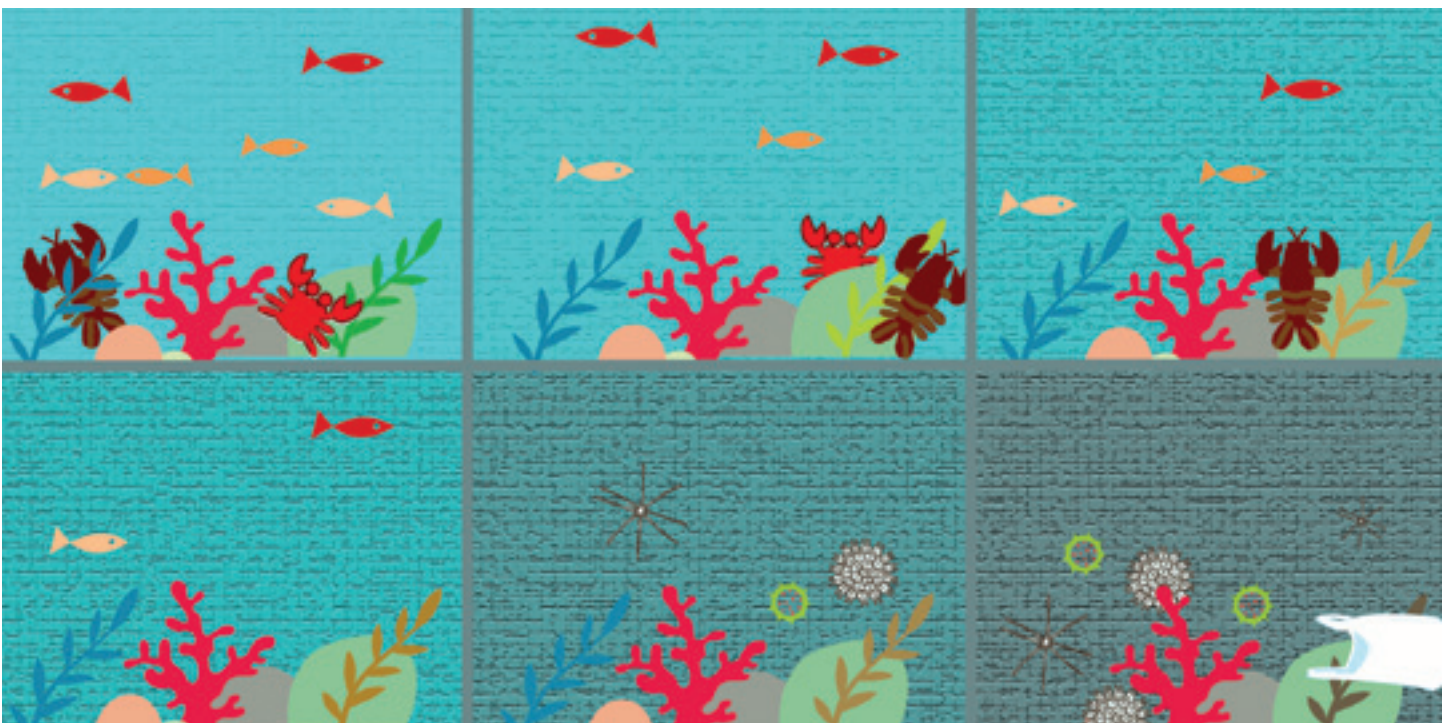




vol. 28:3 fall 2010

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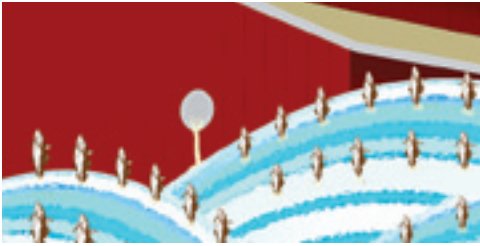
BETWEEN THE COVERS:
Open Net Salmon Aquaculture
Better Future for Halifax Harbour



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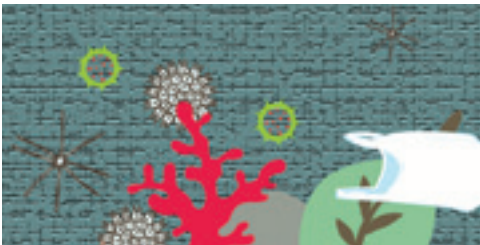
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BETWEEN THE issues

an ecology action centre publication

VOL. 28 NO.3

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letters to the centre

When the Ecology Action Centre moved to Fern Lane, we stored old files in big tubs in the basement. This summer the time came to unearth them and prepare these documents for transfer to a public archive.

Amongst the forestry files, I found an article from volume 8 of the Proceedings of the Acadian Entomological Society by J.D. Tothill, documenting the rise of the spruce budworm "from an innocuous member of our fauna to a pest of first class importance".

In summary, Dr. Tothill concludes, "In the primeval forest bequeathed by our forefathers there were no important outbreaks of insects because Nature had established a natural balance that prevented any one insect becoming too abundant. There were no pure stands of fir or spruce or of poplar on a large scale, there were great numbers of insectivorous birds, and insect parasites were uniformly distributed and destroyed vast quantities of spruce budworm and other caterpillars." He goes on to note that we have been upsetting nature's fine balance for the past century.

This article was published in 1922.

- Jessi Metter, EAC Volunteer

P.S. Stay tuned for news of how our library and archives transfer are proceeding.

Letter from the centre

Fuel for the Mind and Spirit

Humans are a fuel-hungry species. Although the industrial era has been an infinitesimal blink compared to the age of the earth, in this short time our species' voracious appetite for fossil fuels has literally re-shaped the face of our planet and the composition of our atmosphere. For some time now, it has been clear that we simply can't continue burning fossil fuels at the present rate. Part of the answer to this problem is to conserve our energy use. And part of the answer is to shift our dependence to renewable energy sources. Nova Scotia has set the goal of generating 40% of our energy needs from renewable energy resources by 2020. How we get to that goal is the subject of some intense debate in the province. In our last issue (*Summer 2010*), we included an article that portrayed one vision for Nova Scotia's energy futures. In this issue, we include two different perspectives on renewable energy. In *Tidal Power's Highs and Lows* (p. 8), Alexandra Curtis takes a closer look at tidal energy generation and draws out some of the concerns about this form of power. Neal Livingston shares his perspective on Nova Scotia's reliance on coal in *Will Coal Still be King?* (p. 10), and asks whether we will ever be able to wean ourselves off of this fuel.

Humans also consume huge amounts of food to fuel our bodies. With so much demand, we have come to rely on food growing practices that put a premium on growing things bigger and faster. Unfortunately, these practices often carry negative consequences for our health and environment. In *Seeing Pink on Open Net Salmon Aquaculture* (p. 12), Sadie Beaton explores community reaction to a proposed aquaculture farm on Long Island, in the Bay of Fundy. And Jillian Ashley Martin gives us the low-down on the familiar PEI potato – which undergoes an intensive and chemical-laden growth process before making its way to your local fast food restaurant.

One of the major fuel costs in food production comes from the need to ship it from the farm or factory to the grocery store. In *Why Local Food Matters* (p. 20), Marla MacLeod explores the impact of transporting food over huge distances, and how eating locally can generate social, environmental and economic benefits. Lis Van Berkel looks at the idea of resurrecting some of Nova Scotia's train networks to create a "market train" which would transport locally grown food between communities (p. 18).

And, although we don't like to think about it, huge amounts of food become huge amounts of human waste. As a species, we have tended to take an 'out of sight, out of mind' approach that involves depositing it in the nearest body of water. Chelsie Archibald looks at what that approach has done to the Halifax Harbour, and calls for radical changes in order to spur a better future.

This issue also brings you our regular features, including the *Seasonal Gourmet*, *Eco-Horoscopes*, *Action in Verse*, and *Being Green*. As the days grow shorter and colder, we hope that this issue will give you plenty of fuel for your mind and spirit to carry you through another Nova Scotia winter.

- BTI Editors

hot off the modem

EAC's latest publications are available online at www.ecologyaction.ca/content/publications-resources

We also have paper copies of some of these reports. If you are interested in obtaining one, please contact our office at 429-2202 or info@ecologyaction.ca



Municipalities for Green Mobility:

A Guide to Action

on Sustainable Transportation for Nova Scotia
(*Transportation, October 2010*)



Are Nova Scotians eating local?

Where is our food coming from?
(*Food Action, July 2010*)



Coastal Climate Change Adaptation:

An Opportunity for Nova Scotia's Towns & Municipalities
(*Coastal Issues, July 2010*)

from pickles to policy (Food Action Committee)

The Urban Garden Project is busy working with our community partners to celebrate and store the harvest, save seeds to grow again next year, prepare the gardens for the snow to fall, plant our windowsills with winter greens, and collect recipes to keep our kitchens warm this winter. Meanwhile, the Food Connections project has been busy with canning and preserving workshops. You can read all about the workshops, and other food adventures of the Food Action Committee, on our new blog: <http://adventuresinlocalfood.wordpress.com/>. In addition to preserves, we're also cooking up food policy in our kitchens. We're taking part in the People's Food Policy Project kitchen table talks, a pan-Canadian movement to push for a national food policy. To find out more, visit: <http://www.peoplesfoodpolicy.ca/>.

a whale of a fight (Marine Issues Committee)

Marine staff and volunteers have been action stars this summer. Whether pushing at the international level for actions that protect vulnerable marine ecosystems from high seas bottom trawling, or weighing and wrapping fresh, whole, sustainably-caught fish at Off the Hook Community Supported Fishery's weekly pickup spot, MIC has been active all over the map fighting for more sustainable fishing policy and practice. Atlantic Canada has the least amount of coastline and ocean of all of North America under moratoria from oil and gas development. The EAC has joined with other groups and coalitions to push for a moratorium on oil and gas in the Gulf of St. Lawrence until 2020. See www.bluewhalealliance.com for more information including the names of decision makers to contact.



