IISD
Experimental Lakes Area

IISD-ELA
2019–2020
Annual Report

and activity book!

Lakebound to Homebound

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MESSAGE FROM CHAIR OF THE BOARD AND EXECUTIVE DIRECTOR

We are probably stating the obvious when we say that this has truly been a year like no other.

The world's freshwater laboratory was born from a culture of innovation, and we have always depended on that spirit to help us weather the storms we have encountered over the last 52 years.

This year is no exception.

Responding to the latest shifts in human behaviour and freshwater usage is in our DNA. It informed our genesis back in the late 1960s when algal blooms were blanketing North America's lakes and has inspired every major research project since.

Now that we have entered an era backdropped by a global pandemic, we have expanded our portfolio—asking new questions about the impacts of related surges in freshwater and detergent use, pharmaceutical drugs, and the use of plastics. Our research over the next few years will seek to answer many of these questions. (You can read more about how our research is responding to COVID-19 on page 8.)

And what about the scientific process more broadly? Can we still monitor lakes and maintain our unparalleled 52-year environmental dataset from our home offices when we are not allowed into the field? Is there an increasingly significant role for citizen scientists and community-based monitoring programs? And how can we create future-proof research projects that can be easily adapted to whatever vicissitudes may come?

While much of our work on data and freshwater health was already tackling these issues head-on, it now takes on a much more pronounced urgency.

We rightly dedicate many column inches in every annual report to championing the tireless dedication of the IISD Experimental Lakes Area team—allow us to duly double down on those accolades this year. From the researchers who significantly adjusted their schedules in the field to the outreach teams who completely overhauled their methods and messaging, everyone has dipped into that IISD-ELA spirit of innovation to enable us to continue to thrive in one of the most challenging chapters in our history.

And a special thank you goes out to our many partners, supporters, and funders who recognize the critical nature of the work we do and have maintained their unwavering support during these unprecedented times.

Speaking of innovation, we wanted to bring you something a little different this year for our annual report.

Inspired by hours under lockdown and years of Canadian summers at the cabin (or cottage), allow us to present this activity book that will have you puzzling, chuckling, and even experimenting with your friends and family—all while learning more about the world's freshwater laboratory's 52nd glorious trip around the sun.

Jane McDonald
IISD-ELA Chair of the Board
IISD Executive Vice President

Matthew McCandless
IISD-ELA Executive Director
IISD Senior Director, Fresh Water

ACTIVITY: WORDSEARCH

N K N H C X Q Y S F M Y I C W B D D E U
M N F D Y U G O R E R S A T O X M L S I
I R M Z R O W E E T L T I P V O A N T Y
R Q E I L O S U S L T E R N I N O U R T
G Z K O C H S I V A I H N X A I J S O R
I Q C P W R M V I D Z B I I T G H B G O
N E W A F E O L P B I G O A U N R U E U
R C T Y H T S P G Y U L T M E M H O N T
L E Y C A Y Z B L Z Q N B M W A T M O P
R S D N A L T E W A E X W I J O W U I S
W A T E R S H E D M S M W J T E N U R U
M E R C U R Y Y I Q J T H E Q J C S A S
Q D M E T E O R O L O G I C A L I A T T
S R I O V R E S E R V N B C Y H H U N A
O Q S C E P R I K E E N B V S M P D O I
Z S V C X D K R B C I U K E W Y O Q O N
X U T E R G T D C S O L G D R Z R W V A
I F F F G J X R K S X T E Q Q M T O E B
L B X V J U O P A C F G U A U Q U K W L
O V N X M U Q W T U M A P Y I W E J Y E

across • backwards • up • down • diagonal

cattails
chemistry
dilbit
ecology
estrogen
eutrophic
experimentation
freshwater
mercury
meteorological
microplastics
Ontario
organism
reservoirs
selenium
snowmobile
sustainable
trout
watershed
wetlands

A Research Season Like No Other

This is not the message we had planned to write this year.

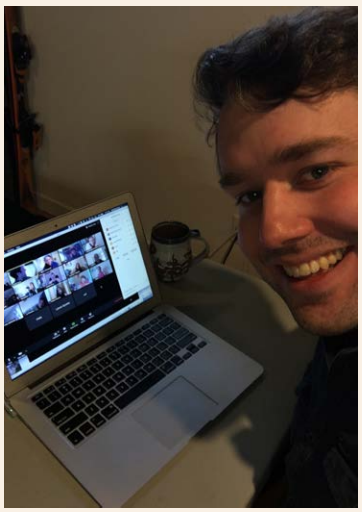
Our 2019 summer research season had, yet again, proven to be an unmitigated success. Our research exploring the impact of oil spills on fresh water—and how best to clean them up—continued to explore new avenues of investigation (and grabbed the front page of Canada's biggest daily newspaper, *The Globe and Mail,* in the process). We kicked off preliminary work necessary for a larger experiment on the impact of microplastics on lake health and ecosystems. And, of course, our perennial lake monitoring and research on algal blooms continued unabated.

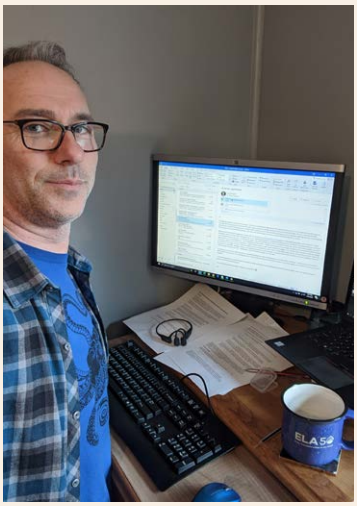
Then COVID-19 arrived and the world changed—and the world's freshwater laboratory was compelled to change too.

As the world twisted and turned at an unbelievable pace, our priority remained in place: to safeguard the health of our dedicated team of employees, research partners, and, of course, local communities.

The subsequent research season, therefore, looked very different, with only small groups of researchers allowed at the site at any one time (their trips bookended by two-week stints self-isolating), to keep existing research going and to ensure that our long-term monitoring dataset remained unbroken.

While we started no new research, the pandemic has opened up some new opportunities to make lemonade out of those proverbial lemons.

