## **Death by a Thousand Cuts**

#### The Wicked Problem of Lake Winnipeg!

By Candi Bezte

while we could talk about aquatic invasive species, erosion, or the fishery, I thought we'd focus this article on one of the greatest and longest standing challenges that Lake Winnipeg faces – that of eutrophication. This is just a fancy way of saying that we are adding too many nutrients to the lake and like us, when we eat too much, our lake is getting fat and unhealthy. We are seeing more algal blooms and changes in the types of algae to less desirable cyanobacteria that most critters don't like to eat. When these large numbers of algae die and decompose, the water can become de-

pleted of oxygen and this can be a problem for all of the creatures that actually like to breathe! We won't even mention that many can also produce toxins.

I've heard this called a wicked problem, so I figured I'd look that up. A wicked problem is one that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize. The use of the term "wicked" here has come to denote resistance to resolution, rather than evil. O.K., reasonable enough, so does Lake Winnipeg really have a wicked problem?

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### **Executive Director's Message**

By Duncan M. Stokes

MONTHS SOMETIMES FEEL LIKE DAYS...you ever had that feeling?

But that's what happens when times are busy. When time flies, it usually means good things are happening. And they surely are at our office.

First of all I'd like to welcome two new team members to the Manitoba Eco-Network.

Candi Bezte was hired as our Water Caucus Manager this Fall. Candi has degrees in biology, environmental studies and zoology, and



both her bachelor's and master's theses focused on aquatic toxicology. Candi worked in aquatic environmental consulting for a decade, where she carried out assessments of water and sediment quality, created aquatic monitoring programs, assessed water and sediment chemistry and phytoplankton population data and authored numerous reports and components of environmental impact assessments. Candi jumped right into some field work, representing us at the Standing for Mother Earth Conference teaching some eager youth about water. (See photo below)



HOTO: DUNCAL

Veronica Sharkey was added as our Office & Membership Coordinator shortly after Candi's arrival. Veronica has a BA Honours degree from the University of Manitoba. Veronica has an interest in the intersections between social and environmental justice. Her recently completed bachelor's thesis focused on food security and food sovereignty. She spent one year studying abroad in Seoul, South Korea, and more recently has returned from six weeks of service-learning in Leaf Rapids, Manitoba. Veronica has already planned a student Green Drinks at University of Manitoba for January.

We're thrilled to have both Candi and Veronica on board!

Planning for the 2018 Reel Green Film Festival is underway. This year's RGFF will once again be held **March 21, 2018, at The Met**. Stay connected for more details to come – we'd love to have you there!

Green Drinks is back! On the first Thursday of every month, join us at the King's Head Pub & Eatery. It's a good time to chat about common eco/enviro interests, enjoy a meal or just relax. Check out our website, Twitter, or Facebook page for details. Doesn't it look like fun?

Thank you to the managers and staff at Manitoba Eco-Network's Climate Change Connection



PHOTO: DUNC

and Water Programs, as well as the Green Action Centre, Wilderness Committee, Prairie Climate Centre, Manitoba Wildlands and the Manitoba Energy Justice Coalition. The groups collaborated to stage a public town hall and roundtable discussion on Manitoba's Climate and Green Plan.

For more environmental event listings see our website calendar at www.mbeconetwork.org.

More than 130 people attended the event at the University of Winnipeg's Convocation Hall. All the panellists were exceptional! The Manitoba Eco-Network is especially proud of two of its program managers; Curt Hull of the Climate Change Connection program and Candi Bezte of our Water Caucus program. They represented extremely well and reminded us how lucky we are to have them as part of the Manitoba Eco-Network team.







I'd like to extend a welcome to Teresa Looy of the Green Action Centre to the Manitoba Eco-Network Board of Directors. Teresa is the composting manager for GAC. We welcome the skills, expertise and perspectives that Teresa will bring to the MEN Board.

Welcome Dan McInnis. Dan has previously served on the MEN board and has remained an active member of our organization. Dan's experiences with financial and operational management are wonderful assets for our board to draw from and we welcome his contributions.

Finally, if you don't follow us on Twitter, like us on Facebook or haven't checked our Instagram, give us a click.

I hope your holidays were fun and safe. I hope the rest of your winter goes the same way.

Thanks for your time.