towards a smart energy future

(Energy Issues Committee) In September, the Energy Issues Committee met for a strategic retreat to discuss future campaign directions and opportunities. Under the sound facilitation of Paula Knowles, 14 EIC members discussed the history of EIC and its past successes before engaging in an interesting and fruitful discussion of possible new directions for the committee. The results of this strategic planning session will serve to inform upcoming EIC campaigning, currently still in the developmental stages. In other news, the province of Nova Scotia is set to release its renewable electricity regulations in early October. Energy Coordinator Brennan Vogel continues to monitor and participate in provincial planning, policies and regulatory developments and processes pertaining to renewable electricity, energy efficiency and conservation.

seeping in (Coastal Issues Committee)

How healthy is our groundwater? CIC's new Groundswell Project will help us find out! With new connections to community groups, government and existing monitor networks, this community-based monitoring program will provide groundwater information to communities, environmental organizations, planners, consultants, and anyone else interested in watershed management. Monitoring is expected to begin in the spring, with local-scale groundwater data available online shortly after. The Coastal Issues Committee is the place to be if you are interested in learning more or participating in this pilot program. This fall, CIC will be talking to cottage owners along the Northumberland Strait to understand their current knowledge, values, and practices around coastal erosion and shoreline protection. The results: a communication strategy to help coastal property owners adapt to climate change.

spreading action around the province

(Transportation Issues Committee) TIC has been active on active transportation! Making Tracks had cycling safety camps in HRM and Wolfville and skateboarding safety training in HRM and Richmond County. TRAX secured funding to allow one of our coordinators to focus full-time on building capacity for active transportation in Nova Scotia. In September, TRAX brought together over 40 active transportation advocates to brainstorm ideas for action in Nova Scotia. Our twelve new School Travel Planning schools began data collection on active travel barriers and will soon create Action Plans. And Active & Safe Routes to School saw 95 schools participate in International Walk to School Month in October! We've also been helping to make communities safer... Truro joined the Pace Car anti-speeding program in July; there are now 2,300 Pace Car drivers in Nova Scotia. Not least of all, the Goods Miles Project is working with Dalhousie University's Management without Borders class to develop marketing ideas for locally produced goods. And our Greening HRM project, a collaboration with the Built Environment Committee, is getting into top gear.



EVENTS

For more information, visit www.ecologyaction.ca

A New Vision For Halifax: Green Growth and Development Go Together

November 15, 2010, 7 pm

Dalhousie School of Architecture and Planning
5410 Spring Garden Road

EAC Annual Open House

December 2, 4 – 7 pm

Join us at our offices for refreshments and good cheer
2705 Fern Lane, Halifax

EAC Organic Christmas Tree and Wreath Sales at the Historic Market

November 20, 27 and December 4, 2010

You can place your orders for trees and wreaths
or pick up your pre-ordered wreaths.

Last Day for Organic Christmas Tree and Wreath Orders

December 4, 2010, 4 pm

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EAC's Annual Organic Christmas Tree Pickup

December 11, 2010, 9 am – 1 pm
Bloomfield Centre

Eating Local in the Winter: Cooking Class Series

January 13, 20, & 27, 2011

Christmas Gift Certificate Available

For details contact Keltie:

keltie@ecologyaction.ca or 442-1077

Lovers Love Local: Couples Cooking Class

February 14, 2011

For details contact Keltie:

keltie@ecologyaction.ca or 442-1077

On Canvas - Art for the Planet

February / March 2011

Stay tuned to our website

for details on EAC's second annual art fundraiser

Annual Sable Island Update

March 30, 2011

from saving historic buildings to planning HRM's future

(Built Environment Committee) As the Built Environment Committee continues to focus on exciting and important projects such as pushing for a provincial pesticide ban and greening up residential buildings, one project has stood out as a resounding success. The Waste? Not! Construction and Demolition Toolkit was released in June, and will serve to create awareness among homeowners and the construction industry around adaptive re-use, materials recycling, and the proper management of construction waste, which continues to make up 30% of the space in Nova Scotia landfills. The Toolkit's satellite project, known as the Morris House Project, continues to make headway with support from government, universities, industry and community groups. We are currently on the lookout for a site, as well as eager volunteers to help with bringing this historic building back to life. As winter sets in, we are set to begin a new project focused on gauging HRM's progress in adhering to its Regional Plan, which has been in effect for five years. Together with TIC, we will ensure that sustainability tops the list of municipal policy over the next 20 years; stay tuned for information on how you can help.

biomass issue continues to heat up

(Wilderness Committee) The Wilderness Committee has been busy. Biomass, clearcutting, new regulations, new natural resources strategy, UARB hearing: there's lots on the go! Jamie Simpson represented the EAC during the UARB hearing on the proposed NewPage / Nova Scotia Power proposal to burn forest biomass for electricity. Unfortunately, the project was approved by the UARB, which means that Nova Scotia's carbon emissions will continue to rise for the foreseeable future. We're also working with woodlot owner groups and representatives of sawmills who share common goals with the EAC around reducing clearcutting and increasing support for those who want to do the right thing in the woods. Finally, we organized a good old fashioned rally in October. Almost 400 Nova Scotians turned up to show the NDP that they have massive support for positive change for our forests, including dramatic reduction in clearcutting.

ecobriefs

By June Hall

In a supermarket near you

Check out the asparagus in your local supermarket. Fresh, delicious, and likely grown in one of the driest places on earth – the Ica Valley of southern Peru.

Thanks to investments by the World Bank in the late 1990s and to generous tax incentives, Peru is now the world's second-largest producer of asparagus (after China) and its leading exporter. The stats are impressive: fields covering 100 square kilometres, 10,000 new jobs



Janet Wilson

in a poverty-stricken desert, and an export trade worth more than \$450 million a year. And it's all new.

Not surprisingly, there's a problem. Asparagus is a thirsty crop, and the sandy soil and almost total lack of rain in this coastal region mean that constant irrigation is a must. Drip irrigation, yes, but still irrigation. In some places, the water table has fallen by eight metres a year since 2002, "one of the fastest rates of aquifer depletion in the world." Livelihoods are at stake. Wells serving thousands of people have already dried up, farmers must drill to ever-greater depths to tap the aquifer, and the cost of water for those without wells is escalating. Climate change will only add to the equation. The situation is critical. Sustainable it ain't.

Guardian Weekly, 24 Sep. '10

Clean your plate!

Back of the envelope stuff, but two researchers at the University of Texas, Austin, have come up with an estimate of how much energy the U.S. would save if everyone cleaned their plates. Each year, they say, the U.S. throws away food equivalent to about 2000 trillion Btu, roughly 2 percent of the country's total energy consumption and on a par with that extracted by offshore rigs. It's a big deal.

They began with two United States Department of Agriculture (USDA) stats: food production = 15.7 percent of the nation's total energy demand, and food wastage = 27 percent of food produced. They then calculated how much energy is involved at each step along the way: production, transportation, processing, storage and preparation, doing it one food group (dairy, meat, grain, etc.) at a time. Dairy, it turns out, is the largest energy sink.

The estimate has flaws, as the authors freely admit. For starters they were working with "out of date and incomplete" data (the 27 percent figure, for example, is 15 years old) and there's no info at all about farm waste, fisheries by-catch, and other imponderables. Nevertheless, the study provides a valuable wake-up call for us all.

Env. Sci. & Tech., 30 July '10

Peak leak

Hidden in the ocean's deeps is a ticking time bomb: the rusting detritus of World War II. Here we're not talking the dangerous cargo: unexploded bombs and shells, gas canisters and the like. It's the oil, a very topical subject.

This story is about steel and how it behaves in the ocean. So many factors to consider: depth, prevailing currents,

oxygen levels, damage incurred during sinking, and more. Bottom line though, is that time is running out for these sunken vessels. Already many are leaking, with "peak leak" expected to start very soon and to last for half a century.



Janet Wilson

For a measure of the problem, a global database compiled in 2005 by a group of U.S. and Australian scientists identifies 8,659 potentially polluting shipwrecks, about a fifth of which are oil tankers and about three quarters of which date from the war. How much oil is involved? Unknown, of course, but estimates range from a high of 20 million tonnes to just 2.5 Mt.

When it comes to leaks, location is everything. If you check out the map at www.environmental-research.com/erc_papers/ERC_paper_31.pdf, you'll see that many leaks are clustered close to shore. Recognizing the need to be proactive, in 2009 the American Salvage Association set up the Wreck Oil Removal Program, which hopes to identify the most hazardous nearby wrecks and to develop a protocol for what to do about them. Removal costs are horrendous, but so too are the costs of inaction.

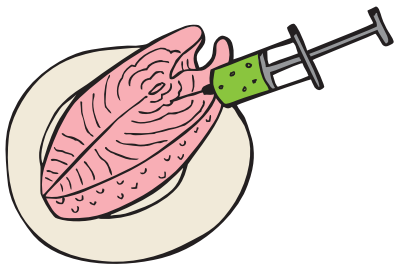
New Scientist, 4 Sep. '10

Transgenic fish

Made the headlines in late summer, it sure did. The U.S. Food and Drug

Administration (FDA) may be close to approving for sale a transgenic fish, an Atlantic salmon that grows very quickly thanks to genes from two other species. At 18 months, this fish is five times the size of its non-genetically modified tank mate. It would be the first GM animal to be approved anywhere for human consumption.

Giving Massachusetts-based AquaBounty the green light would be a precedent-setting move for the FDA. Waiting in the wings are dozens of varieties of GM fish, developed in research facilities around the world. China, Cuba, you name it. Some are ready to be marketed, some still need a final tweaking.



Janet Wilson

There are of course, widespread concerns. Chief among them is the potential for dire “ecological consequences should the fish escape.” Despite assurances that the salmon and other GM fish are sterile, it is hard to ensure that this is so. For instance, Aqua-Bounty’s method is “only 98 per cent reliable,” so there remains a small possibility that the GM salmon could mate with wild fish. Secure land-based systems are obviously a must.