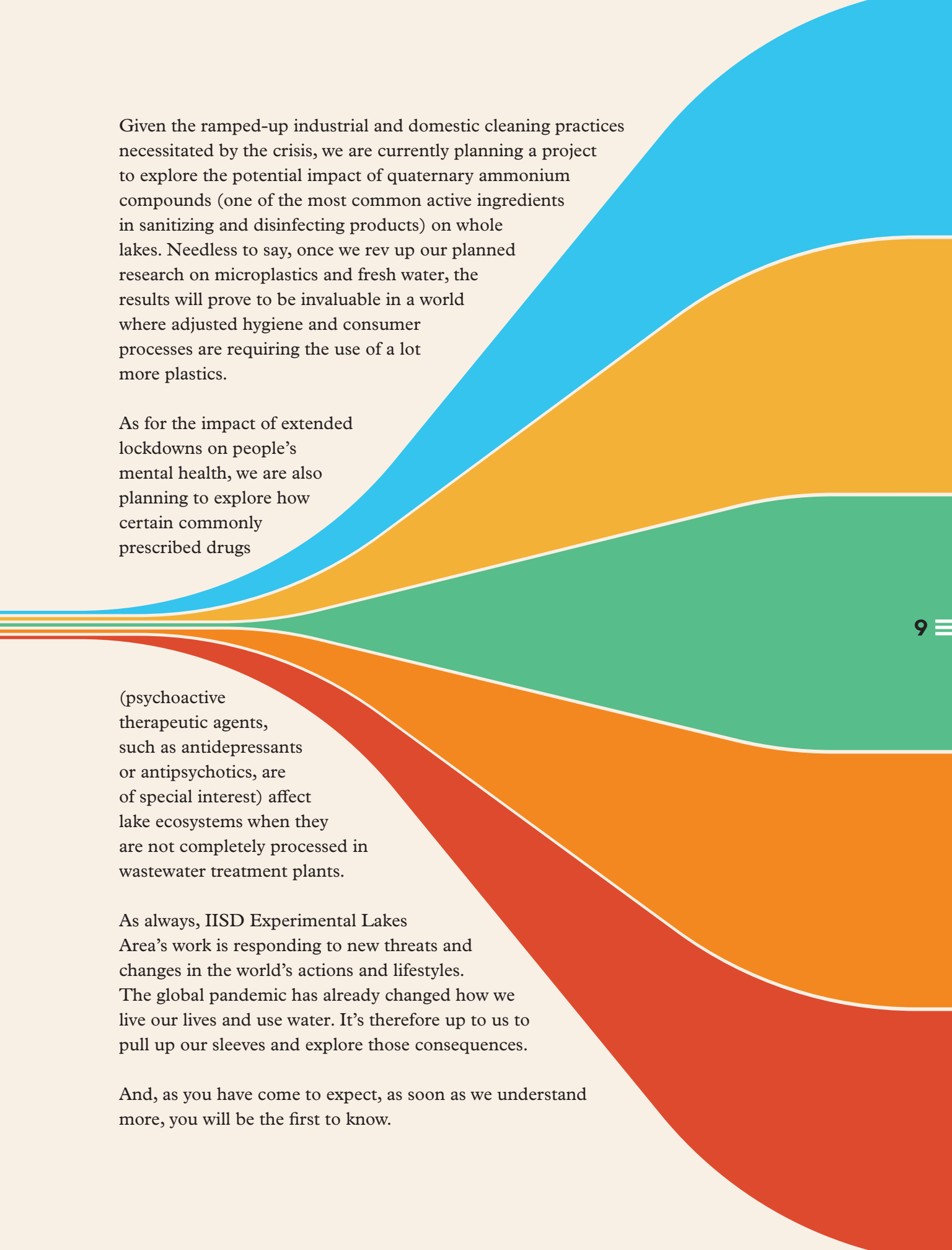




Much of IISD-ELA's research has been conducted in our team's living rooms, porches, and backyards this year as we worked mostly from home.

Given the ramped-up industrial and domestic cleaning practices necessitated by the crisis, we are currently planning a project to explore the potential impact of quaternary ammonium compounds (one of the most common active ingredients in sanitizing and disinfecting products) on whole lakes. Needless to say, once we rev up our planned research on microplastics and fresh water, the results will prove to be invaluable in a world where adjusted hygiene and consumer processes are requiring the use of a lot more plastics.

As for the impact of extended lockdowns on people's mental health, we are also planning to explore how certain commonly prescribed drugs



(psychoactive therapeutic agents, such as antidepressants or antipsychotics, are of special interest) affect lake ecosystems when they are not completely processed in wastewater treatment plants.

As always, IISD Experimental Lakes Area's work is responding to new threats and changes in the world's actions and lifestyles. The global pandemic has already changed how we live our lives and use water. It's therefore up to us to pull up our sleeves and explore those consequences.

And, as you have come to expect, as soon as we understand more, you will be the first to know.

ACTIVITY: SPOT THE VOLLEYBALL

Take a look at the image below. Can you spot where the volleyball should go?

Once you think you know where it is, draw the ball in the photo, and check the Answer Key in the back to see how close you were.

Find a friend and ask them to provide you with all the missing words below, without letting them see the story. Once completed, you will have your own silly story about IISD Experimental Lakes Area.

Three summer seasons ago, _____ (person) and I _____ (adverb) travelled the long and windy Pine Road to IISD Experimental Lakes Area in a custom-built _____ (mode of transport).

On arrival at the site, the _____ (profession) asked us where we would like to _____ (verb).

"Well, in the _____ (place), of course," I replied _____ (adverb).

"Are you sure?" they exclaimed in _____ (emotion), "it's still very _____ (adjective) from the last time _____ (person) was there!"

Sure enough, we were _____ (adjective) to discover, it was full of _____ (noun) and lake trout fresh from the morning's _____ (activity).

"This is _____ (adjective)!" we exclaimed, in unison.

"Now, we need to _____ (verb of movement) to the lakes. All the _____ (professions) are there now. The _____ (nouns) will take us there in a _____ (mode of transport)."

When we got to Lake _____ (number), it was as _____ (adjective) as ever. The scientists were filling their buckets with _____ (noun) and pouring _____ (liquid) back into the lake.

"The sights! The sounds! The _____ (noun)! This really is a beautiful place..." we all agreed as we sat back and watched the scientists _____ (verb) out on the lakes.

In February, we welcomed students from seven Canadian universities to participate in our first-ever Winter Field Course.

Bringing the World's Freshwater Laboratory to The World

Gimiigwechiwii'igom bi-izhaayeg endazhi-biinaagamitooyang nibi.

Or, if your Ojibwe is a little rusty, welcome to the world's freshwater laboratory.

In fact, you should get used to hearing a lot more from us in First Nations languages in the future. This year, we ramped up our continually growing efforts to build collaboration and dialogue with local First Nations.