#### $\Im$ Goat Milk Soap Workshop

6pm-10pm, Aurora Farm

Learn how to make goat milk soap from scratch. Make your own designer batch of soap and take it home at production costs. PLEASE NOTE: Cutting and picking up of the soap will be the following day from 6-7pm. Cost per session: \$50 Plus materials.

#### 7 Fire Yoga

11 am, Fort Whyte Alive Enjoy a 45 minute Yoga session outdoors around roaring flames! After practice, enjoy some wildcrafted tea, and take advantage of advanced presale ticket opportunities for Fire+Ice for all in attendance. www.fortwhyte.org/event/fireyoga/ ?instance\_id=13999

#### 14 Ice Yoga

11:00 am - 11:45 am, Fort Whyte Alive Enjoy a 45 minute yoga session outdoors on our frozen lake! After practice, enjoy some wildcrafted tea, and take advantage of advanced pre-sale ticket opportunities for Fire+Ice for all in attendance.

#### JANUARY & FEBRUARY

#### **Living Prairie Museum**

10:00 AM to 4:00 PM

Drop in for free snowshoeing on the first and last Sunday of January and February. No experience required, and we supply the snowshoes! Sizes are available for small children to adults. Be sure to wear winter boots!

#### 5 Six Months in the Boreal Forest

Nature Manitoba

Jennifer and Juan Pablo paddled into the forest and lived there for half a year in 2016. What was it like to be away from civilization for that long? How did they live and what did they learn about nature, society, and themselves? They will take you through their greatest adventure, and talk about the challenges and outcomes of their journey.

#### 26 Rarest of the Rare: Manitoba's endangered plants

Nature Manitoba

The term endangered species conjures up images of majestic mammals and colourful orchids in remote places of the world. But Manitoba also has rare species although they are not always what you would expect. In this lecture the Manitoba Museum's Curator of Botany, Dr. Diana Bizecki Robson, will talk about her years of study of the rarest plants of Manitoba. You will come away with a new appreciation of the plant world and the intricate ties that bind species together.

#### MARCH

#### 10 Spay-Ghetti Dinner 2018

The date is set for Craig Street Cats' next Spay-Ghetti Diner. Hosted at the Viscount Gort Hotel, tickets available online in January 2018.

#### 21 Reel Green Gala 2018

Our 8th annual Reel Green Gala is the Manitoba Eco-Network's annual fundraiser and a chance to support positive environmental awareness, education, and action within this incredible province. Join us for a relaxed evening of reconnection with friends and with the beauty of the natural world around us. Inspiring films, tasty eats, incredible live and silent auction prizes.



## The Prairie Climate Centre

#### ...and the Prairie Climate Atlas

By Stephen Berg

THE PRAIRIE CLIMATE CENTRE (PCC) was established at the University of Winnipeg in 2015 by the International Institute for Sustainable Development (IISD) within the Richardson College for the Environment, through funding by Great West Life Co. and the Province of Manitoba. The goals of the PCC are to inform residents, businesses, and governments of the risks and potential effects of humancaused climate change on their lives, work, and property. These goals are met through detailed

research, press releases, a climate change in the news section, educational campaigns, a scientific discussion on their blog, and other methods. The PCC has also been consulted by stakeholders to work on examining future hazards from climate change for their areas, such as for Calgary and Edmonton. The Prairie Climate Atlas (PCA), which illustrates the likely future climate of the Prairie Provinces (Alberta, Saskatchewan, and Manitoba) as projected by sophisticated climate models, is also a major project within the PCC.

Some of the analyses included within the PCA include scenarios of average temperature for the prairies under two scenarios: highcarbon (higher greenhouse gas emissions or business-asusual) and low-carbon (sub-

stantial greenhouse gas emissions reductions). These two scenarios show stark differences, with a difference in average temperature increase of approximately 3°C by the year 2095. These averages translate into significant shifts towards a more extreme climate, particularly with respect to very hot days. For example, Winnipeg historically experienced approximately 11 days per year above 30°C. Under a low-carbon future, that number is expected to triple, but under a high-carbon future, the expected number of days above 30°C is expected

to increase by 35 days, for years within the 2051-2080 period.

