale.

Cities often fail to make space for nature within their boundaries, and we are fortunate to have such a flourishing city here in Halifax.

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All aspects of nature left in this increasingly developed region should be conserved to the best of our abilities. Seeing ecosystems at work, from watching bustling birds, to smiling at scavenging squirrels while walking the city streets is such an enchanting feeling that is often taken for granted. When our environment - our home - is injured, it scars the hearts of its residents too.

Society has inevitably evolved since the establishment of the Public Gardens; it has long been understood that gardens and green spaces are beneficial to us. Nature provides a healing atmosphere for our busy brains smothered by modern existence. It acts as a blissful haven amidst concrete and cranes. Research shows that green spaces greatly improve our cognitive health and mental well-being.³ As a result, the destruction of such ecosystems can have equally detrimental effects.

Sure, some may say they are "just some trees." However, some of these trees have been here for centuries. Their roots have grown with this city since they were little saplings.

It may appear as a simple tree to some, but to others it is a core memory in the foundation of their upbringing. The cultural values that we have grown to associate with the Gardens — accessible green spaces and well-being within a city network — extend, like the trees, beyond the surface. Beneath the soil where a tree stands, a complex root system enriches all life above.

Jessica (she/her) is a Newfie & Labradorian with a passion for the past and alliteration; Jess is a third-year anthropology student at Saint Mary's University.

Here Are Six Ways You Can Help Save Bats!

Interview by **MARY WOODBURY** /// EAC Volunteer
Interviewee **KAREN VANDERWOLF** /// Bat Specialist

I talked with bat specialist Karen Vanderwolf about why bats are healthy for ecosystems, what threats they're experiencing in Nova Scotia (NS), and what we can do to help.

This interview has been lightly edited for clarity.

Mary: What is your background, and how did you get involved with bats?

Karen: I started studying bats in 2006 for my honors undergraduate thesis at Western University. I continued my MSc at the University of New Brunswick and PhD at Trent University. I am currently doing a postdoctoral fellowship at the University of Waterloo, and I'm also affiliated with the New Brunswick Museum.

Mary: What type of bats are in NS?

Karen: Six bat species have been found in NS and are listed as endangered in Canada. Three species hibernate during the winter: little brown bat (*Myotis lucifugus*), northern long-eared bat (*Myotis septentrionalis*) and tricolored bat (*Perimyotis subflavus*). The three species migrate south for the winter: silver-haired bat (*Lasionycteris noctivagans*), red bat (*Lasiurus borealis*) and hoary bat (*Lasiurus cinereus*).

Mary: How do bats contribute to healthy ecosystems in NS?

Karen: Bats eat a variety of insects, including agricultural and forestry pests. This can reduce the need to use pesticides.

Mary: What are the major threats to our bat species?



Male red bat. PHOTO: Karen Vanderwolf

Karen: White-nose syndrome disease, which is caused by an invasive fungus, has devastated hibernating bat species in the province since its first detection in 2011. This population decline is noticeable because it includes the bat species people are most likely to see, the little brown bat. These bats readily roost in buildings and bat boxes. Migratory bat species are not affected by white-nose syndrome but are killed by wind turbines as they move across the landscape. All bat species in NS are affected by habitat loss. This includes spaces where bats forage for insects, raise their pups, roost and hibernate during winter. During summer, most bats in Nova Scotia live in forests and favor large, old trees with hollow spaces or loose bark.

Mary: What are bat boxes, and is the **Canadian Bat Box Project** still happening?

Karen: Bat boxes are man-made enclosures that encourage bats to roost. They provide alternate habitats for bats as forests are being lost. Only three out of the 19 bat species found in Canada have been documented using bat boxes. Little brown bats are known to use bat boxes throughout Canada, big brown bats use boxes in some parts of Canada, and Yuma bats use boxes in B.C. The number of bats using a bat box varies from one to hundreds, depending on the size and suitability. Bat colonies using bat boxes in Nova Scotia are currently small.

Our project's goal is to study bat box use to develop regional and species-specific recommendations for design and placement to increase success rates. A three-year project, the summer of 2021 was the first field season with over 1,400 participants signed up from across Canada. Summer 2023 is the final field season for the project, which is in partnership with the **Canadian Wildlife Federation** (CWF) and Wildlife Conservation Society Canada, with support from Environmental and Climate Change Canada. So there is still time to participate! Likely the little brown bat is only using bat boxes, but my project hopes to address this. In my current database, 47% of bat boxes in NS have been used.