We developed a highly popular six-minute animated video in Ojibwe (an Algonquian language spoken in parts of Canada) parsing our recent research on mercury pollution in fresh water. In Canada, it is most often First Nations people who are at the highest risk of poisoning from consuming freshwater fish that have been contaminated with mercury (and its toxic form, methylmercury).

"I loved this course! Thank you, Sarah and everyone else for all your hard work! I would love to be back at the Experimental Lakes Area—being there in the winter felt like the experience of a lifetime."

We collaborated with Ojibwe language experts and an Ojibwe language teacher, and the translation process depended on innovative methods to develop new terms for concepts that do not currently have Ojibwe equivalents, such as "mercury." (We eventually settled on "Biiwaabikowaabo gaa-waawaageshkaag," which literally means "liquid metal that shines.")

Jason Jones, our translator, said it best: "Our language has vitality, with the ability to create new words."

Speaking of vitality, in February, students from seven Canadian universities who participated in our first-ever Winter Field Course brought it in spades.

The 12-day field course was developed in honour of Dr. William Prewitt and with the support of FortWhyte Alive and the Taiga Research Fund. It focused on the physical and chemical characteristics of ecosystems and the ecology of terrestrial and freshwater organisms during winter. We were thrilled to provide the students with hands-on experience with everything from ice safety and winter fieldwork to experimental methods in ecology and our long-term dataset.

And for those of you who could not make it out to the site this year, but still wanted to learn all about how we are tackling threats to fresh water head-on, all you have to do is grab a copy of *WIRED Magazine*, or check out the BBC, PBS, Science Magazine, the CBC, *Canadian Geographic*, Global News, CTV News, the *Globe and Mail*, or any of the various publications from around the world in which our work was featured.

And if you have only your cellphone handy—no biggie—you can still catch all our latest videos, blog posts, infographics, and tales from the field on all our social media platforms and our website.

Ampegish miinawaa oko-idiyang wiiba naagaj, IISD endazhiikammang zaaga'iganiin.

ACTIVITY: AT-HOME EXPERIMENT

In North America, oil spills do happen from time to time—which is unsurprising since it has the largest network of energy pipelines in the world. Here at IISD Experimental Lakes Area, we have explored how these spills affect fresh water, and how we can most effectively clean them up. This research will help develop government policies and industry practices in responding to oil spill emergencies to protect the environment.

But you and your kids can get in on the fun too. Our education program engages youth with a hands-on activity to help them understand (in a fun and interactive way) all the different possible ways of cleaning up an oil spill.

Try this out at home by following along with Savana Theodore-Maraj and see how much oil you can remove from your "lake."

1

Add some food colouring to the oil. This will help us differentiate between oil and water once we add it to our "lake."

2

Once the food colouring is mixed into the oil, **dump it into your "lake."**

3

Now it's time to clean up the oil spill! Try out all the different materials and use different combinations of the items to see what works best for collecting the oil and what doesn't.

THIS IS WHAT YOU WILL NEED:

- ☐ cotton ball
- ☐ pipe cleaner
- ☐ makeup pads
- ☐ popsicle stick
- ☐ straw
- ☐ oil
- ☐ container of water (the “lake”)
- ☐ food colouring
- ☐ a tablecloth or lots of towels (it could get messy)

4

Pour the oil you have collected into an empty glass. You’ll know if you’re collecting oil instead of water because the glass shouldn’t have any food colouring left; if it does, then that means you are collecting more water than oil.

5

See how much you can collect in 10 minutes! Did you get it all? Which were the most effective methods?

As you can see, this is a messy activity but lots of fun!

IISD-ELA by the Numbers 2019–2020

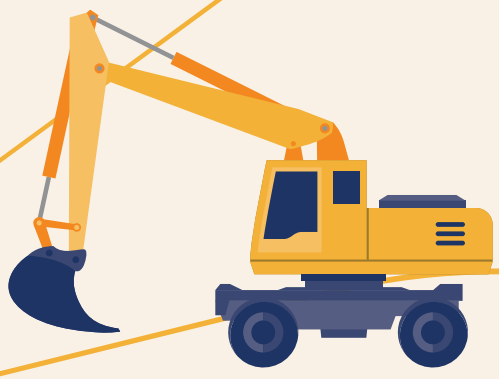
7 First Nations communities we were happy to welcome to our 2019 Fall Feast

260 The lake that is teaching us all about the impact of oil spills on fresh water—and how best to clean them up

12 The number of students who attended our first-ever Winter Field Course in February. And, coincidentally, the number of days for which it ran.

8,000+

Individual days that scientists, staff, students, and visitors spent at the site this year