-30°C is expected nearly to vanish by the same period. Historically, Winnipeg experienced about eight days below that temperature, but even in a low-carbon future, that number is expected to decrease to two days. Most alarmingly, though, is the decrease in the number of cold days in Churchill, MB, which decreases 11-fold from 44 to just four days under a

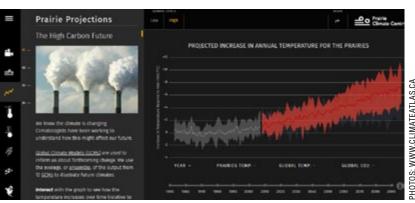
the expense of snowfall as well as the increase Conversely, the number of days colder than in the frost-free period could permit soils to dry out, which could harm agricultural activities and make crop production more difficult. This is especially likely given that precipitation would likely come in larger amounts over a single event rather than in smaller amounts over multiple events, which could lead to greater

> flooding events, as well as longer dry periods. The final major analyses presented within

> and Saskatoon, SK). The increase in rainfall at

the PCA are illustrations of the future climate zone of the Winnipeg area in the 2080s. Under the highcarbon scenario, Winnipeg's winter climate becomes similar to that of northern Iowa, but under the lowcarbon future, this shifts to central Minnesota. The summer climate sees the largest shift, however. Under the high-carbon future, Winnipeg's climate would resemble that of an area centred on western Oklahoma, whereas under the low-carbon scenario, this shift would be towards a climate like northern Nebraska. These shifts would pose a major risk to the infrastructure and health care system of Winnipeg, not to mention the agricultural sector of southern Manitoba. Should a change in the

O Circuis Com



high-carbon scenario and to 10 days under a low-carbon future. These changes will likely be extremely detrimental to the Polar Bear population in the area, if not catastrophic.

In terms of precipitation, Winnipeg is expected to receive greater precipitation throughout the year, but likely far less in terms of snow. The amount of change depends on the carbon scenario, however. In other parts of the Prairies, however, the change in temperatures could increase evaporation in areas with slight increases in precipitation (such as in Medicine Hat, AB,

summer climate to that of western Oklahoma occur, greater droughts, flooding events, severe thunderstorms (including tornadoes and hailstorms), and more intense heat waves would likely result. The best way to minimize these risks and potential hazards, the PCC states, is to avoid a high-carbon future.

Readers can reach the PCC at their website (http://prairieclimatecentre.ca/), which includes links to the PCA (http://climateatlas.ca/), as well as their blog, press releases, climate change in the news, publications, and other materials.



## Stay Active This Winter

### ... with the Jack Frost Challenge!

By Elizabeth Shearer



EVERY YEAR IN FEBRUARY, hundreds of Manitobans prepare for a bone chilling and heart-warming event — Bougeons en Hiver: The Jack Frost Challenge. This free event encourages participants across the province to sign up to skate, cross-country ski, run, snowshoe, cycle and walk a total of 130km during the week, either as a team or individual. Workplaces also get in on the fun, as dozens of offices sign up to bring this festive challenge to their employees.

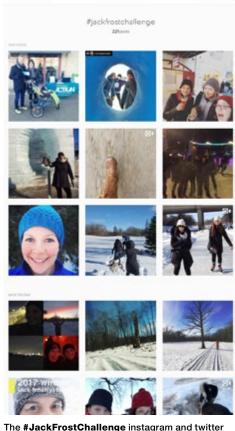
In 2017, 114 teams signed up which included families, school groups, office teams and active pals. Teams are made up of one to five people, but some folks are motivated to take on the challenge solo, tracking 130km during the challenge all by themselves! Last year, 388 people signed up to challenge themselves and their teammates to rack up winter fun kms throughout the week and, in so doing, avoided 3,600KG of CO2 while collectively travelling over 16,000km outdoors in one week for the challenge!

I am someone who is known to embrace an early-onset winter hibernation. Most winters I can be found curled up under blankets with a good book or with a Netflix series on standby. Last year was my first year working with Green Action Centre, and the very first task I was assigned was to organize the Jack Frost Challenge. I ended up walking to work every day during the challenge and once even skated

Being in nature has so many benefits, and we are often unmotivated to get outdoors to enjoy these benefits just because of the weather. Jack Frost Challenge encourages you to stay active and get outdoors to celebrate winter Manitoba-style!

to work with my colleague along the river trail! It totally motivated me to get moving outdoors in a way I often avoid because I think it is "too cold." This winter I am going to challenge myself to get into cross-country skiing by renting them from my local ski shop, and might even hop on two wheels to test out our winter bike routes in Winnipeg.

