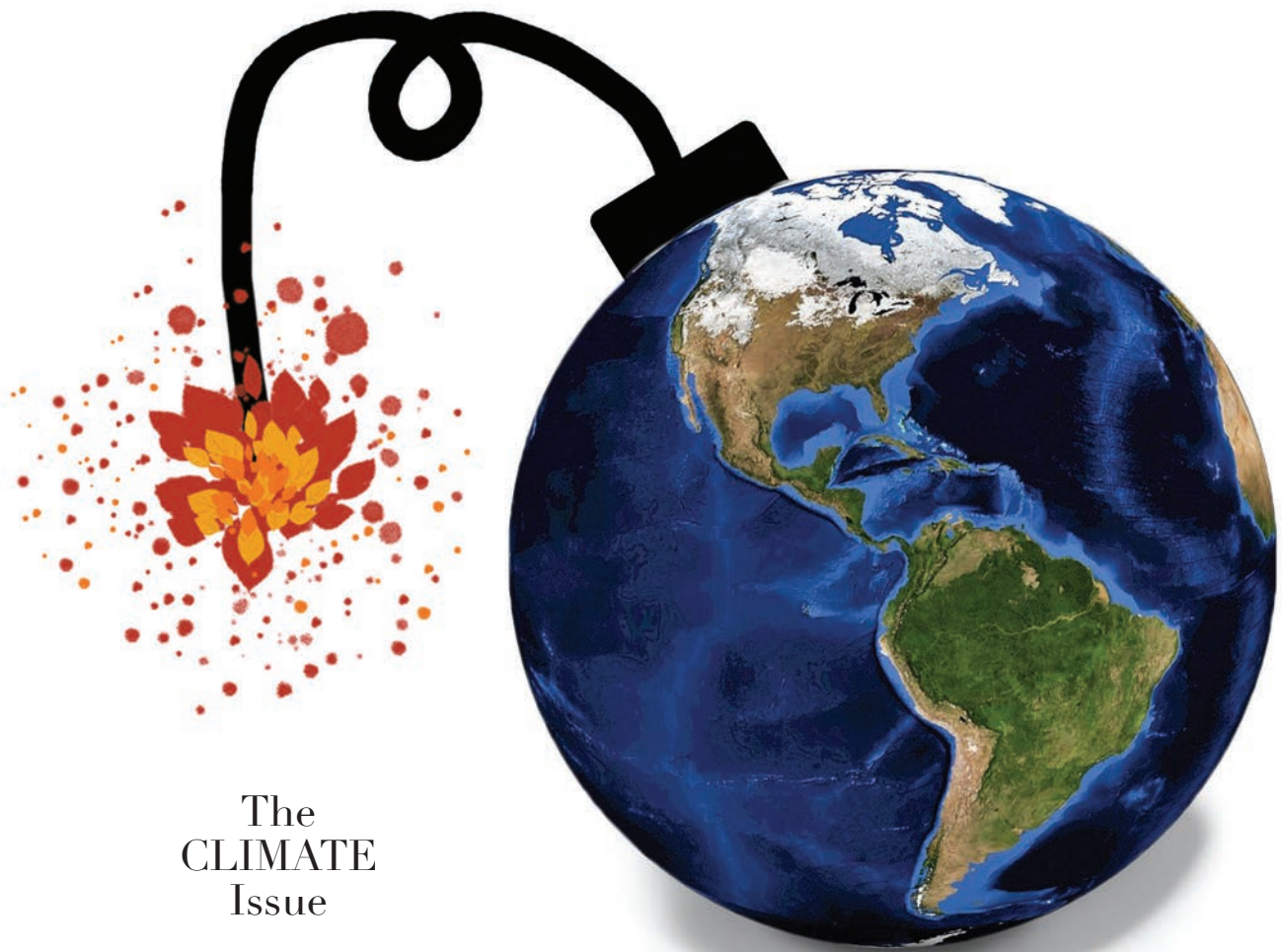


A Loyola Student Social Justice Publication

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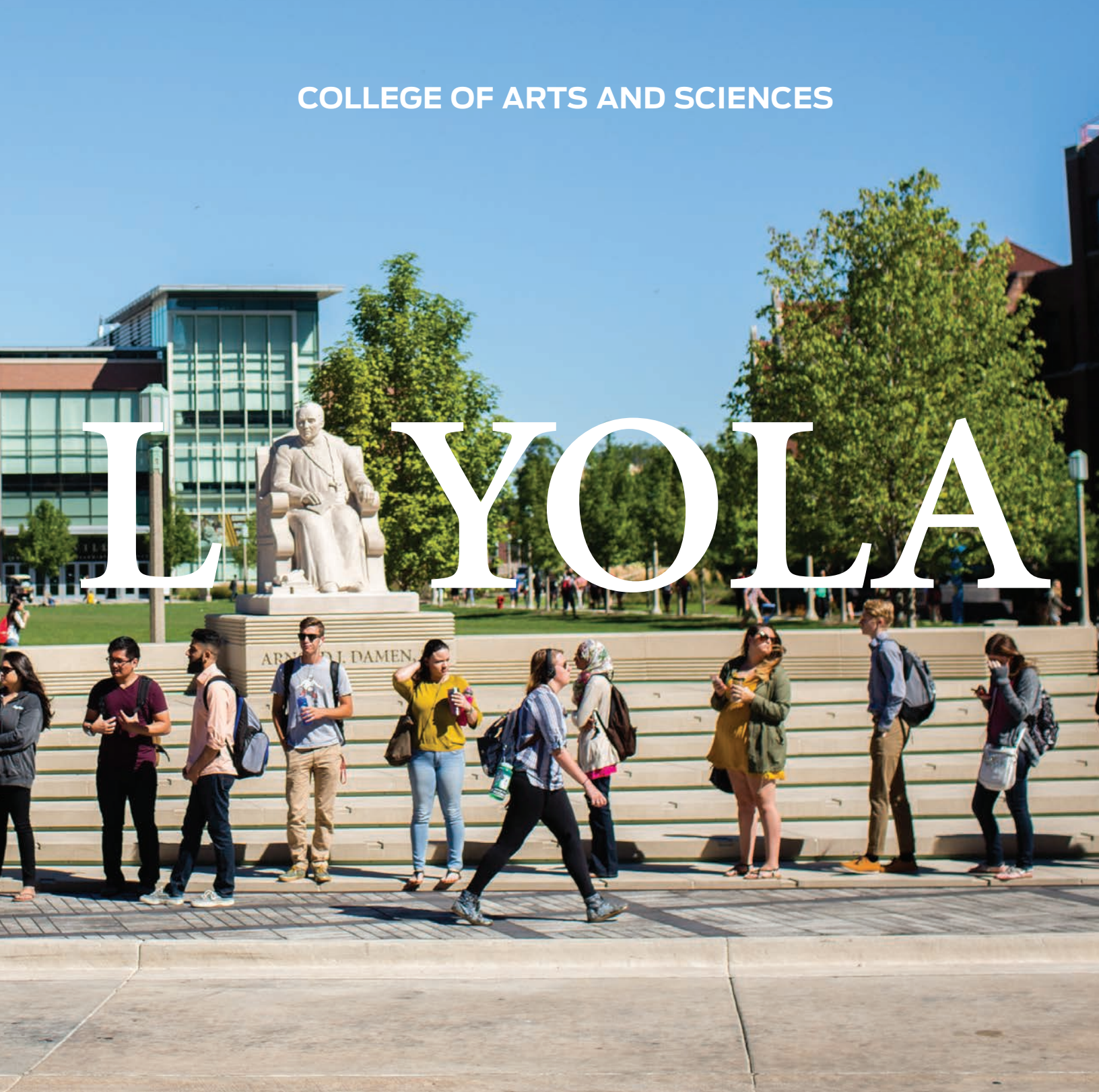
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The
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2020

MOSAIC

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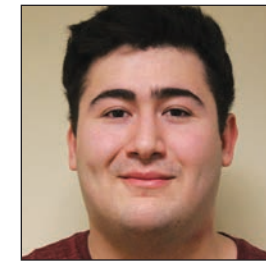
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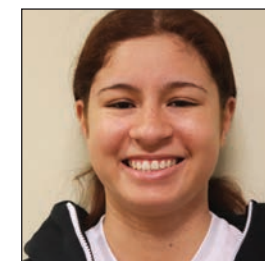
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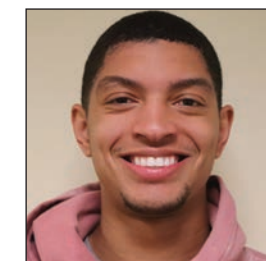
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Preparing people to lead extraordinary lives



MARCELLO
PICCINIINI

A diversity can be a scary thing. It can come in the form of schoolwork, a job, life or a combination of all three. This year's Mosaic Magazine staff faced some serious adversity while creating this year's content, but it never felt like we were struggling when it came to the team effort that was this publication.