Batbox compilation. PHOTO: Jordi Segers



Mary: How can people help bring bats back to the province?

Karen: Multiple ways:

- 1 Plant bat-friendly gardens.** Try to attract night-active insects that bats like to feed on such as beetles, flies, mayflies, caddisflies, lacewings and moths. Planting a variety of native plant species will provide food and shelter to native insect species. Specifically, night-blooming and night-scented plants with pale-coloured flowers that are easily seen in the dark attract moths that bats can feed on. A lot of native plants that we might consider weeds are fed on by moths or their caterpillars (such as goldenrod). These insects need fallen leaves and plant debris for protection from predators and shelter to overwinter. Clear out plant debris in the spring so insects can use the debris in winter to ensure a healthy population of insects in the spring. Add a pond with clean open water as a drinking source and reduce light in your yard.
- 2 Conserve forests and wetlands.** Support local organizations and NGOs (such as Nature Conservancy of Canada and **Ducks Unlimited Canada**) that conserve forests and wetlands. Support through money or time, such as volunteering to remove invasive species, planting trees or participating in garbage clean-ups. You can also oppose development in these habitats.



Little brown bat with white-nose syndrome. PHOTO: Karen Vanderwolf

- 3 Do not disturb bats in caves during winter hibernation.** Going into caves causes bats to wake up, costing precious energy, which burns their fat reserves too soon. Since insects usually aren't around in the winter, bats can't replace this fat and some die from starvation.
- 4 Install bat boxes on your property.** Bats roost in many different places and bat boxes represent one type of roost. If you decide to install bat boxes, bigger boxes (with three to four chambers or more) are generally more successful. Installing multiple boxes gives bats a choice, as different boxes will have different microclimates depending on size and sun exposure. Boxes on buildings are better than on trees. You should install your bat box 9-12 feet from the ground. It may take a couple of years for bats to find the box, but boxes can be moved after three to four years with no bats.
- 5 Keep your cats indoors.** Cats that roam outdoors kill a variety of small mammals and birds, including bats.
- 6 Leave bats in attics alone.** If bats live in your attic, either leave them alone or exclude them humanely. The Canadian Wildlife Health Cooperative has multiple online resources about bats in buildings.

Mary: What organizations would you recommend people get involved with?

Karen: The **CWF** has a national program to help bats that you can sign up to be a part of. The **Mersey Tobetic Research Institute**, based in Nova Scotia, researches and monitors bats and includes a community science component.

Mary (she/her) is an eco-fiction author, tech writer and volunteer with the Ecology Action Centre. She loves gardening, hiking and rewilding her meadow, where she's also trying to attract bats.

Karen (she/her) has been studying bats for over 16 years and is working on her postdoctoral fellowship at the University of Waterloo. She has also been a bat conservation specialist at Canadian Wildlife Federation and has published several peer-reviewed articles.

Transect line overlaying lush eelgrass.
PHOTO: Nicolas Winkler

Rewilding Our Shores: The Eelgrass Pilot Project

by NICOLE TOTH /// EAC Volunteer

How the project was born

Eelgrass (*Zostera marina*) is a beautiful marine flowering plant that plays an integral role in maintaining healthy ecosystems in Nova Scotia. Whether due to invasive species, run-off or development above or near eelgrass meadows, populations have slowly been disappearing from our coasts. Luckily, this did not go unnoticed by coastal community members and dedicated citizen scientists that first brought this issue to the attention of the Ecology Action Centre (EAC). The EAC sought to address this concern by joining forces with the Future of Marine Ecosystems (FOME) Lab at Dalhousie University. Together, they launched the 'Eelgrass Pilot Restoration Project' in the summer of 2022. Their goal was to widen the breadth of information accessible regarding the best methods for eelgrass restoration in a Nova Scotian context.

TAKE ACTION

Become a citizen scientist! Join us in collecting vital data on eelgrass coverage by getting involved in our sea kayaking program or our iNaturalist Eelgrass monitoring project – visit inaturalist.org/projects/eac-eelgrass-monitoring-project to add your observations.