AquaBounty has gone to extraordinary lengths to protect its investment. Its fish-rearing facility is a highly protected citadel at a secret location in the highlands of Panama. The question remains: will its safety measures be sufficient? And what about less careful companies?

New Scientist, 18 Sep. '10

Not so diverse

Quick: How many species of flowering plant are there in the world? The most likely answer, it turns out, is something

over 400,000, not the million-plus usually stated. Over the last three years botanists at Kew Gardens, London, the Missouri Botanic Gardens, and elsewhere have been sifting databases to weed out duplicate names. The final product will be a single, reliable list of both the accepted names and their now-discredited aliases.

Dry stuff, right? But without such knowledge it’s hard to assess how many plants are under threat and whether conservation efforts are working. It’s especially important for economically important plants such as crops. Information about a species has often been published under different names, an obstacle course for researchers unless they know what’s going on.

A meeting of the Convention on Biological Diversity this October is “likely to declare that targets to halve biodiversity loss by this year failed and [to] set new aims to halt the problem.”

Guardian, 19 Sep. '10

Coal fires

Whether started naturally, through lightning or forest fires, or through sparks from mining, coal-seam fires are an enormous problem. They can burn unchecked for decades, even centuries, and are frequently difficult to put out.

Each year in China, “around 20 million tonnes of coal go up in smoke, emitting up to 100 million tonnes of greenhouse gases.” Now it’s acting to stop the worst of them, in Inner Mongolia, where 60 or more fires have been burning for 50 years. They’re going the low-tech route, isolating the burning coal and burying it in “sand and slurry” over the next two years.

Now think globally, of the thousands of such fires, which together account for three percent of CO₂ emissions. Action is welcome.

New Scientist, 19 June, '10



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Debating our Energy Future

In the previous issue of BTI we featured EAC's proposed energy future, showing the mix of renewable sources and energy efficiency that could wean Nova Scotia off coal-fired electricity by 2025. We invited your feedback. We see this magazine as a place to inspire action and a place to share EAC's best thinking on issues facing the province and the planet. We also see it as a place to highlight some of the debates facing the environmental community within the EAC and beyond. We encourage you to peruse these two articles critiquing our proposed energy future and engage with us and our allies in the fight to make NS coal-free. – Editors

Take Action

GET OFF OF COAL:

Form a co-op to generate renewable electricity and take advantage of the coming feed-in tariff price incentives.

Go Solar!

Nova Scotia has not included solar electricity or heating technologies in the proposed feed-in tariffs. Become an early solar adopter for net-metering and a staunch advocate for solar in the province.

Contribute to 'saved energy' by insulating your home.

A properly insulated building in Nova Scotia can even generate enough energy to heat itself!

Encourage our government to develop a 'Coal-Phase Out' strategy to reach its 10 percent below 1990 greenhouse gas levels target.

Tidal Power's Highs and Lows

By Alexandra Curtis



Courtesy Kelsey

The article "Envisioning Nova Scotia's Energy Futures" in the July/August issue of BTI provided a lopsided account of the concerns associated with some renewable energy sources cited. In particular, the unqualified support for tidal energy development did not reflect the great uncertainties surrounding tidal energy as a proposed main ingredient in that mix.

The megatidal Bay of Fundy has long tempted engineers and enthusiasts to design means of harnessing its power. The predictability and reliability of tidal power make it especially appealing. Today, tidal energy technology falls into three main categories: tidal barrages, tidal in-stream energy conversion (TI-SEC) devices, and tidal lagoons, which are reviewed in a document posted on the EAC website at http://www.ecologyaction.ca/files/images/file/Coastal/tidal_facts.pdf.

The project now underway in the Minas Passage features in-stream tidal turbines, designed to harness tidal current energy in high-flow regions. In press releases and public comments, the province appears to support commercial-scale installation of turbines in the Minas Passage, asserting that the project can provide clean and green energy without the ecological harm of a barrage. The argument flows as follows: in-stream turbines are placed at intervals, so fish and other marine organisms will swim around them, avoiding potential injury. The turbines will only turn at 10-30 rpm, so entrained fish would not be hurt even if struck. Moreover, shoreline impacts will not be a concern, because Acadia's University's Dr. Richard Karsten and col-



leagues predict that as much as 2.5 GW can be extracted from the Minas Passage with only 5 percent change in tidal height across the region.

However, these assertions do not hold on closer examination. Water flows through turbines, not around them, and many organisms will follow the flow. Fish collected by Dr. Mike Dadswell (Acadia University) below the Annapolis Tidal Power Generating Station (a barrage) showed that turbines can kill through both direct strikes and near-field effects (e.g., shear). The conditions in the Minas Passage are extreme - so turbulent, noisy, and sediment-laden that upstream cues to marine life may not be perceptible until it is too late to get out of the way. The turbine blade tips would move at 30-50 km/h, plenty fast to cause a lot of damage, and surface tidal currents in the Minas Passage can reach approximately 15 km/h. For comparison, herring typically swim less than four km/h. Numerous commercially and recreationally valuable species, including many herring populations, shad, and striped bass from as far away as the Gulf of Mexico, swim through the Minas Passage on their annual migrations. Fish are not the only organisms at risk of harm. Everything from unicellular microorganisms at the base of the food web to marine mammals that follow the herring migrations, including several endangered and threatened species, could potentially be affected. Many organisms travel back and forth through the channel with each tidal cycle, rapidly multiplying their probability of encountering a turbine.

As for tidal height, a five percent mean increase or decrease would translate into almost a metre difference in those areas with the greatest tidal ranges, substantially affecting many intertidal wetlands. And our neighbours to the south would be rudely surprised by projected increases in tidal height along Maine and Massachusetts coastlines already threatened by rising sea levels. Additional effects such as sediment transport, noise, and flow

changes also remain unknown. The bottom line is that we simply do not have enough knowledge to assess the potential for damage at levels from individual organisms to the ecosystem.

The EAC has nonetheless been cautiously supportive of the initial demonstration project to evaluate three turbine designs in situ. Given the above uncertainties and the importance of coastal and marine resources to our culture, heritage, and economy in Nova Scotia, we have urged the province to evaluate the impacts of the demonstration project thoroughly before advancing gradually to a commercial scale installation. The province should be allocating equal public funding to environmental impact studies as to tidal turbine development. Research should be focused on answering such crucial questions as what organisms will be harmed by interactions with the turbines? Where in the Minas Passage are such organisms over the course of a tidal cycle, a year? Moreover, adverse effects that are negligible or undetectable at the level of three turbines may be astronomical at 300, and are likely to increase exponentially, magnifying the importance of intensive study and monitoring. Instead, considerable portions of the scant environmental impact research funds have been directed at technology development questions that ask how the environment will impact the turbines!

Our society urgently needs to develop renewable energy sources to mitigate the immediate and long-term effects of oil- and coal-based energy on the environment and human health. But “renewable”, “carbon-neutral”, and truly “green” are not the same. For instance, scientists have shown biomass energy based on clear-cutting forests (not a “green” practice) to have net positive carbon emissions when the forest ecosystem is considered (not carbon-neutral). Similarly, the potential for tidal power to adversely affect marine and coastal ecosystems (i.e., to not be “green”) may translate to overall carbon release into

the atmosphere if natural carbon storage by marine and coastal ecosystems is sufficiently diminished.

Alarming, the success of the demonstration project is rarely mentioned anymore as a caveat to commercial-scale tidal power development in government communications. The provincial government seems to be champing at the bit to fast-track tidal power development. We can also expect the massive, up-front, private investments in development and publicity to exacerbate the pressure to forge ahead in spite of potential detrimental environmental impact findings. But the marine environment, even more so in conditions as severe as those in the Minas Passage, presents an immense challenge to our ability to study and monitor both immediate and larger-scale environmental impacts, making a precautionary approach even more important – proof of no harm, rather than no proof of harm is paramount. Our coastal and marine ecosystems are too precious for us to put them at stake without even knowing the risks.

Meanwhile, less controversial and more established alternatives (e.g., solar) and appropriate storage options should be explored with greater vigour, as should energy sources with footprints that we can more easily observe and manage. Ultimately, the concerns with tidal energy highlight the reality that no energy source is truly impact-free, reinforcing the importance of pursuing energy efficiency as the primary goal of energy reform.

Alexandra Curtis is the Sustainable Fisheries Scientist for the Marine Issues Committee. She is currently working part-time from San Diego, where surfers and renewable energy engineers dream about waves rather than tides.



Will Coal Still be King?

By Neal Livingston



Courtney Kelsey

BTT's Summer 2010 article "Envisioning Nova Scotia's Energy Futures" said, "We applaud the government's effort to reduce the use of coal in electricity production. Under our projections, coal could provide just under half of our electricity mix in 2015. We believe our electricity can be coal and oil free by 2025."

I read this statement after walking out of the Utilities and Review Board Biomass hearing on July 27, 2010. As an intervener in this process I cross-examined officials from Nova Scotia Power Inc. (NSPI) under oath, and heard a very different story about what is developing in Nova Scotia.

I was told that the 60MW biomass plant was not going to reduce coal burning. NSPI would not directly answer my question about the resulting increases in CO2 from the 60MW biomass plant, so I conclude this will be the case.

NSPI officials also stated the biomass plant is not needed for capacity, which is the word for load growth, but that

it is being built because it qualifies as a "green" project to meet the Renewable Energy Standards the province has set. I believe most Nova Scotians had thought these standards related to coal and CO2 reductions - now I realize we're wrong.

Nova Scotians are being fooled into thinking that the 40 percent renewables target by 2025 will result in a very big reduction in coal burning and CO2. The plan so far does not involve coal reductions of any major amount. This, then, raises serious questions about Nova Scotia's commitment and approach to renewable energy.

Shutting down the coal plants is a very serious issue and should be a top priority of our province. Ontario is set to do this, and is already one-third of the way there. Nova Scotia could be asking Quebec or Newfoundland to provide enough hydro power by 2015 to shut all our polluting coal-fired electrical generating plants. We could then, over time, back off this imported green power with our own green power as it gets built.