Being in nature has so many benefits, and we are often unmotivated to get outdoors to enjoy these benefits just because of the weather. Jack Frost Challenge encourages you to stay active and get outdoors to celebrate winter Manitoba-style! During the challenge Green Action Centre hosts a Kick Off Event (Saturday, Nov 11th, 2018) and Wrap Up Event (Sunday, Nov 17th, 2018) while promoting outdoor activities you can participate in during the week. We also offer really great prizes to sweeten the deal, which adds that little bit of extra incentive peo-



feeds are full of friendly folks (and sometimes dogs) who have been taking on the challenge. Add your frosty images to the conversation!

ple often need to get out there and participate in new activities and log participation online.

#### **Jack Frost FUNdraiser**

In addition to getting active and having fun outside, we are asking that participants help us raise funds for Green Action Centre by collecting pledges for your participation, or by becoming a paid supporting member of Green Action Centre (only \$20 for individuals). Raising money is not required to participate, but if you are interested, you are invited to collect funds from your family and friends with our easy to use pledge form. When you participate in our FUNdraiser you are eligible for even more prizes!

For a full list of prizes, event details and how to register for this year's Jack Frost Challenge visit www.GreenActionCentre.ca or email Liz@ greenactioncentre.ca. Hope to see you out on the trails this winter!



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#### Thousand Cuts cont'd...

If we delve deeper into the meaning of what a "wicked problem" is, there are apparently six criteria that need to be met:

- i. You don't fully understand the problem;
- ii. As there is no fully defined problem, there is no fully defined answer;
- iii. Solutions are not right or wrong they are simply good enough or not good enough;
- iv. Each wicked problem is unique and novel no two are alike;
- v. There is no given alternative solution; and
- vi. Every solution is a one-shot operation with consequences.
  You can't learn about the problem without trying solutions, but every solution is expensive and has lasting consequences that may spawn new wicked problems.

If THAT is what a wicked problem is, then perhaps Lake Winnipeg doesn't have one. To be

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one location that is going

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because it comes from so

been occurring for so long.

many sources and has

sure, Lake Winnipeg has a great many challenges that led and continue to lead to its eutrophication, but perhaps the problem isn't as wicked as it might at first seem. For example, and no one has ever argued against this – we know that we

need to reduce phosphorus inputs to the lake. We understand the problem quite well (point 1), it has been studied worldwide for decades. While there are some who would say we should also remove nitrogen, all are in agreement that we must remove phosphorus. So, we have a basic understanding of the problem and a direction to proceed – cut the amount of nutrients getting to the lake, in particular, phosphorus (point 2).

What about some of the other components of a wicked problem? I think agreement that any removal of phosphorus is a good thing is a great place to start and is a right solution, so I think we are OK on point 3. The problem is not novel (point 4). Though our lake is somewhat unique in that it is so large, shallow, and has an absolutely massive drainage basin relative to the volume of the water it contains, the problem of eutrophication has been well studied all around the world. Regarding point 5, the alternative solutions are to remove phosphorus or remove nitrogen and phosphorus and also, increase wetlands and work to keep

the water on the land – so, we do have some alternative solutions, all of which would benefit the lake. Finally, while some of the solutions are definitely expensive, it is unlikely that implementing any one of them would lead to new wicked problems. Perhaps I'm being simplistic here...but we really need to stop stalling and take action for our lake! Regarding solutions sometimes done is better than perfect!

I called this article death by a thousand cuts. This saying refers to a failure that occurs as a result of many smaller problems. What I mean is that there is not one thing at one location that is going to completely fix our lake's eutrophication issue, because it comes from so many sources and has been occurring for so long. Some have been known for a long time, while others are just being talked about more recently. Here are some of the key players in this game of eutrophication that we have been playing with our Great Lake. In no particular order...