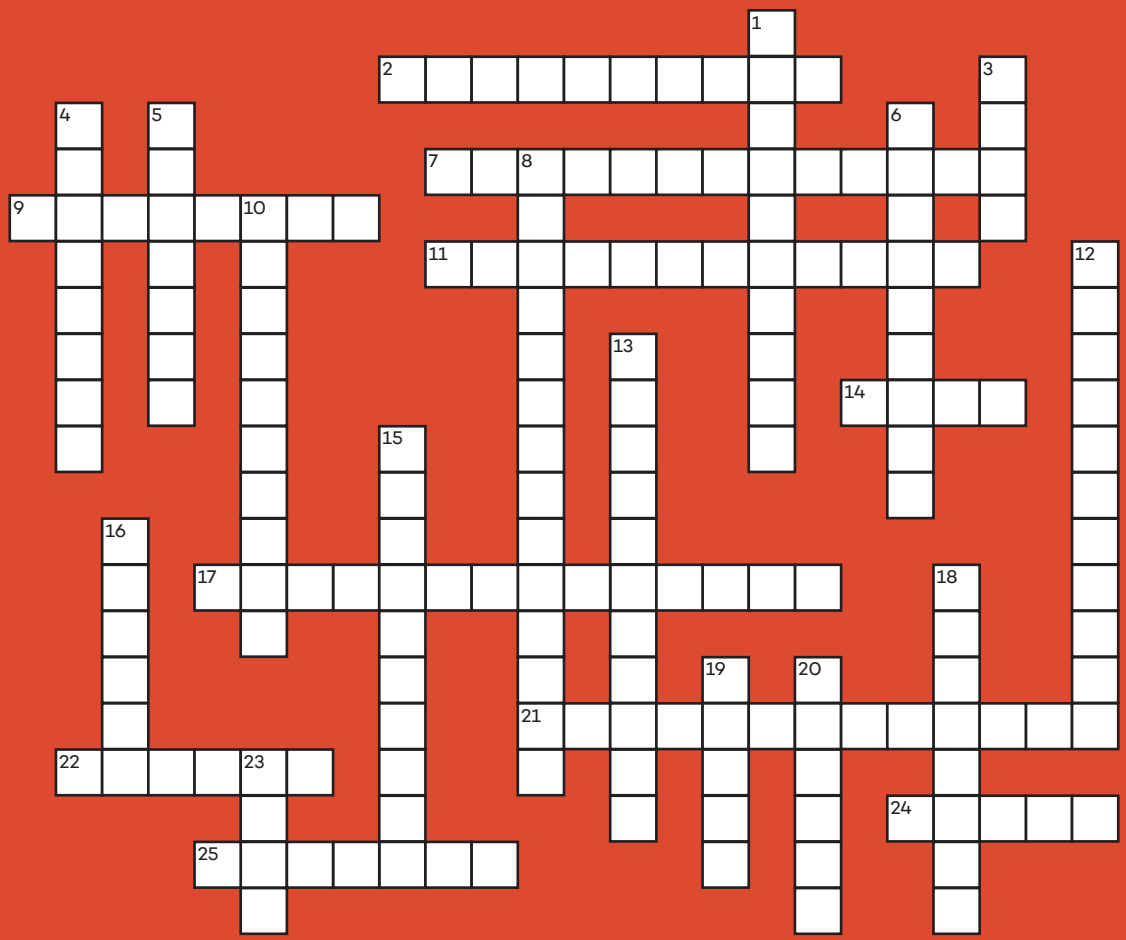
30 km

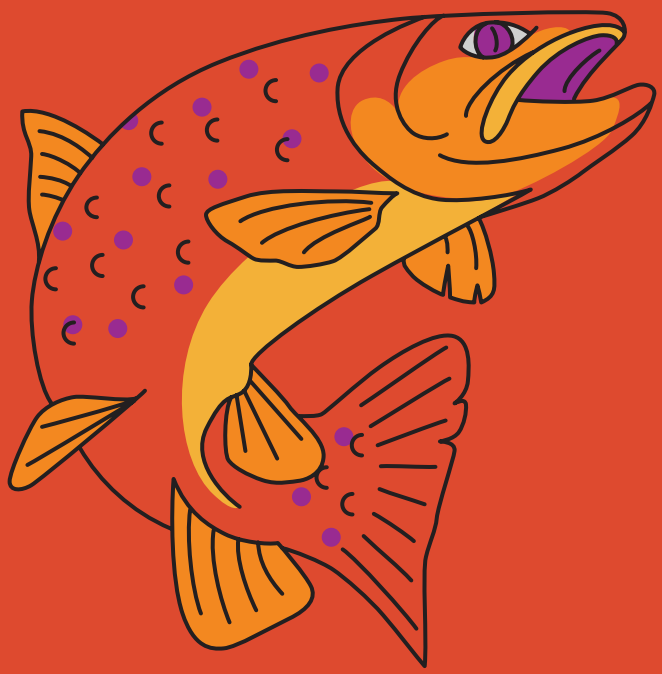
The length of the gravel road to camp that will now be much better maintained thanks to a mini excavator purchased with generous support from the Thomas Sill Foundation

16,242

Our Facebook followers around the globe

ACTIVITY: CROSSWORD PUZZLE





ACROSS

2. Huron, Michigan, Erie etc. (5,5)

7. Super, super small polymerized materials. We are just starting research on these (13)

9. City of Slurpees, the Jets, and our headquarters (8)

11. There's nothing garbage about this alternative term for the nearshore (8,4)

14. Muelle, quai, bacino etc. (4)

17. A case of too much of a good thing. Nutrients, in this case (14)

21. Why our lakes are less icy, and our fish are smaller (7,6)

22. We added synthetic estrogen. Then male fish started to grow eggs here (6)

24. Number of candles on our 2018 birthday cake (5)

25. Our Great Lake home province (7)

DOWN

1. Project to discover the impact of mercury on fresh water, or the name of an awesome 90's hard rock band (10)

3. Gill-bearing lake dwellers (4)

4. There's nothing basic about what we researched in the 1970s (4,4)

5. You have really hit rock bottom when you reach this zone of the lake (7)

6. The study of inland waters (CLUE: it's what we do) (9)

8. When everyday folk take part in research and monitoring (7,7)

10. Main cause of algal blooms (10)

12. In 2020, what our researchers must do before and after being at the IISD-ELA site (4,7)

13. Some budding innovators are doing this to Lake Winnipeg (11)

15. Au. But really tiny (10)

16. Where the limnological magic has been happening for most of us in 2020 (2,4)

18. When spring turns to summer we start our research season. This is what lakes do (8)

19. We don't get salty about this substance. We get fresh (5)

20. Disc that reveals the turbidity of fresh water (6)

23. Maybe a way to monitor a species without even seeing it (4)

See Answer Key in back.

Philanthropy: The time to act is now

*Your support will help us build **Canada's first Centre for Climate & Lake Learning** to welcome local communities, educate and nurture the next generation of freshwater scientists, and inspire the world.*

*Supporting the **IISD-ELA Endowment Fund** helps guarantee the world's freshwater laboratory will be there to protect our water supplies for the next 50 years. (Photo: Sean Landsman)*

Since joining the organization in late 2019, Director of Philanthropy Louis St-Cyr and Philanthropy Officer Erin Bend have been inspired by IISD-ELA's all-round excellence, including its dedicated community of generous supporters. Thank you for all that you make possible!

It truly is an exciting moment for the world's freshwater laboratory with the launch of *Tomorrow Needs Us Today*. These two parallel, symbiotic initiatives present us with an opportunity to create a sustainable freshwater future, together.

The first initiative is about ensuring the future of fresh water by raising $10 million for our endowment. The annual earnings from this fund will secure IISD-ELA's operations in perpetuity, despite any future political and financial uncertainties. You can help to protect our water supplies for generations to come. And, for a limited time, your gift to the IISD-ELA Endowment Fund (managed by the Winnipeg Foundation) will be matched twice.

The second *Tomorrow Needs Us Today* initiative is about improving the research facility's campus. With your help, we will expand lodgings, renovate the power supply with clean technology, and build the Centre for Climate and Lake Learning to house our ever-expanding research and educational programs.

Visit IISD.org/donate to learn more about *Tomorrow Needs Us Today*, where your voice and actions will inspire generations to come.