Add to this NSPI's failure to meet the original government renewables electricity target and the NDP government agreeing to move the dates for this target, as well as the major mercury reductions by NSPI being rescheduled by the province at least four years into the future - after the next election.

So what is going on here in Nova Scotia?

I think there may be a plan, not yet publicly revealed, to export our green power to the United States. This plan is already being supported and encouraged by our NDP government, with the use of our tax dollars, and increases to our power bills.

This past summer, Premier Dexter proudly announced support for NSPI's new power line into New Brunswick. The Premier promised us jobs, and that a better connection would improve our electrical grid. What Premier Dexter didn't tell us is that Emera, the parent company of NSPI, is building and will own a new transmission line from New

Brunswick to New England, which will be fully capable of exporting Nova Scotia green power to New England.

Furthermore, Fundy tidal power, without public consultation, has been chosen by the NDP as our own home-grown Nova Scotian renewable energy technology of the future. However, tidal power is not a developed technology –(nor may ever be) or even environmentally safe. Hundreds of millions of tax dollars will be spent on tidal power research and technology development, which will be owned by a few large private Nova Scotian and foreign companies. So far the tax dollars handed out are in the tens of millions. If tidal technology is ever fully developed the profits will not flow into the hands of the many but the few.

Premier Dexter this summer also announced public funds towards offshore wind research. This is the province committing to potential mega-projects whose long-term benefits will accrue

only to very big business interests.

Contrast tidal and offshore wind with solar energy. Solar is a developed technology and very cost-effective, yet there will be no serious government action on solar. Our politicians and their advisors are solar-ignorant, even solar-phobic. The government is against engaging with solar technologies. Developing solar at a broad scale public level would provide for maximum benefit to Nova Scotians, by nearly everyone having solar installed on their homes and buildings. Many countries in the world with solar regimes similar to ours are engaging in a major way with solar.

Nova Scotia should be installing regionally-manufactured solar hot water and solar hot air panels on nearly all homes by 2015. We should then install photovoltaic panels on our roofs between 2015-2020. This would result in several thousand jobs, and the energy cost savings would be in the pockets of the many, not the few. Solar offers the

greatest and the simplest potential for transitioning to green power. It's currently doable, and would reduce coal-fired pollution, with the green benefits spreading to us all.

The green energy future that Nova Scotians have been promised, which includes a non-polluting electrical system, bears little relationship to the reality of what is actually taking place and being planned for the future in Nova Scotia. I hope you are in shock reading this, as I am in shock to have understood this.

For 30 years Neal Livingston has been a leader in implementing energy efficiency and renewable projects, and thinking and promoting a green future that benefits us all. (See: www.blackriver.ns.ca)




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Seeing Pink on Open Net Salmon Aquaculture

By Sadie Beaton



Long Island is a gem in the little chain of Islands off Digby Neck, Nova Scotia. Jutting into the Bay of Fundy, fishing runs thick through the families living there. The mighty cod sustained generations of Islanders, until the collapse in 1992- these days replaced by a decent lobster fishery and increasing ecotourism.

Normally known as a laid back place, a proposed open-net salmon farm just off its shores has this island community riled up. Its citizens have begun asking some big questions about our provincial government's vision - or lack thereof - for coastal communities and our shared ocean resources. A new community group out of the Digby Islands called Save Our Bays is gathering momentum and demanding answers.

In March of this year, Kelly Cove Ltd, a company owned by the New Brunswick salmon farm magnate Cooke Aquaculture, applied to install two 42-hectare open-net salmon cages in Saint Mary's Bay on the eastern side of the Island. These floating feedlots would house up to two million fish, grown in close quarters - by far the largest salmon farm ever proposed in Nova Scotia.

Over 80 percent of the adult residents of Long Island and neighbouring Brier Island have expressed their opposition to the current proposal in a petition organized by the Save Our Bays group. Concerns range from potential displacement of, and damage to, the lobster fishery and eco-tourism, to impacts from pollu-

tion and environmental degradation on community quality of life. Resident Alex Patterson notes "The proposal is asking the community to take all of the risk. The communities are being exposed to unacceptable environmental and socio-economic risks and are provided next to nothing in return."

Akin to agricultural feedlots, these high-density monocultures are responsible for various environmental impacts, including large volumes of waste. Studies have shown that two million salmon expel more excrement than the entire population of Digby County every year. Farmed salmon operations also often require the input of chemicals, antibiotics and synthetic feeds to keep the fish alive until harvest time.

There is at least one key difference between agricultural feedlots and those on the water. While many of the impacts of industrial farming happen on privately owned land, open net salmon farming companies depend upon and degrade the ecosystem services provided by a publicly owned and shared resource - our ocean. As resident Sandy Hanson has asked, "If towns like Digby aren't al-

lowed to discharge raw sewage into the ocean, why should a private company like Cooke be allowed to contaminate our Bay while pocketing profits?"

Like many generations before him, Sheldon Dixon fishes lobster out of Tiverton on Long Island. Digby Neck and Islands are part of Lobster Fishing Area (LFA) 34 - the richest lobster fishery area in the world. Speaking for fishermen on the Digby Islands, he reports that 100 percent of them are against the proposed fish farm. Dixon says fishermen don't want to see an open-net salmon farm in their area because "first off you've lost fishing grounds to the fish farm moorings, and then on top of that you've got all the pollution issues." He also highlights concern over recent lobster kills in the Bay of Fundy, possibly linked to aquaculture pesticide use. "In New Brunswick, one of the main reasons that Cooke Aquaculture has needed to use so much pesticide is because their fish farms are so crowded," he explains, "And looking at the plans for this site, it seems that they aren't learning from their mistakes."



Take Action

To read Save Our Bays' Submission to Government of Nova Scotia and Government of Canada Against Aquaculture Site Development, check out its Facebook group online.

Ecotourism businesses like Karen Crocker's family whale watching operation are also concerned about how the impacts of a large open-net salmon farm will impact their futures. Among the amazing species of whales seen in the Bay is the sensitive and critically endangered North Atlantic Right Whale. Crocker notes "The food sources that bring the whales will be affected - the copepods and herring will be exposed to nutrient overloading in the water along with all kinds of chemicals and toxins."

Cooke Aquaculture has promised jobs - first 30, then 20 - dangling the promise of a possible processing plant. Residents question the value of these promises, noting that the proposed operation could jeopardize the jobs that already sustain their community in the fishing and tourism sector, with little besides insecure low-paying wage-labour to offer. Alex Patterson observes "The sites are quite automated, so the number of jobs is minimal, and also low-paying. If you look at historical numbers that are employed at sites, it is more likely that closer to 10 or less total would be employed."

This high-density open-net salmon feedlot proposal is heralding a new era of aquaculture expansion for Nova Scotia. Our provincial government has committed to investing in this new model of expansion to the tune of \$150 million without expressing a clear vision of where and how these projects will be sited. The economic argument put forward is weak - as the sustainable seafood movement gains traction among large retailers, many, including such behemoths as Over-ritea and Target have already committed to stop sourcing farmed salmon from open net pen operations. Farmed salmon has been rated as a product to avoid by SeaChoice Canada, based on an assessment available at <http://www.seachoice.org/profile/118/view>.

So why is the Nova Scotia government promoting continued expansion of open net salmon aquaculture, an environmentally destructive form of aquaculture that is being abandoned in favour of closed containment systems in many other parts of the world? Long Island residents want to know, what are the benefits to our communities that make it worthwhile to take such risks?

The community has asked this sort of question before. Back in 2004, a large American-owned basalt quarry was proposed on nearby Digby Neck. Many residents felt strongly that the potential risks to their way of life outweighed any economic gain to be had. After a long and difficult fight, their voice was finally heard. After nearly three years, the Environmental Assessment's Joint Panel Review recommended not approving the project, noting that the values of the community should be paramount when proposed projects affect local livelihoods and way of life.

Lest the impression form that the community is "against everything", islanders have made it clear that they welcome sustainable economic development in their area, even sustainable aquaculture. As resident Karen Crocker summarizes, "We are not against aquaculture - we are against open-net fish farms."

The community has done its own research - and has stated that it would invite other kinds of aquaculture projects in the area. Sandy Hanson notes, "Growing fish in closed containers can produce healthier fish, provide more local jobs, and have been proved to be profitable. It could be a win-win situation, instead of this win-lose."

Many organizations, both locally and around the world, are chiming in, calling for areas like Nova Scotia to institute a transparent set of regulations and siting policies, along with an improved stakeholder process that works to ensure community benefits. Currently, decisions around aquaculture siting in Nova Scotia happen in a piecemeal fashion and have been divorced from the emerging provincial coastal management policy. Shannon Arnold, Ecology Action Centre's Marine Coordinator, observes, "Given the negative impacts of intensive salmon aquaculture on marine environments in other areas, we are troubled by the lack of clear policies and regulations guiding our province's expansion of this industry."

Sadie Beaton works as EAC's Community Supported Fishery Coordinator, working with a group of Bay of Fundy fishermen known as Off the Hook Cooperative Limited. <http://www.seachoice.org/profile/118/view>



Looking for a Better Future for Halifax Harbour

By Chelsie Archibald



Source: Dawson, 2007.

Halifax Harbour in 1890.

If you ask visitors to Halifax their impressions of the city and what they did while they were here, they will undoubtedly speak of the waterfront. Of our gem of a harbour. If you ask locals, they may comment on the same thing. However, locals will be aware that though the harbour is a gem, it has not been treated like one.

For over 250 years the harbour served as the city's toilet, an estimated 200 million litres of raw sewage flowing daily into the harbour in recent years. However, the city's Harbour Solution project is now completed and all three wastewater treatment plants operational (again). The beaches were declared open and safe in August, and on September 1, 2010, Mayor Kelly displayed his own faith in the system by going for a swim at Black Rock beach. So all is well and that's the end of the story, right?

I'm not so sure. For one thing, only a week after Mayor Kelly's dip, Black Rock and Dingle beaches were closed to swimming because, once again, raw sewage was flowing directly into the harbour. Rainfall from Hurricane Earl had caused a sewage overflow in the system. How could the \$333 million project funded by years of tax money not have accounted for the possibility of heavy rainfall in a city known for its wet weather?