Municipal sewage from communities, especially the south and north end City of Winnipeg sewage treatment plants. These are the single

largest point sources that we could do something about. A point source is one that happens, for example, at the end of a pipe – i.e., you can point your finger at the source and know exactly where it is. Most of the other sources of

nutrients to Lake Winnipeg come from all over the landscape, from non-point sources. This is part of the "thousand cuts" issue. Treatment at these plants could remove approximately 4-5% of the total amount of phosphorus getting to the lake on an annual basis. Regarding sewer overflows, while I do agree that we need to address these, it is estimated that they contribute about 0.3% of the phosphorus load to the lake. The problem with all of these issues is cost. Perhaps we need to revisit exactly what is going on with how much the upgrade at the north end plant is estimated to cost. A recent article pins it at \$1.4 billion! Perhaps we could start with implementation of a stepwise process, because doing nothing for decades has not been good for our lake!

The historical draining of our wetlands. In the Red River valley it is estimated that we have lost upwards of 90% of our original wetland area. Wetlands are vitally important as they filter out nutrients, sequester carbon, and reduce the amount of runoff to our local waterways. They protect from floods, reduce impacts







of droughts, and function as a kidney system for our lakes. Regardless of what the land is used for, the loss of these wetlands would have had a significant effect on the lake.

The poor health of Netley-Libau marsh. Regarding wetland loss, one big challenge for Lake Winnipeg is the poor condition of the Netley-Libau marsh at the south end of the lake. It appears likely that the greatest contributing factor to its ill health is the "Netley Cut", a drainage ditch that was dug between the marsh and the Red River in 1913. This was an attempt to drain the marsh, and while it began small, the Netley Cut has been actively eroding so that it is now a channel about 1/2 a km wide. It is estimated to carry about 1/3 of the Red River discharge that would not otherwise flow into the marsh at all, directly into the marsh. Other issues with the marsh include the wet climatic period we've been in, the lack of dredging of the Red River, which is estimated to have led to even more

CANADA

water being diverted through the Netley Cut, and the presence of Hydro keeping lake levels from drawing to low levels. Marshes need to have periods of low water levels to help seed new plants and maintain health, and this hasn't happened much recently for the reasons mentioned above. Regard-

ing the mention of Hydro - the scientific data shows that this is not the primary cause of ill health with the marsh and, in fact, because Lake Winnipeg Regulation allows for increased flow out of the lake it may have been more of a help than a hindrance in the wetter years.

The use of agricultural fertilizers of all kinds has led to an increase in nutrient runoff to the lake from fields, in particular, those in the Red River Valley. This applies especially to swine manure because it contains more bioavailable phosphorus and nitrogen that tend to leach more from fields than other types of fertilizers. Also, the application of fertilizers well into the fall can also be a problem as much simply runs off in the spring. Thanks to the Lake Winnipeg Foundation (LWF) Community Based Monitoring Program we are beginning to get a better picture of exactly how much phosphorus is coming off of the land and a better idea of where it is doing so. The increased sampling frequency and number of locations sampled will really help to shed some light on this local issue. Kudos LWF! Once we have a better handle on exactly what is going on, we'll need to work with the producers to see what changes we might be able to implement to help stem the flow of these nutrients to our lake while increasing their efficiency of use for the producers.

Tile drainage from agricultural lands along the Red River Valley. Tile drains are basically perforated plastic pipes that are dug into the soil below cropped areas to help them drain better and they can also be used to lower the water table. This gives farmers more control over when they can get on the land, what they can grow and has been shown to increase yields. Years ago it was thought that tile drainage should reduce the amount of phosphorus coming off of the land, but the current science shows that this is not the case, and that these systems are releasing more water and nutrients than previously thought. With over 200,000 acres under tile drainage in the Red

> River Valley in North Dakota and increasing installations north of the border, we need to begin paying attention to this issue. There are different methods of application and means of containing, reusing, or even treating the water that can be assessed. Free flowing tile drains do not appear to be good for our

lake...more study is definitely required here.

Internal phosphorus loading. What?! As if it wasn't bad enough that we have so many sources of nutrients gaining access to the lake from the outside, the lake stores much of this phosphorus in its sediments and can resupply it to the water column. Even when we do dramatically reduce the amount of phosphorus getting into the lake, it may be a long time before we see notable recovery. This means we really need to ramp up our efforts to understand exactly where this phosphorus is coming from and do what we can to stem the flow.