With gratitude,

Louis St-Cyr
Director, Philanthropy
lst-cyr@iisd.ca

Erin Bend
Officer, Philanthropy
ebend@iisd-ela.org

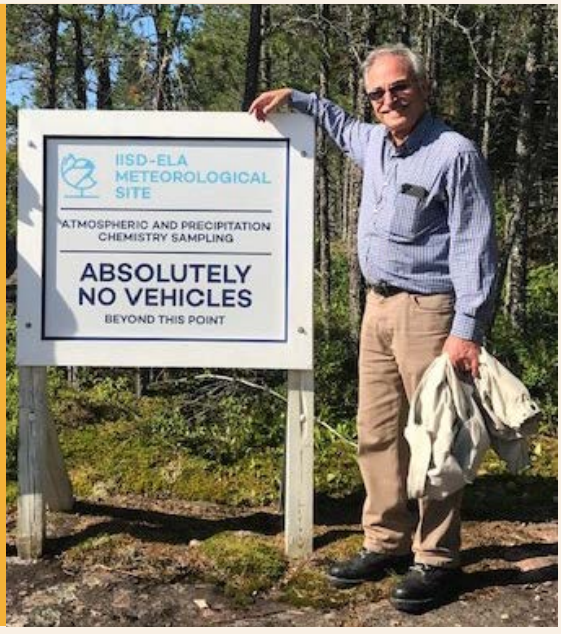
Thank You to Our Donors

The Vickar Automotive Group is continuing its journey to safeguard the future of fresh water with a $50,000 commitment.

The Vickar Automotive Group started their journey supporting the future of freshwater science by offering us a preferential rate on the purchase of new vehicles for our essential fleet of vehicles. They have now gone even further by pledging to donate $10,000 annually for the next five years.

We are thrilled, as this important gift will allow us to continue our important mission using safe and reliable vehicles for our staff and volunteers and would like to offer many thanks to the Vickar Automotive Group.

> “The invaluable work conducted at the Experimental Lakes Area over the last five decades is of great benefit to fresh water and all who depend on it. Those 58 lakes remind me of the old adage “Still waters run deep”—unsung but of huge importance!
>
> **Larry Vickar**



Larry Vickar, President of the Vickar Automotive Group, during a site visit at IISD-ELA in July 2019.

Red River Co-op

"On Giving Tuesday, Red River Co-op matched donations up to $5,000 to be used toward the purchase of an ATV for researchers to navigate terrain to do freshwater lake research. Our cooperative is very happy to be able to support the work of the IISD Experimental Lakes Area. The important research they do benefits the health of our lakes here in Manitoba, North Western Ontario and around the world."

Kelly Romas
Director of Marketing, Red River Cooperative Ltd

Morgan Craig Monthly IISD-ELA Donor

Morgan Craig is an Assistant Professor/ Researcher as well as IISD-ELA's longest-standing monthly donor at 57 consecutive months! Thank you to Morgan and the other Freshwater Guardians who have pledged their recurring support to IISD-ELA.

"IISD-ELA is unique in the world in terms of the kind of research that can be done. I donate monthly because I understand, as a researcher, the benefit of having sustainable, predictable funding for the long term."

Morgan Craig
Assistant Professor/Researcher and IISD-ELA Freshwater Guardian since 2014

Freshwater Guardians | IISD Experimental Lakes Area

To see the full list of our 2019–2020 donors visit our website
iisd.org/ela/support

ACTIVITY: SPOT THE DIFFERENCES

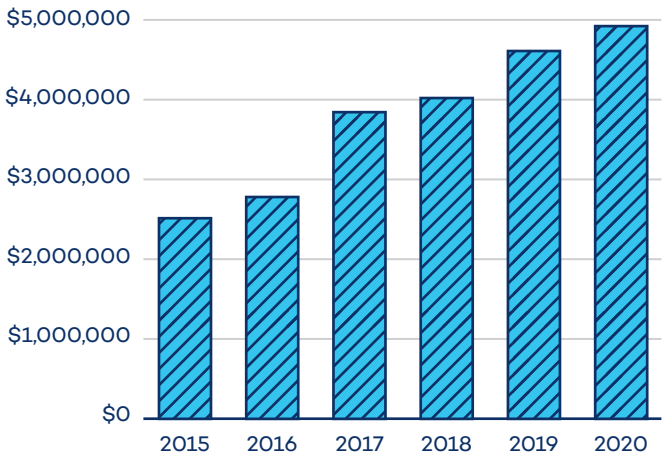
This is Lee Hrenchuk, IISD-ELA Senior Biologist and her mom Christine Johnston, working lakeside. Compare photos and circle the 8 differences.

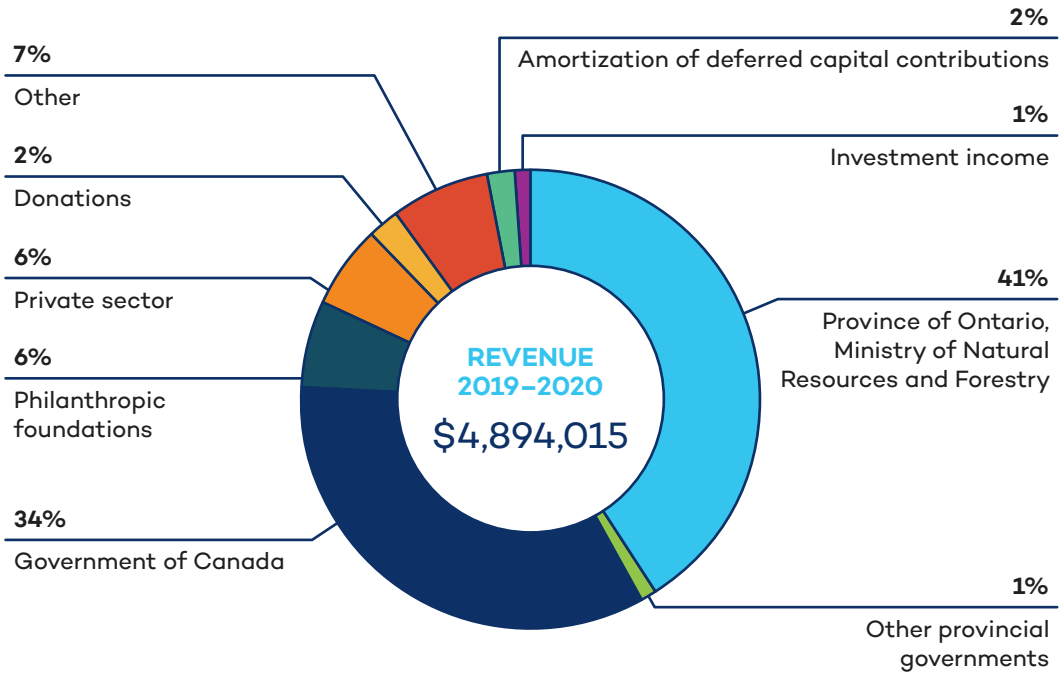
Photo: Carl Hrenchuk

See Answer Key in back.