The benefits of eelgrass

Like any vital member of a healthy ecosystem, eelgrass provides a variety of benefits for marine life, the planet, and us. Dense eelgrass meadows mitigate the impacts of erosion on coastal communities by buffering powerful storm surges. In the same way, blades of eelgrass catch pollutants such as the nutrients in fertilizer and sediment, improving water quality. In addition to producing oxygen, eelgrass also has the ability to draw emissions into the ground by means of an interconnected system of roots and horizontal shoots called rhizomes. If undisturbed, eelgrass can store carbon for centuries.

One of the most prominent ways thriving eelgrass meadows contribute to healthy ecosystems is by acting as nurseries for young fish, shellfish and seabirds, which allows many more to reach adulthood. In this way, the complex habitat and haven eelgrass provides helps to maintain the diversity of fish species in the ocean. Abundant populations of fish and shellfish, including lobster and haddock, are directly linked to the prosperity of many local fisheries and therefore Nova Scotian traditions, history and culture.

Piloting restoration

Despite these necessary functions and the widespread loss of this important species, little eelgrass restoration work has been done in the Maritimes thus far. This positioned eelgrass restoration as the perfect research initiative for the EAC and FOME Lab scientists and volunteers involved in the project. Discerning the best methods for replanting and rebuilding eelgrass meadows was the main focus of their research.

They began by assessing the area intended for restoration, a bay in Port Medway, N.S., by way of snorkeling as well as the use of aerial drone mapping. With this information, they were able to begin the restoration work by carefully harvesting the seeds, sods and shoots intended for replantation, from their donor bed, a lagoon by Cherry Hill beach. At the study site, five different planting methods were implemented: individual seeds, seeds in biodegradable bags, individual shoots, shoots contained in re-purposed scallop nets and sods. For each method, up to 10 replicates were used in order to compare the growth rates between methods and the existing sandy patches of the bay. Come next summer, the team will revisit the site to learn which restoration technique was most successful – a promising step towards future restoration initiatives.

In the field

Aaron Clausen, an EAC intern that was vital to the project, expressed that his motivation stemmed from local community members' engagement and excitement about protecting eelgrass ecosystems. Reflecting on his experience, he reminisced about the variety of challenges that come with working below sea level such as adapting to the tides and the long days in cold, murky waters. However, learning to work with the environment is what allowed Aaron and the team to "tangibly experience the difference they were making, with each seed, sod and shoot planted." He hopes their efforts will lead to improved eelgrass conservation and an increased perception of eelgrass as a nature-based solution. Both these goals, if made a reality, would go a long way in regard to mitigating the effects of climate change and supporting sustainable fisheries across Nova Scotia.

The knowledge gained from this study will be an important step towards preserving and establishing vibrant eelgrass ecosystems in Nova Scotia. This project has also put a timely spotlight on eelgrass and the numerous ways it works to benefit all of us. This kind of attention is invaluable as was recently demonstrated by the collective effort of those who successfully advocated on behalf of the eelgrass meadows of Owls Head Provincial Park. Raising awareness about the significance of eelgrass has the power to influence policy makers as well as the public. We should all feel equally determined to protect this wondrous species, as the commendable individuals involved in the eelgrass pilot restoration project and the community members who inspired it.



EAC member Aaron Clausen harvesting seeds from eelgrass.
PHOTO: Nicolas Winkler



Burlap seed bags ready for planting. PHOTO: Nicolas Winkler

Contributing to conservation

If you want to help protect our eelgrass, the EAC provides two valuable ways to contribute to the province-wide effort of eelgrass mapping. An accessible database of current eelgrass meadows helps researchers, non-profit organizations and community initiatives monitor eelgrass distribution in Nova Scotia. If you are an experienced sea kayaker contact Aaron Clausen at Aaron.Clausen@ecologyaction.ca for the opportunity to collect photographs and data that directly contribute to the mapping of eelgrass. If spending time at your local beach, surf break or coastal trail is more your speed, submit your eelgrass observations to the EAC "eelgrass mapping project" using the free iNaturalist app. Both in the water and out you have the power to increase the amount of accessible information about eelgrass and contribute to long-term and large-scale conservation efforts.