Upon delving deeper into the story of the harbour – its history, uses, and management (or rather lack of management), I began to feel we've lost sight of the harbour as an ecosystem, service provider, and treasure, and instead view it largely as a system for human use...and abuse.

The city was founded in 1749 when officers of the British Royal Navy deemed the area to have the 'finest harbour in the world'. The settlement was built on a grid with little thought given to sewage, except that waste was directed downhill to the harbour. Following Confederation, Halifax and Dartmouth

became a trading, manufacturing, and shipping hub, and the population expanded. It was not until the early 1900s that infrastructure to supply clean water and collect sewage began to be constructed. The renowned marine scientist A.G. Huntsman carried out a study of water quality and circulation patterns within the harbour in 1924 and found that surface waters were considerably polluted. Shellfish harvesting has been prohibited since the 1950s, and beaches closed for decades. As the city expanded and population grew, it was recognized that a water treatment system was required.



Currently, advanced primary treatment of the city's wastewater and sewage means no more floaties, no more smell, much lower levels of bacteria, and clearer water. Tidal flow twice a day means the harbour can quickly flush the water and much cleaner water results within days or weeks. Which is all very good.

Unfortunately, along with bacteria and viruses, untreated water has carried industrial waste including trace heavy metals, petroleum hydrocarbons, organic contaminants (PAH, PCB), silt, and debris. Several studies have found that many parts of the harbour have concentrations of heavy metals such as lead, copper, mercury, and zinc that are greater than the standard Permissible Exposure Limit (PEL). Concentrations of petroleum hydrocarbons have been found to be higher in the harbour than at 64 other sites

Take Action

Take an interest in the upcoming 'Halifax Harbour Plan'. Let your voice be heard in the consultation process. Stay tuned to www.halifax.ca or contact HRM Planning to let them know you're eager to participate.

Consider what toxins from your home enter stormwater and sewage drains (e.g. antifreeze, petroleum oil, cleaners, detergent) and try to reduce or eliminate use.

Support monitoring of water quality and sediment contaminant levels.

tested in the Maritimes, and concentrations of PAHs have been found to be much higher than those reported in other industrial harbours such as San Francisco, Tokyo Bay and Puget Sound. The general patterns show that concentrations of contaminants in sediment increase from the outer harbour to inner harbour. The most troubling fact about many of these contaminants is their persistence. These toxins remain buried in sediments for years, and there is evidence of accumulation in mussels and lobsters, particularly in those collected near outfalls. Though

humans are very unlikely to be exposed to contaminated sediment, people should be aware and it should concern us that the ecosystem continues to be impacted.

But it doesn't end there.

Since the city's founding, the coastline has continually been cleared of vegetation, infilled in some areas to create more building space, and dredged in other areas to deepen the harbour and allow for larger ships. Anchors and propellers disturbed the seabed, stirring up sediment and disturbing habitat. The two bridges, container terminals, and many waterfront homes and business sit on 'land' that was formerly sea. This continues, with major housing development projects occurring in Bedford Basin. As many fish and invertebrates such as shellfish rely on shallow subtidal zones to feed and reproduce, such projects permanently remove marine areas that may be important fish habitat. Infilling also adds sediment, and can alter natural circulation patterns. Should the harbour be allowed to be so significantly altered by development corporations? Does that area not belong to all of us? Or more importantly perhaps – is it not part of an ecosystem?

Life exists in the harbour. That point seems to be easily forgotten. The harbour lets you go to work on the ferry, it provides a lovely backdrop, it's a major seaport and transport hub, it's home to the East Coast Navy and Coast Guard, to the Bedford Oceanographic Institute, it is an industrial centre, a place to live, and a tourism and recreation area. From a historic perspective, Halifax is the economic hub of the Maritimes because of its harbour. However, the harbour is also an estuary that is home to wide variety of life ranging from seaweeds to sea stars, molluscs to seabirds, flounder to finback whales.

For our sake, and for the sake of the harbour itself, the city urgently needs to formalize a master management plan that integrates coastal planning, development regulations, and water quality and ecosystem monitoring. It must account for multiple users, as well as address the health of the system. It took 250 years to get to the point where a \$333 million system was required to address basic health concerns. How much longer will it take until we demand that our city recognize that Halifax Harbour truly is a gem that belongs to all, and should be managed as such?

Chelsie is a marine biologist who is passionate about ecological research and public education. She is a Halifax native now residing on the shores of Passamaquoddy Bay.



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The Dirt on Potatoes

By Jillian Ashley Martin

Among the processed foods filled with multi-syllabic ingredients lining our supermarket aisles, a plate of pure potatoes fried in vegetable oil doesn't seem that bad once in a while. Unfortunately, potatoes too are endowed with their own batch of multi-syllabic ingredients – in the form of the stunning number and variety of pesticides used to grow spuds large enough to be worthy of fast food enterprise french fry standards. Prince Edward Island is internationally known as the home of the spud grown in red mud.

'Million Acre Farm'

Dubbed the 'million acre farm' by some and the 'garden of the gulf' by others, PEI is known to residents and tourists from around the world as a farming province. Nearly one-fifth of the island's land mass is devoted to potato farming, and many of these farming communities are in close proximity to fresh and marine water bodies.

Over the last two decades, a steady decline in the number of family farms has been paralleled by a leap in the number of farms earning more than half a million dollars a year. The majority of the potatoes produced on these corporate farms are destined for processing. Along that pathway from farm to fry, the potato fields are treated with fertilizer, herbicides, fungicides, and insecticides. Due to the damp climate in PEI and concern regarding the potential for blight infestation, fungicides are used much more heavily than in other agricultural regions – as frequently as every five to seven days during the growing season (June-August). Concentrations of fungicides, most notably chlorothalonil, in ambient air in PEI are regularly observed at an order of magnitude higher than other agricultural regions.

Swimming, Preening, Breathing, Eating

Do these agricultural practices translate into any adverse effects for island

residents, ecosystems, or potato consumers? The only point of certainty is that these questions are a long-standing source of controversy and tension. Evidence raises warning flags. The U.S. Environmental Protection Agency (USEPA) states that chlorothalonil is "acutely highly toxic to fish". In fact, pesticides were implicated in 14 fish kills between 1994 and 2002, and fish kills continue to be reported, with the most recent one being July 2010. A fish kill, literally, is when hundreds to thousands of dead fish wash up on the shore of a river. Though PEI has recently enacted legislation to create buffer zones between watersheds and agricultural fields, the persistence of fish kills suggests that the regulation is not adequate.

Fish are not the only wildlife of concern. The primary metabolite of chlorothalonil, DS-3701, is highly toxic to birds. Though there are a limited number of studies documenting the effect of fungicide exposure on humans, both the USEPA and the International Agency for Research on Cancer (IARC) classify chlorothalonil as a 'probable carcinogen.' In addition, the Environmental Working Group has classified potatoes as one of the 'Dirty Dozen' – a list of the 12 foods most heavily contaminated with pesticides. Can we really support swimming in, breathing in and eating a mixture of carcinogenic, toxic substances?

Alternatives?

Controversy and uncertainty regarding the environmental and health effects of conventional potato growing techniques will persist. But potatoes need not be grown in this way. If potatoes are harvested earlier in the growing season before they reach the size standards set by fast food enterprises (for their processing convenience), they will require fewer fungicides. If agricultural systems implemented stricter rotation regimes, they would be less susceptible to potato blight.

The PEI government itself recognizes the current path of agriculture is not sus-

tainable. A recent report commissioned by the PEI Department of Agriculture calls for reduction of the most toxic pesticides by 50 percent by 2015.

Sustainable agriculture asks us to promote change at all levels. Consumer choices can create demand for organic foods. Legislation can implement regulations to minimize adverse effects of current practices and can also support the efforts of farms practicing sustainable agriculture. Unless society is truly willing to accept the known risks of pesticide use, we must rekindle the notion that land stewardship is as critical a component of farming as productivity.

Yes, you can have your fries and eat them too. But you might just want to think about what went into making them.

Jillian Ashley Martin is doing her PhD in environmental epidemiology at Dalhousie University. When not writing or studying, Jillian likes to run, paddle, and play with her two girls, Maya (4) and Sophia (2).

Take Action

Buy organic potatoes.

Fall is a great time to stock up on potatoes from this year's harvest.

Ask vendors at restaurants and supermarkets about the source of their potatoes and the possibility of providing organic potatoes.

Contact potato processing companies and fast food enterprises to inquire about their environmental sustainability plans.

McDonald's recently agreed to survey their producers and promote best pesticide use practices based on pesticide-related concerns from shareholders.

Farmers' Market Train

By Lis van Berkel

Nova Scotia has 40 farmers' markets. Fifteen of these are in the Annapolis Valley, the richest agricultural area in the province. Many farmers drive their produce further afield—such as to Halifax's Seaport Market.

Is there a more sustainable way to get that food to market? One possibility is a "market train" to transport locally grown food between communities.

A market train is either a fresh, innovative idea or a nostalgic and romantic one, depending on your point of view. The skeptic will remind us that most Nova Scotia train tracks were pulled up in the 1990s as our society — and our food selections and cultural priorities — were reshaped by an emphasis on truck transport. That's despite the fact that trucks use 8.7 times more energy and produce nine times the amount of pollution than moving the same freight by rail.



Jen Scott

For several months this year, a handful of innovators met as a sub-committee of the Transportation Issues Committee (TIC) at the EAC. As innovators, we noted that some lines of track still do exist, notably the line between Windsor and Windsor Junction, and that these lines could be extended if government or private companies could be persuaded that the investment was worthwhile.

The most recent study available, Farmers Markets and their Economic Impact in NS: Customer and Vendor Survey Analysis, reports that \$15.6 million in revenue was generated by the Halifax market in 2003. And the average person spent just over \$40 per visit in Halifax. Outside of Halifax, the average customer spent \$20 at his or her market.