Financials

IISD-ELA Total Revenue (CAD)





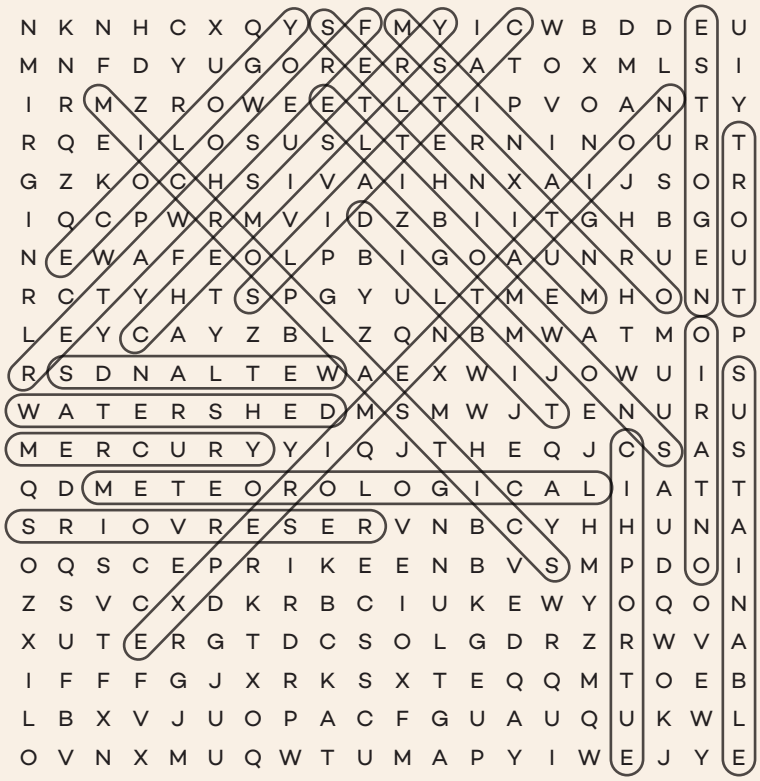
STATEMENT OF FINANCIAL POSITION	2020 $	2019 $
Assets		
Current		
Cash and cash equivalents	1,185,596	502,251
Restricted cash	524,377	513,057
Current portion of grants receivable	961,750	1,194,700
Accounts receivable	62,046	95,682
Prepaid expenses	132,500	44,384
Total current assets	**2,866,269**	**2,350,074**
Grants receivable	541,413	260,000
Investments	952,109	990,019
Capital assets, net	967,218	968,640
Intangible assets	28,584	25,985
	5,355,593	**4,594,718**
Liabilities and net assets		
Current		
Accounts payable and accrued liabilities	452,016	294,569
Due to International Institute for Sustainable Development	24,859	22,435
Current portion of deferred contributions	1,380,427	1,034,174
Total current liabilities	**1,857,302**	**1,351,178**
Deferred contributions	441,811	584,066
Deferred capital contributions	801,984	818,422
Total liabilities	**3,101,097**	**2,753,666**
Net assets		
Net assets invested in capital assets	150,970	122,991
Sustainable Future Fund	800,000	800,000
Remediation fund	524,377	513,057
Unrestricted net operating surplus	779,149	405,004
Total net assets	**2,254,496**	**1,841,052**
	5,355,593	**4,594,718**

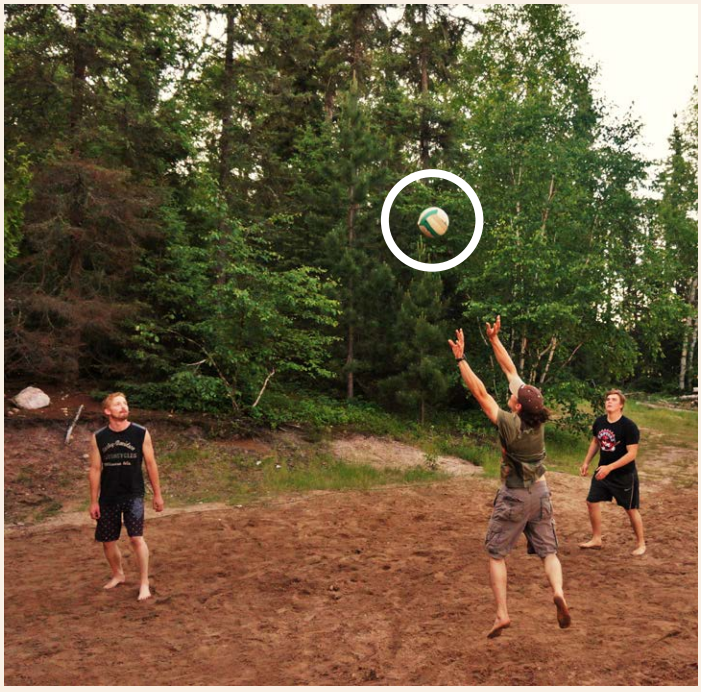
STATEMENT OF OPERATIONS AND CHANGES IN UNRESTRICTED NET OPERATING SURPLUS	2020 $	2019 $
Revenue		
Designated grants	4,300,869	3,913,578
Sustainable Future Fund	2,176	5,769
Donations – unrestricted	93,452	70,430
Amortization of deferred capital contributions	115,044	119,706
Other	351,316	463,139
Investment income	31,159	13,899
	4,894,016	**4,586,521**
Expenses		
Field station operations	939,847	1,002,700
Field research	1,875,365	1,685,969
Administration	762,214	851,682
Marketing and fundraising	170,856	198,884
Outreach and education	408,713	338,993
Laboratory research	75,394	89,492
Offsite research and technical review	248,183	97,210
	4,480,572	**4,264,930**
Excess of revenue over expenses for the year	**413,444**	**321,591**
Appropriation from and to unrestricted net operating surplus		
Change in net assets invested in remediation fund	(11,320)	(8,620)
Change in net assets invested in capital assets	(27,979)	60,713
Increase in unrestricted net operating surplus	**374,145**	**373,684**
Unrestricted net operating surplus, beginning of year	405,004	31,320
Unrestricted net operating surplus, end of year	**779,149**	**405,004**