Climate Change. Darned that meddling issue that sticks its nose into everything! In the last State of the Lake report, increased discharge and phosphorus inputs were noted coming down the Red River. In short, we are in a wet period that is elevating lake levels and resulting in increased runoff from fields. Many of these fields are also being drained to a greater degree

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Driving to Change the Forecast

By Janaiya Wiebe



AS LEADERS IN SUSTAINABILITY education in Manitoba, FortWhyte Alive (FWA) is putting the pedal to the metal to encourage green driving, especially when active transportation

We are proud to add the ownership of the first 2017 Chevrolet Bolt all-electric vehicle in Manitoba to our growing list of sustainability initiatives. The Bolt is now FWA staff's mandatory 'first-choice' for off-site business or personal trips, and will reduce emissions due to employee-related transportation by approximately 20,000km/year, or approximately 4.6 tonnes of CO2e. Despite our location within the City of Winnipeg, there is a significant distance for staff to travel to obtain necessities for our operation. The Bolt will make these trips efficient and educational as we promote emission-free transportation throughout the City.

is not accessible.

FWA knows that a considerable reduction in fossil fuel consumption, especially through motor vehicle use, is a crucial step to reduce our greenhouse gas emissions.

The Chevrolet Bolt is an exceptional motor vehicle. Not only is it spacious, beautifully designed and equipped with all the bells and whistles one could ever need, a full charge provides a range of 383 km. Vickar Chevrolet's generosity helped make this dream a reality for us, and we certainly have been putting it to good use.

FWA knows that a considerable reduction in fossil fuel consumption, especially through motor vehicle use, is a crucial step to reduce our greenhouse gas emissions. We believe that every action we take is important to change the outcome of past and current practices. With our Chevrolet Bolt we hope to educate and inspire our community to work individu-

ally and collectively to change the forecast on climate change.

Watch for us Bolting around town! It is boldly branded and good looking - give us a wave if you appreciate the steps that we are taking to encourage sustainable living. Stop by FortWhyte Alive to have a peek as you might find the Bolt parked by one of our electric vehicle charging stations outside of the Alloway Reception Centre. We boast two conventional chargers and two Tesla chargers to help our fellow green drivers get where they need to go. Our new Electric Fleet Vehicle and charging stations drive our mission forward as we foster sustainability in our community and beyond.



## **The Compost Courier Diaries**

By Jaret Olford

**COMPOST COURIER** - one who takes pleasure in collecting organic matter from the masses with the intention of converting it to black gold (soil).

As the old saying goes 'Compost is as Compost does'. Well, maybe it's not that old a saying. I invented it last week. But it makes sense and has become my mantra. Compost it is both a verb and a noun (colloquially speaking anyway, back off you word elitists). And for the past year and a half it has been the focus of my work life. Watching it decompose. Smelling it. Touching it. Tasting it (not on purpose).

I am a Compost Courier.

Compost Couriers are the folks who hit the streets and collect organic material from all sorts of places; offices, restaurants, homes, schools, malls, etc. And we have a good time doing it! We work for Compost Winnipeg; a mid-scale composting service that caters to offices, multi-family residential buildings, onsite composters, small restaurants, and cafes.

As Compost Couriers, we've seen it all. There always seems to be something new and exciting in our world - like the time we ran into George Strait, or the time Vicki got stung by a wasp after saving a bee, or the time Sara and I got the truck stuck even tho it wasn't stuck (how?), or the time I fell backwards into a steaming pile of decomposing pizza pops (and I liked it!). Sometimes the organic matter we pick up is lovely, like flavoured tea. Or cinnamon. Sometimes, not so much. But we persevere.

How could we not? Our job is rife with perks! We get to try coffee at all the best coffee joints (Fact - they are automatically the best cuz they compost with us). We are out in nature all day and see amazing things - our bird species count alone numbers in the dozens. We are stopped constantly by curious pedestrians who see us loading organic matter and want to know why our truck is being followed by seagulls, and

we get to chat about compost and spread the black gold gospel. And sometimes, if we're really lucky, Doughnuts might let us sample one of their newest creations. Compost couriers have very refined tastes, ya know.

Yes, we compost couriers are quite an amazing group. Heroes? Well, I'll leave that up to you to decide. But I will add that Vicki once saved a Rose Breasted Grosbeak.

Folks, I can't tell you all our stories and secrets in one article, so be sure to visit our blog and learn more about our adventures and adventurers. Visit www.greenactioncentre.ca and click on the blog tab. There's more to come and much more to share. We haven't even mentioned Eco Stu yet! Or talked about Kelly's New York City Compost Mission. Or painfully gone through a list of all the prettiest flowers I've seen in clients' gardens, ranked by colour and genera. Or the time we...