That same report says that three out of four customers drove to their market, and that most market-goers lived fewer than 5 km away. Vendors, on the other hand, traveled an average of 28 km — about the distance from today's Halifax Seaport Market building to Tantallon, or Porters Lake, or Lower Sackville. Across the board, most earned less than \$40,000 per year.

The Market Train sub-committee recognized the false economy that has gone into the scrapping of the metal track and to letting rail bridges fall into disrepair. We also realized the potential for conflict with members of the TIC group who advocate the Rails to Trails bicycle movement. But the train buffs among us aren't interested in romanticizing the past era or in resurrecting defunct technology. What interests us is saving and improving a quality of life that will enhance the health of people who live in Nova Scotia.

There are reasons to consider a market train pilot project, including that it would raise awareness about the desirability of train use:

- Many of the old stations are conveniently located in the town centre
- These same town centres are where farmers' markets are held
- The stations are central and they were planned for community use, like the markets

As a case in point, take the Halifax Seaport Market, which is situated next to a still functioning rail line that already extends from Halifax to Truro, and in between hits Enfield (which has a market), Milford, Shubenacadie, Stewiacke, Brookfield (which also a market) and Alton.

Historically, this market was located near the waterfront on Granville, alongside the old post office building. Faced with opposition from taxpaying businesses, the market was moved to a permanent building erected between Market and Brunswick at Salter Street in 1916. At that point, it had 172 vendors, about 50 more than it has today.



Jen Scott

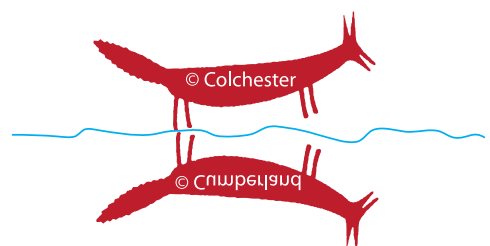
In 1974, that building was torn down, and it wasn't until 1983 that the market found a new permanent home at the Keith's Brewery.

It's one of just four markets open year-round (Wolfville, Dartmouth and Sydney are the other three) — most of the others close the Thanksgiving long weekend, and don't re-open until Victoria Day. A market train could mean more off-season markets in other parts of the province.

That trains and markets are naturally connected could be an easy sell: about 10 years ago, the Truro Development Corporation had plans to renovate its downtown rail station for a permanent market. Other towns, like Musquodoboit, have discussed using their converted train stations as market locations.

A market train would build on these impulses while promoting sustainable transportation and the work of a citizens' group like No Farms No Food, which wants county bylaws preserving agricultural land upheld in the Valley. And the mandate of the province is to promote locally sourced food. So wouldn't a market train just make sense?

Lis is a local writer and editor, and a member of EAC's Transportation Issues Committee.



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Why Local Food Matters

By Marla MacLeod



Jen Scott

“Highways make farms more productive.” This is the headline of an ad for Caterpillar Equipment found in the January 1980 issue of National Geographic magazine. The ad pictures a straight highway cutting through farmland and the copy reads:

One worries about “paving the world”. Another sees roads fulfilling the promise of fresh, varied, lower-cost food. [...] Others talk of roads as a productive tool increasing farm yields. Bringing farmers fuel, fertilizer, insecticides and machinery. Transporting crops and livestock to market. Rushing perishable fruits, vegetables, eggs to processors and consumers. Moving grain to storage and shipping points. Lowering food prices by lowering transportation costs. Improving variety and quality in grocery stores. Farmers say, “Good roads help keep production up and transportation costs down.”

My co-worker and I marveled over this ad, which she stumbled upon while perusing the old magazines in our office kitchen. Can you imagine someone running an ad like this today?

The conversation about where our food comes from and how far it has traveled has evolved in recent years. Food miles, a term coined in the United Kingdom in the 1990s, are the distance a given food travels from farm to plate. Studies examining the distance a given food travels include estimates of 2400 km for food in the U.S., 4500 km for food traveling to Waterloo ON, and nearly 8,000 km for food in the U.S. when the distance traveled by farm inputs are also included.

These and other studies prompted the Ecology Action Centre and the Nova Scotia Federation of Agriculture to undertake a three-year food miles study that examined the social, economic, and environmental benefits of a more locally-based food system. Our report, released in July 2010, examined 66 food items and found that they traveled on average nearly 4,000 km. When a weekly diet is considered, the weekly basket of goods travels a total distance of 30,666 km and emits 5.911 kg CO₂-equivalent. The distances and greenhouse gas emissions for a theoretical all-local basket were also calculated. This basket is approximately a sixth of the distance and emissions: 4,988 km and 1.017 kg CO₂e.

Why should we be concerned about the increasingly globalized food system? First is the loss of the social and economic benefits of growing food locally. A locally-based food system keeps money circulating within the community, helps maintain rural infrastructure and preserves farm knowledge.

Second, some of this food trade is redundant. Stroll through the produce section of the grocery store in October and you’ll see apples from all over the world, despite our abundance of home-grown apples. As economist Herman Daly so aptly pointed out, “Americans import Danish sugar cookies, and Danes import American sugar cookies. Exchanging recipes would surely be more efficient.”

Third, food freight is shifting to less sustainable modes. More food, for instance, is being shipped by transport truck instead of train. And road transport is publicly subsidized because highways are built and maintained with taxpayers’ money. A single transport truck causes damage equal to 9,600 cars. We are inadvertently putting more trucks on the road and taking more farmers off the land because we are not charging the full cost of using that infrastructure.

Finally, there is an increasing environmental and monetary cost of transport as climate systems are stressed from greenhouse gas emissions and our bodies are stressed from transport pollution. Eating local and seasonal food is a starting point for building a more sustainable food system. However, it is important to remember that transportation is just one stage in the life cycle of a given product. We also need to consider the environmental impacts at the production, processing, packaging, retail and waste disposal stages.

Determining energy use and greenhouse gas emissions in the food system helps us understand where we can most effectively reduce both our consumption of finite resources and our polluting emissions. A large amount of energy is used in agricultural production, from

the production of fertilizers and pesticides to on-farm energy-use. How we produce our food matters and we must move toward lower impact production methods. And beyond the farm gate? Studies of energy use in the U.S. food system show that the major energy-using phases of the system are processing and packaging (more than 20 percent of total energy use) or the household storage and preparation phase at 25 percent or 31 percent, depending on the source.

Let's also consider whether a given food item even needs to be produced. According to a Swedish study, approximately a third of energy inputs are related to food items that have little nutritional value. An American study discusses how to reduce energy use in the U.S. food system, and concluded that reducing junk food consumption would be the single most effective strategy – more effective than reducing food transport, improvements in food processing, or production technology improvements.

It is important to consider the full system when assessing energy use and emission. There has been a tendency in some recent studies to dismiss the local food movement as trendy and to diminish the importance of the

transportation stage of the life cycle. However, the interactions between the different stages of lifecycle should not be discounted and the effects of long distance transport impact other stages. Food traveling long distances often requires freezing or refrigeration. It requires more packaging and may see more spoilage. And the distance our food travels continues to increase.

So, where do we go from here? There is potential for reducing transport greenhouse gas emissions by switching to more local foods, provided that the crops are produced by methods that are of similar or increased energy efficiency compared with imports. With cold storage, preserving, and low-energy season extension techniques (such as unheated greenhouses) – at both the industrial level and the household level – there is a lot of potential to increase local food consumption throughout the year.

For foods that we cannot easily produce here, we should promote more energy-efficient modes of transportation, i.e. rail, or consider local alternatives, if they exist, e.g. honey and maple syrup in place of sugar.

I flip back to the ad in the January 1980 issue of National Geographic and re-read the copy once again. “Roads bring us our food. And most other

Take Action

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Ask questions at the grocery store, restaurants, and institutions. Find out where they buy their food and ask them to improve their labeling.

Reduce the consumption of junk food.

things in our lives.” For so long, roads have been considered an investment, and it's time to re-think what we consider an investment. Put your money where your mouth is. Money spent on local, innovative agricultural programs should be seen as an investment in our economy, our social fabric, our health, and our environment.

To read the full version of the report, visit the Food Action Committee section of the EAC website.

Marla MacLeod is the Food Miles Project coordinator. She and Jen Scott are co-authors of Is Nova Scotia Eating Local?

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Hearing from a Hero of the Planet

On October 23, 2010, Dune Lankard delivered a lecture that moved and motivated a rapt audience at Dalhousie University. Dune was a commercial fisherman in Prince William Sound until the 1989 Exxon Valdez spill. On that day, he became an activist and social entrepreneur. For his work on the protection of human rights and the environment he was selected as one of Time Magazine’s “Heroes of the Planet.” Thanks to Atlantic Ground Control and the Autopoetic Ideas Festival for hosting this powerful and affecting event and supporting EAC with some of the proceeds.

Eating (Pancakes) Locally

Our Neighbourhood Earth environmental education project culminated in a free community breakfast this August. With help from our friends we cooked and consumed hundreds of pancakes made with local ingredients. We particularly loved doing this because we met such a lovely mix of folks!



Meggy Burns

Retreat not Complete ‘til You’re Dancing

EAC’s Annual Retreat this October was held in East Chezzetcook and consisted of a series of wonderful events which invigorated, inspired and intrigued participants. Yoga, door prizes, great food, a scavenger hunt, and wild dancing were the condiments that enhanced our provocative and productive discussions.