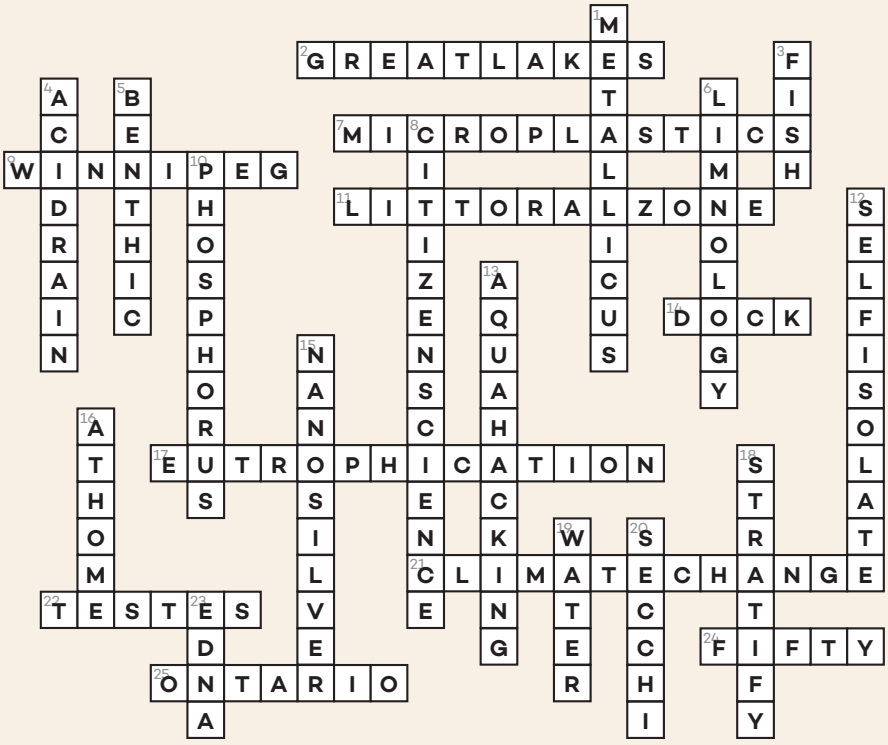
IISD ELA Inc. has funding agreements with the Government of Ontario and the Government of Canada (Department of Fisheries and Oceans) ending March 31, 2021, and March 31, 2022, for $2 million and $1 million, respectively, each year. IISD ELA Inc. also has another funding agreement with the Department of Fisheries and Oceans ending on March 31, 2023, for $559,000, of which $253,000 of revenue had been recognized for the year.

To see the full IISD-ELA financial statements, visit our website at iisd.org/ela/annual-report

ACTIVITIES ANSWER KEY







buoy, button, rock, syringe, plyers, sticker, container, post

Get to Know Our Artists-in-Residence

If you have ever been there, you know that IISD Experimental Lakes Area is an artist's dream.

A few years into the new era of the world's freshwater laboratory as an independent entity (as opposed to a federal government facility), we realized we were ripe for an artist-in-residence program. We wanted to introduce our space and our work to new and non-traditional audiences through artistic pieces—a form of science communication that we had not touched on yet.

After receiving (literally) hundreds of applications and many calls from media, our committee of local artists and team members managed to whittle it down to six applicants who represented vastly different forms of artistic expression.

Throughout the summer of 2019, we welcomed **Heather Hinam** (a Winnipeg-based illustrator), **Matt Foster** (a Winnipeg-based singer/songwriter/musician), **Lesley Nakonechny** (a Winnipeg-based graphic designer), **Sean Landsman** (a photographer from Ottawa), **Todd Stewart** (a silk screener from Montreal who is now based in Scotland), and **Walk&Talk** (a lively theatre troupe from Winnipeg).

The result was a resounding success. The artists were introduced to a space like no other and felt new kinds of inspiration, while our team of researchers welcomed the new blood onto the site who brought a fresh excitement and vigour to our work.

As Matt Foster said to the Kenora Daily Miner and News, "As an artist, I don't get to engage with that kind of community, ever. I do have a strong interest in scientific thought and reasoning. I don't really have a lot of people in my life I can have those conversations with so I'm excited to throw myself in there and hear what everyone's thinking about and how they do their lives."

Now what's next for the artist-in-residence program? At the beginning of 2020, we had excitedly pulled together a new crop of interesting and diverse artists to complete our second summer artist-in-residence program, but that has been postponed till next year due to the COVID-19 pandemic significantly restricting whom we can allow on-site.

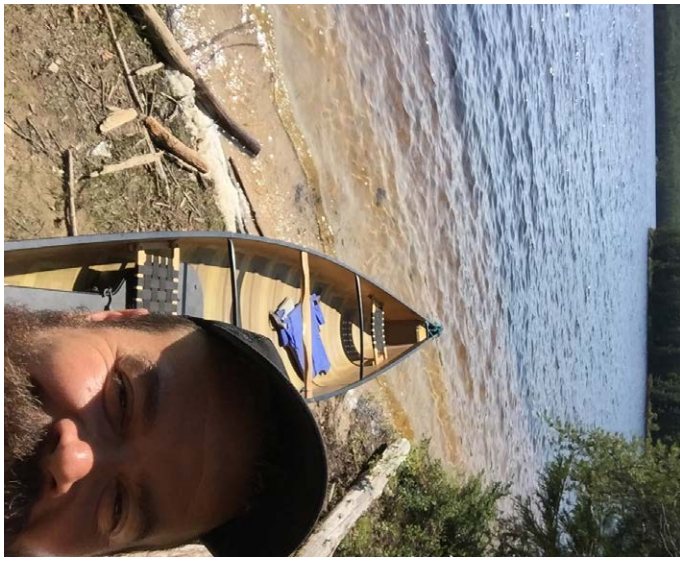
And as for the first batch, we are still eagerly watching for the art that those artists will produce inspired by their residency. We are excited to show it off to the world, possibly even at Kenora's new art centre.