Nicole (she/her) is a Dalhousie University alumni and aspiring writer. She enjoys spending time outdoors climbing, surfing and camping.

Action is Our Middle Name

WILDERNESS

In December, we headed to Montreal to take part in COP15, the United Nations Conference on Biodiversity, where representatives from 188 governments gathered. On our way, we were part of the Atlantic leg of Nature Canada's cross country NatureBus, collecting letters of hope and action from local communities that were then delivered to Canada's Environment Minister Guilbeault at COP15. The conference concluded with a landmark Global Biodiversity Framework that aims to address biodiversity loss, restore ecosystems and protect indigenous rights.

We celebrated World Wetlands Day by cohosting two workshops about protecting wetlands in Nova Scotia. At both workshops, participants shared insights into the gaps of wetland protections, and discussed ideas of visions for current and future wetlands management.

We also welcomed the implementation of the Triad system for Crown land harvesting as recommended by the Lahey Report. Good progress, but still a lot more to do to "fully implement" the Lahey Report.

TRANSPORTATION

Since December, we have completed Youth Mobility Audits in two new communities. We participated in two panel discussions, one with the University of Rotterdam panel discussing mobility justice and another with Nature Canada discussing how NGOs can partner with organizations serving diverse youth. We are developing a community guidebook based on our successful program, the Pop-Up-Bike-Hub. This is a comprehensive resource for communities interested in creating local bike repair spaces. The Active Transportation Dashboard was updated with new plans in development and infrastructure projects progressing toward implementation.

Eighty schools participated in our February Winter Walk Day program, encouraging youth to be active outside. The excellent Welcoming Wheels volunteers repaired over 30 bicycles this winter for our Bike Buddies program this spring. We have three students doing a placement with us, working on mini-promotion campaigns such as our 1-meter Rule magnets, our safe cycling videos, and a new story-sharing accessibility project.

MARINE

Our community-led marine planning project in Gros Morne region kicked off another round of engagement, meeting with Indigenous Peoples, fish harvesters, tourism operators and community members to review two years of marine planning and mapping work. Feedback will be incorporated into our draft marine plan set to be released this fall.

We had strong representation at the Convention on Biological Diversity's COP15 in Montreal. We presented as part of a panel discussion, focusing on Atlantic seascapes and the importance of protecting, managing and restoring marine ecosystems. COP15 ultimately saw nations agree to pursue 30% protection of oceans by 2030, a target critical for safeguarding biodiversity at sea.

At IMPAC5 in Vancouver, we connected with others doing marine protection work around the globe. Following 5 years of advocacy with our SeaBlue partners, the Canadian government released new standards for Marine Protected Areas at IMPAC5 which incorporated many of our key recommendations.

FOOD

The Food Team has reached an exciting milestone with the JustFOOD Action Plan, representing years of work from community food advocates! In March, Halifax Regional Council endorsed Part A of the Plan, which contains 56 title recommendations shaped by extensive community engagement. Halifax Regional Council also voted to sign onto the Milan Urban Food Policy Pact, an international protocol aimed at tackling food-related issues at the municipal level.

Through the Nova Scotia Coalition for Healthy School Food, the Food Team has met with senior staff at the Province to advocate for investment in the human resources necessary to support a locally-sourced school lunch program.

We're still working hard to ensure there are strong policies to support farmers, and are excited to have been part of the consultation process for Canada's new Sustainable Agricultural Strategy, announced in December of last year.

BUILT ENVIRONMENT

What do you see when you look up at the sky anywhere in Halifax? Cranes. Halifax Regional Municipality continues to experience unprecedented growth, as people move here to live and work. As the city grows, the Built Environment Team continues to be a voice for more sustainable development patterns. At both the municipal and provincial levels, we have met with elected officials to discuss complete communities, integrated mobility, and greater protection for our parks.

Working with community groups in the Our HRM Alliance, we continue to engage with every opportunity for public input in the Regional Plan review. This included presentations, written submissions, and media coverage. So far, we have seen progress on new policies which consider housing diversity, environmental and cultural values, and climate change. With the help of volunteers and local experts, we continue to search for planning tools to discourage sprawl, while meeting housing pressures.