Amy Hawke

Staff Snippets

At EAC we are always proudly welcoming new additions to the team. Recently we welcomed a new baby girl born to Energy Coordinator Brennan and his partner Miriam. We also welcomed a new book – Drive-by Saviour – born to Healthy Lawns Coordinator Chris Benjamin. Chris, though the first fiction author on our team, is now the third person on staff with a book credit to their name, joining authors Janet Barlow and Jamie Simpson. Our staff team grew to include Canvass Coordinator Benna Keoghoe and our super-awesome canvass team. We've achieved a no-net-loss of Jocelyns with the return of Jocelyn Knoester, now Communications Coordinator, from her educational leave and the departure of Jocelyne Rankin on her professional development leave in New Zealand. Our complement of Jennifers has reached four with the addition of the uniquely talented Jennifer West as our Groundwater Coordinator. Our Food Action team is creating more action than ever with the addition of three new folks. Much to our delight the outstanding Carey Jernigan has rejoined us as the Urban Garden Project Outreach Coordinator. The profoundly accurate and effective Sadra Monfared is our Heavy Metal Study Researcher. Keltie Butler not only doubles the number of Butlers on our team but as Food Connections Intern she is also a deliciously superb addition. Our marine team has been swimmingly enhanced by the addition of Jordan Nikoloyuk as Sustainable Fisheries Campaigner. We welcomed a lively flock of interns: Michael Ginther, part of our core operations team; Léonie Mercier and Heather Fleming, on the forestry team; and Danil Fitra and Byron Taylor-Conboy working with the Active and Safe Routes crew.

The counterpoint of these arrivals is the departures of some old friends. Our wonderful colleague Kelly Yeats, Communications Coordinator, is off to exciting new pastures. Sizzingly talented summer students Bryan Fung – Groundwater Researcher, Rae Finley – Neighbourhood Earth Coordinator, and Sonia Grant – Urban Garden Summer Programming Coordinator, have also bid us adieu. And Matt Miller has headed off to the woods to practise what he's been preaching so effectively as our Forestry Outreach Coordinator.

Heartfelt Thanks!

It's always a pleasure to thank people who have been exceptionally generous to us in recent days. **Bikes by Dave**, on Young Street in Halifax, has been a strong and constant supporter of our Bike Again project. This help is particularly welcomed since our amazing Bike Again team is 100 percent volunteers. **The Black Market** in Halifax celebrated its 22nd anniversary this year with a generous donation to the EAC and a number of other local charities. The gift to EAC will support our critical work on greening HRM through the upcoming Regional Plan review process. We're very grateful to the Black Market team and all their customers! **Extreme Media Group** deserves an extremely big thank you for their creative and engaging "planting change" fundraiser at this year's Atlantic Eco-Expo. How did they manage to plant 500 trees, raise funds to support EAC's work, and get green pledge from over 200 event-goers? By creating a live-streaming of a tree being planted in the donor's name.... Extremely creative!

The Status Quo is Not an Option

This is a scene from the Rally for our Forests outside the provincial legislature on the morning of October 29, 2010. The event was thanks to many tireless community groups and individuals who pulled together to show their support to the government in dramatically reducing clearcutting through new regulations. You may have been one of the almost 400 people at the singing along with Old Man Luedecke and cheering at the passionate and insightful speakers! The rally was genuinely inspiring and as EAC stalwart Simon Melrose put it, "It was a great experience to watch the EAC principals of education, honesty and cooperation so ably demonstrated."



ecohoroscopes

By Suki Starfish



Aries: Expansive, optimistic, jolly old Jupiter is in your sign for the first half of 2011, making you eager to try new things.

Always wanted to organize an event/volunteer at that cool organization/learn how to step dance or surf/start biking to work? Do it now! You'll enjoy it and are likely to be successful at whatever you try. You might want to hold off on those surfing lessons until a little later in the year – and you can, because Jupiter will be hanging out with you until June.

Taurus: As the zodiac's Bull, you feel camaraderie with all large mammals.

Sadly for us, Newfoundland's fishing industry, and endangered blue whales, seismic drilling has been approved by our government off the coast of Western Newfoundland. According to a DFO study, whales can hear each other over only 10 percent of the distance they could before the industrial revolution (100 nautical miles vs. 1,000). To confuse their communication even more, the effects of seismic blasting are thought to travel about 1,600 nautical miles. And they are not the only species affected. Send a letter right now to fellow Taurus Stephen Harper, as well as to Newfoundland's Leo Premier, Danny Williams, and ask for a moratorium on oil and gas in the Gulf of St. Lawrence. Visit <http://www.bluewhalealliance.org> to read more about this issue and to nab a sample letter to send the politicians.

Gemini: If you've been Facebooking like a mad thing but feeling like you're wasting time doing nothing important, then I have good news.

There are lots of ways you can use social media to help non-profits spread the word – and this is something at which you naturally excel. Just ask our own star-Tweeter, Sea Mouse and Gemini Sadie Beaton (www.twitter.com/EAC_SeaMouse). Re-tweet local events, share news in your Facebook status, or add a relevant link to your MySpace page.

Cancer: Your favourite place is home, so why not commit to buying local this holiday season?

You can cut the carbon footprint of the goods you buy while supporting local farmers, artists, and small business owners, and save you the stress of fluorescent-lit, crowded mall-shopping. Get a copy of our Eating By the Seasons cookbook for inspiration on yummy winter recipes using local ingredients (contact our office for details), buy an organic tree or wreath from our Christmas tree campaign, and head on down to the Farmer's Market to pick up those gifts!

Leo: Balance your natural fieriness by spending time near the ocean.

Even in the winter, a reflective walk on the beach is an excellent way to get some fresh air and exercise while clearing your head. Reflect on how delicate and valuable our coasts are to us and the many creatures we share it with. Then harness that fiery spirit we talked about earlier, to take action to protect our coast. Need to know how? Visit www.ecologyaction.ca/coastal or join a group like our Coastal Issues Committee.

Virgo: You rarely do anything for yourself - you're always about helping others.

Fulfilling as that work may be, you must keep in mind that you can only give as much as you have within yourself to begin with. Take time to recharge this month (and every month): go to a yoga class, get a massage, make yourself some organic herbal tea and curl up with an inspiring book like *Climate Hope: On the Frontlines of the Fight Against Coal*, by Ted Nace.

Libra: As one who is both gorgeous and concerned with doing the right thing, I think you will enjoy watching *The Story of Cosmetics* at <http://storyofstuff.org/cosmetics/> and letting cute little cartoons demonstrate how seriously ugly cosmetics really are. Then use your natural talent for making people feel happy and good to help your friends feel beautiful inside and out, so they don't feel like they need all that toxic gook to cover their lovely selves.

Scorpio: Venus will shine her lovely creative light on you this December, just in time for you to make your own holiday presents!

And who doesn't appreciate a good homemade gift? It's thoughtful, it's from the heart, and it's good for the environment – especially if you use locally produced and natural or re-used materials. So throw together your special blend of pot-pourri or bath salts, make ornaments from materials you gather or re-use, sew or knit or – well, you're the creative one, you figure it out!

Sagittarius: With Mars in your sign all November, you have a lot of extra energy.

So why not burn it off by biking, walking or rollerblading to work or school? (Or to the grocery store.) It may be chilly, but you'll feel warm basking in the glow of doing something good for yourself and the environment. Still got more energy to burn after that? Learn to fix and maintain your bike! If you

live in HRM, visit or volunteer at Bike Again – they're open at the Bloomfield Centre, 2786 Agricola Street on Mondays and Wednesdays from 5:30 pm to 9 pm.

Capricorn: We received a handwritten card a few months ago, along with a donation. It was from a couple of nine year-olds who had asked guests at their birthday party to make a donation to help protect Sable Island horses, instead of bringing presents.

Doesn't that just make your insides melt into a lovely warm glob of goo? Having guests give to a charity of your choice at your next big shindig, rather than bringing presents, will make you feel awfully good about yourself, and chances are, your guests will feel happier afterwards, too! Plus, think of all the ribbon and wrapping paper cleanup you won't have to do!

Aquarius: Stimulate your mind this month by delving into learning about the fascinating world of deep sea creatures. It's truly amazing how much life there is beneath the surface, like an alien landscape we rarely get to glimpse.

This deep sea ecosystem is also the source of much of our seafood, with corals sheltering young fish until they are big enough to fend for themselves - yet this beautiful world is delicate and vulnerable. And there's still more to discover: in an October, 2010 census, researchers mapped 6,000 previously unknown species. Once you've fallen in love with this intriguing world, help to protect it by joining our Marine Issues Committee or a similar group, and, if you are a piscivore, buy sustainably caught seafood.

Pisces: Whether it's working with a group to accomplish something concrete, spending quality time with family and friends, or reconnecting with your spiritual side by meditating, praying or walking in the woods, you've been feeling a need to connect with something larger than yourself.

This is a good time to harness that power to create change. You're starting to realize that you can accomplish more with others than what you can do on your own. So you are likely to have a fulfilling experience if you volunteer with a group with a vision you share, rally your friends and neighbours around a local issue, or throw a letter-writing party.

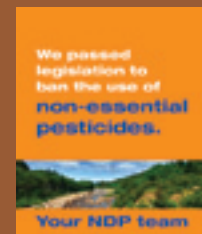
Suki Starfish is a Northern Sea Star (asterias vulgaris) She lives in the shallows near Halifax and enjoys dining on molluscs, stargazing, Bollywood musicals, and re-growing her own limbs.



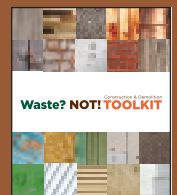
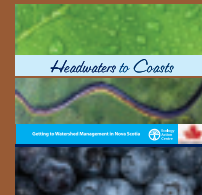
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Rally for our Forests

By Amy Hawke

“Wanted to let you know that that was one of the best rallies I’ve ever attended. I’m an aging political hippie, *rallies r us*, as it were.”

Gwen Davies



“Congrats again on the rally last week. I’ve had people commenting to me about it all weekend.... It’s tough to get anyone out for anything in the city, so the turnout was *impressive*.”

Dale Prest



“Thank you so much, Jamie and all at EAC for the work which you put into organizing the best rally I have ever attended.

Jamie, you did a wonderful job showing respect to all. It was an occasion for me to reconnect with many colleagues in **Nature Nova Scotia**, **Nature Canada**, the **NS Bird Society** and other nature clubs, the tourism industry, the academic community, neighbours and friends from across the province. Most speeches were short and inspiring. The music was a delight, and the overall mood was positive. Thanks to all who contributed.