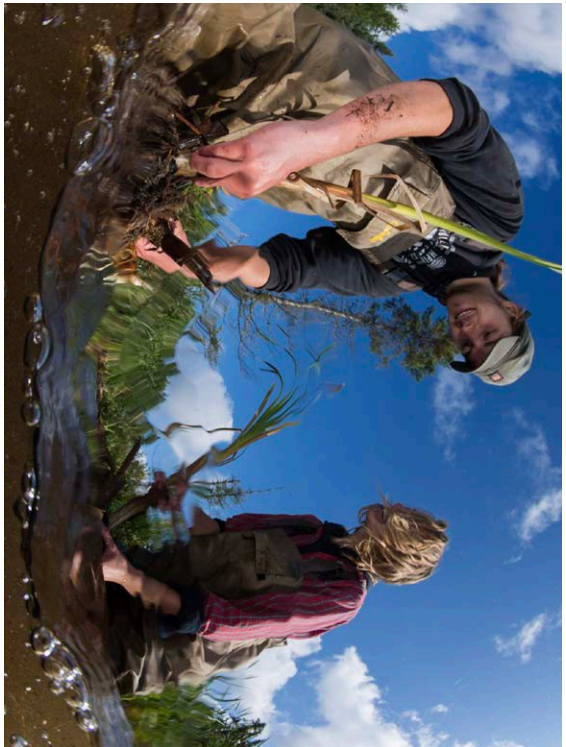
Be sure to watch this space for all the latest updates.

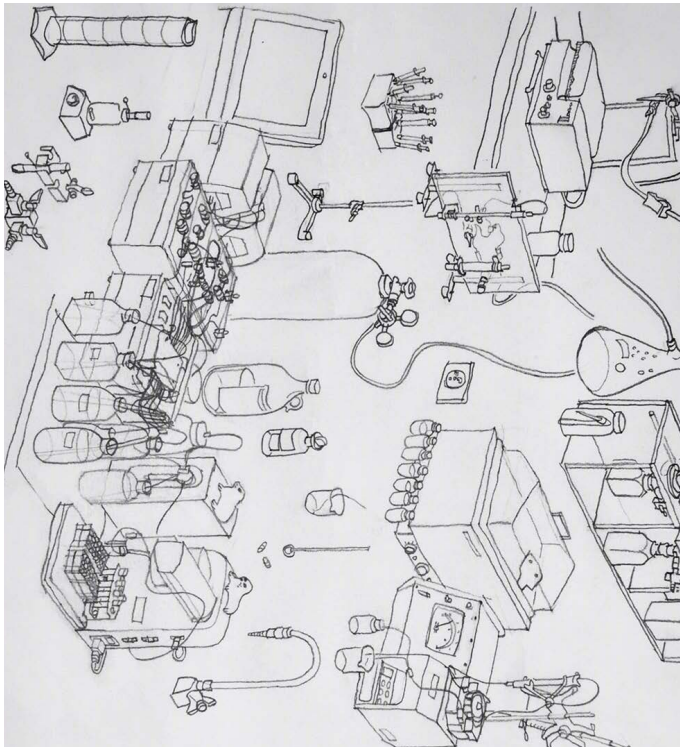
↓ *Heather Hinam*
↓↓ *Lesley Nakonechny*

↓ *Walk and Talk*
↓↓ *Sean Landsman*

↓ *Matt Foster*
↓↓ *Todd Stewart*







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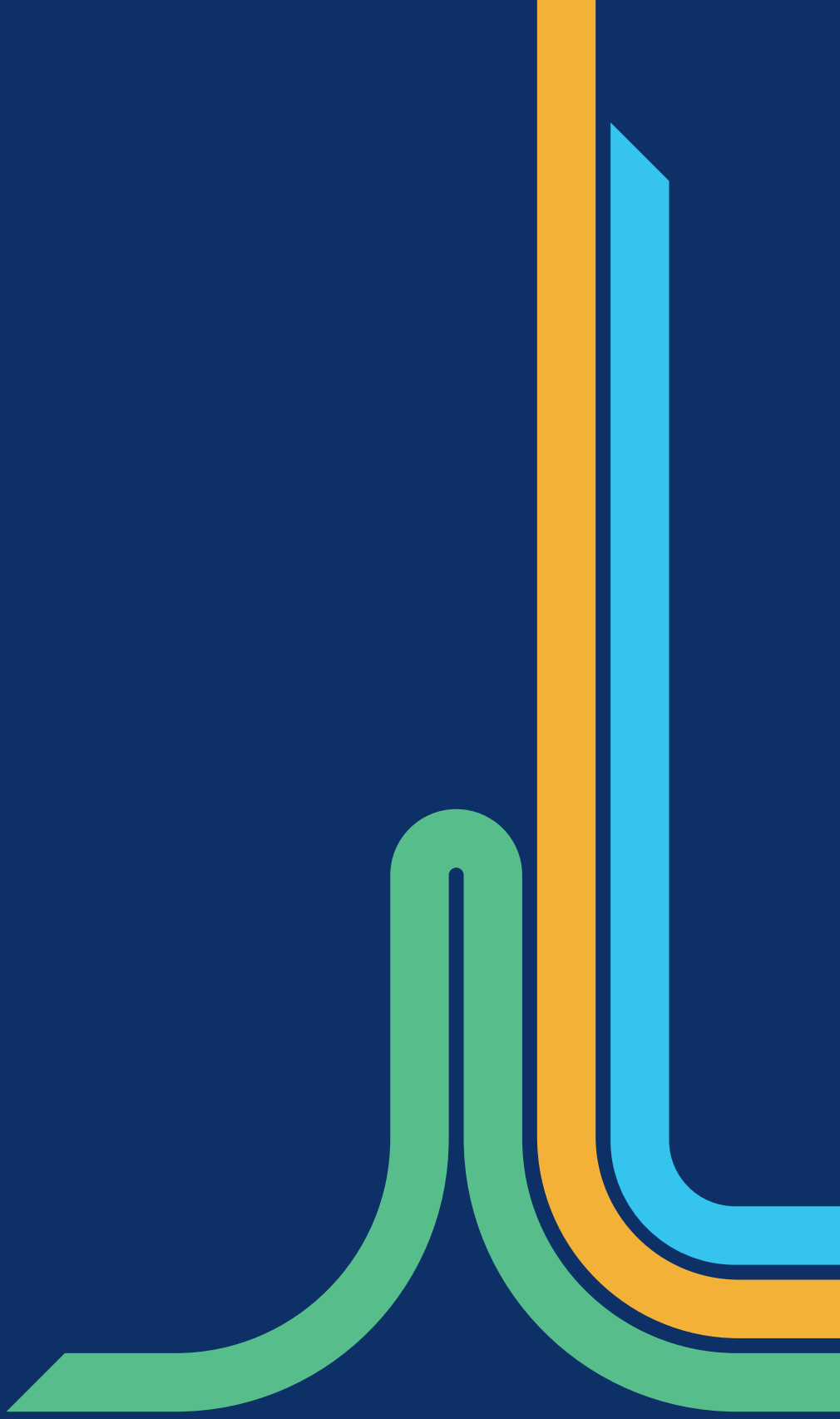

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