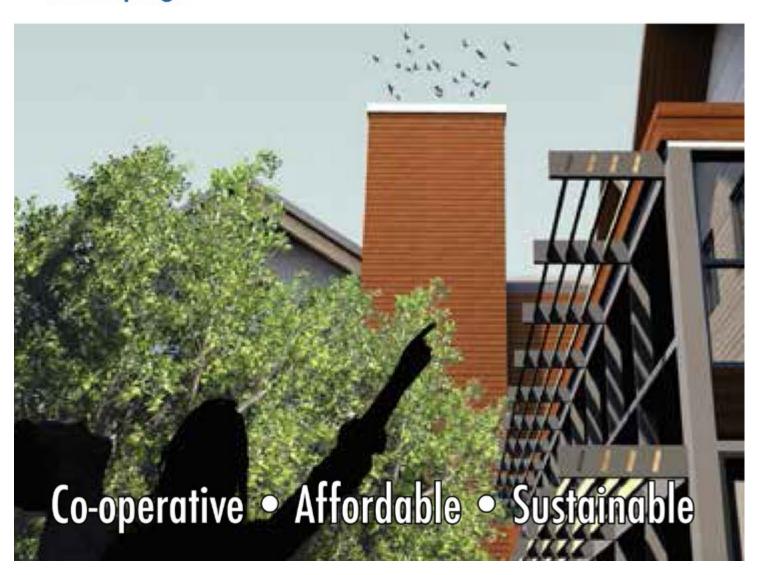
HOTOS: JARET OLFORD

# **Help house our Chimney Swifts**

Old Grace Housing Co-operative is including a Chimney Swift habitat as part of our development in Wolseley.

Learn how you can help at:

www.gofundme.com/chimney-swift-habitat-inwinnipeg



#### Thousand Cuts cont'd...

via tile drainage. Add that all together and this wet period has not been good for our lake. While precipitation in the eastern Red River watershed was 20% higher between 1996 and 2005 than the average for most of the 20th century, the amount of runoff from the watershed more than doubled. This may be due to "flashier" precipitation events (i.e., larger rainfall events that result in higher amounts of surface runoff), but some of it might be from the notable increase in tile drainage that has occurred throughout the region. Either way, with climate change, the prairies are anticipated to receive more precipitation in the fall, winter and spring and less in the summer. As most of the phosphorus appears to be entering the system with the spring melt and early rains, this will serve to increase the amount of phosphorus getting to our lake. Combine this with warmer and drier summers and we have the perfect storm for increasing the problematic algal blooms we are already beginning to see on the lake.

Manitoba Hydro. While some may like to argue this point, the science is pretty clear that Lake Winnipeg Regulation is not a key player







in the eutrophication of Lake Winnipeg. That doesn't mean that it isn't having any role... only that the role is not nearly as notable as everything else mentioned above. It would be a very tiny paper cut...barely breaking the skin.

So, what can be done? While we shouldn't ignore

the other sources of water to Lake Winnipeg, we can't ignore the fact that 68% of the phosphorus enters from the Red River. That slightly more than ½ of this phosphorus comes from south of the border means that we need to work together with our southern neighbours to see what can be done, however, we need to lead by example. We can't ask them to address the problem without taking action ourselves. The time to point fingers is over – we are all in this together and we all need to work together for the benefit of our lake. Farmers are not purposefully trying to destroy the lake, just as those of us who live in the city are not purposefully trying to destroy the lake every time we flush the toilet. Nevertheless, each of our actions adds one more cut. I am hopeful that by working together on the issues above, that this next decade can bring some much needed progress, and that we can move towards a healthier lake in the future.

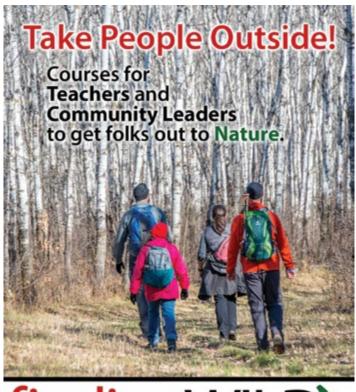


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