ENERGY & CLIMATE

The Energy & Climate Team, the Affordable Energy Coalition, and Nova Scotia Power worked toward signing a NS Utility and Review Board settlement agreement in December. We recommended phasing out biomass electricity and balancing the expansion of renewables with energy storage. Renewable-energy staff initiated a community-based campaign to better understand concerns of rural Nova Scotians on transitioning to clean energy.

We're working to ensure Nova Scotia is properly supplied with zero-emission vehicles under the Government of Canada's forthcoming regulated sales targets to address the electric-vehicle shortage. We await results of NS's feasibility study on school-bus electrification and urge Atlantic Canada to collaborate buying electric school buses. Please sign our call for electric-school-bus deployment: ecologyaction.ca/take-action-electric-school-buses-nova-scotia.

This fall we co-hosted a conference for faith groups concerned with climate and released new videos on church retrofits and passive-house design. In February we held a gathering with international students at the Nova Scotia Community College to help them access 15,000 emerging jobs in energy and environment.

COASTAL & WATER

Throughout this fall and winter, we have been working with three Dalhousie students - one in planning and two in law - on research projects related to our new coastal access initiative. Two additional planning students have come aboard with their own projects for the Fall 2023 term. Our collective goal is to develop and implement a suite of tools for coastal climate adaptation, including inventorying & improving coastal access, and legislative & legal guides.

Understanding and improving coastal access in Nova Scotia is a critical part of improving our relationship to shoreline ecosystems and adapting to a changing ocean.

The Coastal & Water Team continues our work with Nova Scotia Environment & Climate Change staff in finalizing the Coastal Protection Act (CPA) and pushing for follow-up legislation to address gaps in on-site septic system and well regulations. We are hopeful that the CPA will roll out in early 2023.

The Seasonal Gourmet

by **CLAIRE PARSONS** /// EAC Staff

Springtime Arugula Pesto

Homemade pesto is one of the best ways to enjoy a bounty of fresh arugula in the springtime. Arugula, also known as “rocket” or “rocquette” is a fast-growing, cool season leafy green with zesty leaves that adds a lot of flavour to a pesto. When compared to a more traditional basil pesto, arugula pesto has more of a peppery flavour. Arugula pesto is quick and easy to make and is great on pasta, potatoes, pizza, crackers and bread.



DRY INGREDIENTS

2 cups of packed arugula leaves (stems removed or included)

½ cup of shelled walnuts

½ cup of parmesan (fresh is best, but others work)

½ cup of extra virgin olive oil

6 garlic cloves (peeled)

½ teaspoon salt

DIRECTIONS

First, it's important that you clean your arugula well before consuming to ensure that you remove any dirt, pesticides or bacteria. Rinse the arugula under the tap or swirl them around in a bowl of clean water, and then pat dry or air-dry in a salad spinner.

Add your arugula, parmesan, walnuts, garlic, olive oil, and salt to a food processor or blender. Cover with the lid and blend until you have a smooth sauce.

Our Seasonal Gourmet for this issue comes from the EAC's very own Strategic Communications Manager, **Claire** (she/her).

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Want to know what it feels like to join 5,000 other voices for change?

Become a member of the Ecology Action Centre today and find out!

How?

Call or email Emma Moore of our membership team.

Call: 902 429 2202 ext. 107

Email: membership@ecologyaction.ca

Or sign-up online:

ecologyaction.ca/become-member

Join the Green Avengers!

The Ecology Action Centre is looking for runners and walkers to join our team in the Blue Nose Marathon on the weekend of May 19-21, 2023. Whether this is your first race or your 50th, all levels are welcome!

Join the team as an individual or if you already have a group of people in mind (co-workers, friends, family, etc.), register as a team to represent the EAC.



JOIN US TODAY!

If you are interested in registering as a participant or sponsoring the event, please contact Carly at carly.hominuk@ecologyaction.ca

REASONS TO GET INVOLVED:

- Race subsidy provided
- Join virtually from wherever you are or in-person in Halifax, N.S.
- Be a part of a supportive team environment
- Get active for a great cause
- Be a part of EAC's biggest fundraiser and help us reach our goal of \$15,000
- Prizes for top fundraisers and team spirit



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**Hours may vary. Please check the Bike Again Facebook page before coming to the space.*

Contact us!

www.bikeagain.ca

bikeagainvolunteer@ecologyaction.ca