As an amateur naturalist, small woodlot owner, member of **Ducks Unlimited** and daughter of a woodsman, I am committed to working to protect the Acadian forests and to caring for its wealth and beauty for our future generations.”

Joan Czapalay

seasonalgourmet

By Angela Hersey

Wonder Kale

Summer's lush bounty of fresh veggies is coming to a close, and if you're like me you're finding yourself adjusting to a new set of staple vegetables for the fall. One of the most rewarding parts of the summer harvest is the utter abundance of greens – salad, herbs, cucumbers, beans, zucchini, peas, chard, you name it. But as fall settles in, these veggies become less and less available at the farmer's market, and for harvest from the garden. But hope is not lost! If green is what you're going for there is one super crop that keeps producing throughout the cool autumn months, and is jam-packed with nutrients, flavour, and character.

Kale is particularly high in fiber, vitamin A, and easily-absorbed calcium, but is often overlooked as a culinary possibility. Different varieties of kale will offer a range of flavours, but most have a hint of broccoli shining through on your palate. Luckily, kale is incredibly versatile – chop it into small pieces and add it to any stir-fry, pasta sauce, or soup near the end of your cooking time. Put it on sandwiches or burgers instead of lettuce or spinach. Or use it for pesto in place of basil – it certainly won't be the same pesto you're used to, but it is definitely delicious!

But if you want to enjoy the kale completely on its own, here is a very easy and scrumptious recipe:

Kale Chips

Ingredients:

One bunch kale, any variety
2 tbsp olive oil
Any combination of cayenne pepper, paprika, ground cumin, chili powder (optional)
Salt and pepper to taste

Instructions:

Preheat the oven to 350 F.
Tear the kale off the stems and into pieces about the size of a playing card.
Spread the kale onto two cookie sheets.
Use a pastry brush to brush the olive oil evenly over the kale pieces.
Sprinkle kale with salt, pepper and other spices.
Place in the oven on middle rack for about 10-15 minutes or until kale is crispy and snaps in half when bent.
Serve immediately.

Angela Hersey is doing her Master's in environmental studies at Dalhousie, and is a member of EAC's Food Action Committee. When not reading, writing, and talking about food, Angela likes to play a good game of Ultimate Frisbee, conquer a sudoku or two, and marvel at the wonder of good compost.

action in verse

By Nanci Lee

Swarm of Starlings

Have you caught the
mottled sky?
Stipple sketch
pulled to life. Muscles
flexed in longing.

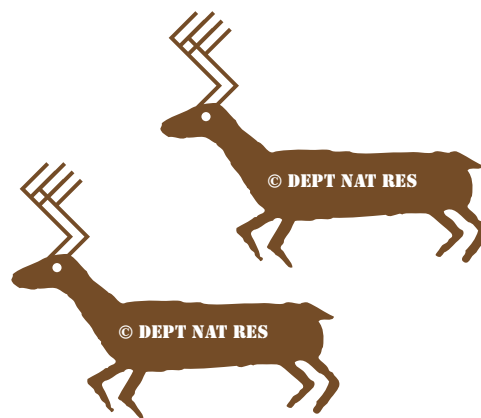
Tough to trace the lead. Each
looks to another, links to
the large. Tens of
thousands
will it,
stretch to seamless soar.

There is something social going on
here. Cellular. Phantom.
Hungry for the common
story, its taut fresh
tango.

It dives and tumbles, banks,
shift-shapes,
casting molten.

the odd shape of
truth;
twisting its tail,
opening its
throat.

*Published in Rhizoma, October, 2010
Special issue on Paulo Freire*



Catherine Sutherland: Changing the Way We Look at Jewelry

By Michelle Brunet



Catherine Sutherland

Catherine's Bronze Nest Ring

One day, Catherine Sutherland was waiting for the bus in Halifax. She clutched the hollow silver cubes she had forged in her pocket, objects she carried with her always. She noticed the shattered bus stop shelter footsteps away, perhaps the doing of a frustrated passerby the night before. Catherine picked up a cube of glass from the refuse and placed it in one of the silver cubes. Thus began her Bustop jewelry line, just one example of her endeavors to repurpose waste and create works of beauty.

Catherine moved to Halifax in 2002 to begin her art studies at the Nova Scotia College of Art and Design (NSCAD). Before coming to Nova Scotia, she was a commercial fisherman on the West Coast, where she spent the majority of her days out at sea. Catherine was inspired by the natural wonders of the marine environment. "The light on the ocean, not wanting to go to sleep at night because the beauty was endless, she says, "that nature provides pretty much anything that one needs."

Inspired by her accomplished NSCAD professors, Catherine's interests veered towards metallurgy and jewelry as part of her desire to wed her artistic inclinations with her love for nature. During her studies, she extensively researched the mining industry and how the main-stream extraction of precious metals led

to huge wastes of energy and water, an abundance of toxic chemicals leaching into wilderness environments and the exploitation of indigenous populations. Catherine decided then she was going to create jewelry differently.

As a member of Ethical Metalsmiths, a group of metal workers, jewelers and artists committed to knowing where their metal comes from and using sustainable materials, Catherine makes her jewellery from ethically-sourced materials. She purchases metals from United Precious Metals and Hoover & Strong, two American companies that sell recycled scrap metal. Catherine rarely uses gemstones besides bus shelter glass. When she does, she purchases stones from Columbia Gemstones based in Vancouver, Washington. This company markets fairly-traded gemstones that are mined legally and sustainably by workers with healthy working conditions who are justly compensated.

Not only is Catherine's process of making jewelry unique, so are the pieces themselves. She has casted organic materials, such as twigs molded in bronze to form a nest-shaped ring, and created shapes, such as fiddlehead pendants, to represent Point Pleasant Park. Her Point Pleasant collection is dedicated to all Haligonians with a deep connection to the park, connections she recognized after Hurricane Juan when she observed the city's sadness for the destruction of the park's numerous tree stands.

Currently, Catherine is in the minority when it comes to producing and selling jewellery made from sustainable materials. She hopes that, just as eco-friendly clothing made of organic cotton and hemp has caught on, consumers will start to look at charms in the same way. Although Catherine focuses on jewelry, she also expresses her concern for the environment through painting. A hand-

painted coat with an image of a cougar, a dreamy oil canvas of a forest trail and a depiction of Mother Earth in acrylic are just part of her repertoire. One particularly poignant painting, called "Of No Consequence," depicts a river of red blood with corpses afloat. It symbolizes the genocide in Rwanda and the interconnectedness of war, murder, oppressed children, environmental degradation and an unfair trade of gold.

"Art is a tool for me; a way for me to be more socially active with environmental issues," Catherine says, adding that nature is her main driving force more than the artistic process; if there are other ways for her to raise awareness she is willing to redirect her efforts.

Now living and working from her studio in Vancouver, Catherine's works are available in small shops across the country, including the Ladyluck Boutique in Halifax and the Northern Sun Gallery in Mahone Bay. The Halifax Farmers market was where she first started selling jewellery and she misses its community atmosphere. "You can show up and they'll find a spot for you - even if you have to sit on the steps."

Catherine hopes that someone will look at her pieces and understand the story of where and what they came from. She also hopes that we will follow in her footsteps. "We can make anything that isn't harmful to the environment, once we put our minds to it," she says. To view examples of Catherine's naturally inspired and sustainable works of art, visit www.fineartstudioonline.com/catherinesutherland.

Michelle Brunet is a freelance writer from Halifax. Her favourite part about writing is meeting uniquely talented and passionate people and telling their stories. Michelle loves planning nature games, walking in the woods and remembering her times hiking Korean mountains.



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 and very good at what we do.

The Seventh Estate
 PUBLIC RELATIONS GROUP

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Join the EAC

Action is our Middle Name!

marine issues

coastal issues

add your voice for change

built environment issues

food issues

voted #1 Activist Organization
by readers of The Coast magazine for seven years running

forestry issues

wilderness issues

for the present

for the future

transportation issues

Since 1971, the EAC has been working to build a healthier, more sustainable Nova Scotia

1400 members
250 volunteers, and 7 active teams and committees

EAC Index: Number of memberships signed up during our annual door-to-door canvass: 375
Percentage of those members who are now donating monthly: almost 18 **Number of days canvassed so far: 37**
Number of those days that it was too rainy to continue: 1 **Area with the most new members: Dartmouth, around Portland and Pleasant Streets**
Canada-Newfoundland Offshore Petroleum Board recently allowed seismic blasting to occur in the migration pathway of endangered blue whales.
We are fighting more oil and gas exploration in the Gulf of St. Lawrence.
How often seismic guns fire: every 10-15 seconds **How far the sound from seismic blasting can travel: hundreds of kilometres**
Distance over which blue whale vocalizations can be heard: over 800 kilometers

Recent EAC Successes:

- Fifteen Nova Scotia municipalities participated in EAC's project called "Coastal climate change adaptation: an opportunity for Nova Scotia municipalities". They are now readier to face storms, floods and other climate change impacts.
- The Green Mobility Grants, funded by Conserve NS and administered by EAC, funded \$84,300 worth of projects in nine communities that focus on reducing transportation-related carbon emissions.
- Since July our Food Connections project has hosted 6 local cooking classes, 11 preserving workshops and talks, made three giant buckets of local sauerkraut at three different NS Farmers' Markets and launched our local food blog <http://adventuresinlocalfood.wordpress.com>

The Ecology Action Centre Needs Your Help

Please fill out this membership form and return to the EAC.

CONTACT INFO:

Name: _____

Phone: _____

Address: _____

Email (for monthly e-newsletter): _____

Memberships and donations are tax deductible.
Thank you for your support.

TYPE OF MEMBERSHIP:

Monthly Contribution:
 \$5 \$10 \$20 Other: \$ _____

Annual Contribution:
 \$40 Regular \$60 Contributing/Family
 \$120 Supporting/Sustaining
 \$20 Student/Senior/Unwaged Other \$ _____

PAYMENT METHOD:
 Cash Cheque VISA Mastercard

Name on the card: _____

Card #: _____

Expiry Date: _____

Signature: _____

Date: _____

If sending a void cheque please sign above.

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