A group of students putting in as much effort as possible: that's the best way I could describe my experience in Mosaic Magazine. No matter the setback, we never failed at completing our goal, and always came out of it cracking jokes. After a while, it felt less like a course and more like a group of friends completing a group project. It takes a special group of people to make a Capstone course feel like a break in your day rather than a source of stress, which is why I could not be happier to be a part of this amazing staff.

We didn't fill this publication without help though. Rex Huppke's COMM 262 course helped immensely in making sure the final product was up to par. The page count would've been a lot smaller if

it wasn't for them and we owe them a great deal of thanks for their contributions.

Speaking of team efforts, this year's magazine theme: climate change, requires a big one. From environmental racism to the contamination of our drinking water, this magazine's content speaks about the many issues we face as climate conditions continue to worsen around the world. Everyone reading this has been touched by climate change in some way, shape or form, and halting irreversible changes to our planet requires everyone to pitch in.

We're not just picking on the little people though. Our staff editorial goes into corporate accountability and some of the very recent human-caused disasters that have occurred because of corporate entities. With great power comes great responsibility, and that's why it's extremely important those with power realize what they must do to mitigate their effects on global climate change.

As you're reading the content in this publication, think about the ways you can help and what you can urge others to do. This can be anything from recycling more to starting a cleanup group in your community. The time for inaction has passed, and the time for climate action is now.

We only have one earth, and it needs us now more than ever. Enjoy this year's Mosaic Magazine.

*Marcello M.
Picciniini*

MOSAIC



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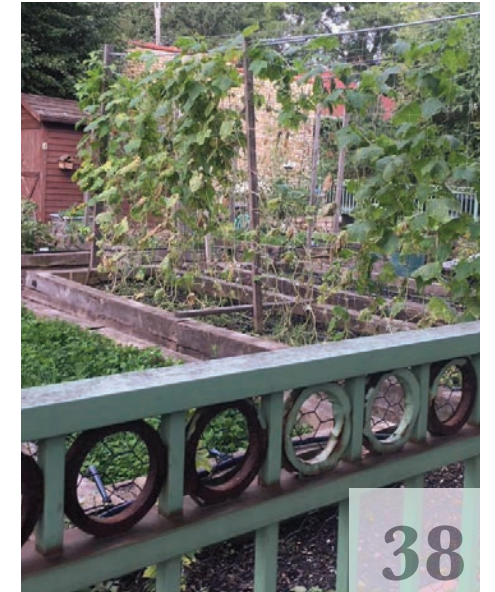
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A beekeeper speaks, and how a Chicago apiary is saving the buzzing population

Dirty Capitalism

EDITORIAL EXECUTIVE STAFF

The climate change discussion currently finds itself revolving around using less straws and more recyclable materials, but there's a bigger, lesser-known issue evading blame by the public eye: corporate accountability.

When we talk about climate change, regular citizens tend to feel liable for its consequences. However, studies have shown that corporations are responsible for a majority of climate change emissions. Individual efforts, while important, have miniscule effects in addressing climate change when compared to the pollution that comes from large companies and enterprises.

According to The Carbon Majors Report, 100 corporations were responsible for 71% of global emissions in 2017. According to The Guardian, just 20 fossil fuel companies have been responsible for over one third of greenhouse gas emissions since 1965.

Careless energy companies are responsible as well. Pacific Gas & Electric Company (PG&E) — a natural gas and electricity company — has been blamed for the 2017 and 2018 wildfires in Southern California. According to the Los Angeles Times, the 114-year-old company is facing an estimated \$30 billion in potential liabilities.

Other companies have faced similar consequences for polluting the environment on a large scale. The 2010 Deepwater Horizon oil spill was the biggest oil spill in U.S. history, releasing 134 million gallons of oil into the Gulf of Mexico and killing thousands of marine animals. BP — a British oil and gas company — paid nearly \$21 billion in fines for the spill.

The food industry plays a big role in the exacerbation of climate change as well. Thanks to industrial agriculture —

characterized by heavy use of chemical fertilizers and pesticides, feedlots and large-scale monoculture — soil becomes less resistant to drought, suffers erosion and is repaired using chemical fertilizers when it becomes infertile.

Other climate hazards include water pollution, biodiversity loss and algae blooms, ultimately leading to “dead zones” — areas within the ocean with little to none of the oxygen needed to support most marine life.

Certain individuals within the corporate sector have seen the need for sustainable products and have pursued breakthroughs within their industries. Tesla CEO Elon Musk has brought all-electric cars into the mainstream with the Tesla Roadster and Tesla Model S, which also feature self-driving capabilities.

Other companies are pushing to be ‘net zero’ — balancing carbon emissions with carbon removal. Salesforce CEO Marc Benioff has been a big advocate for ‘net zero’ companies in particular.

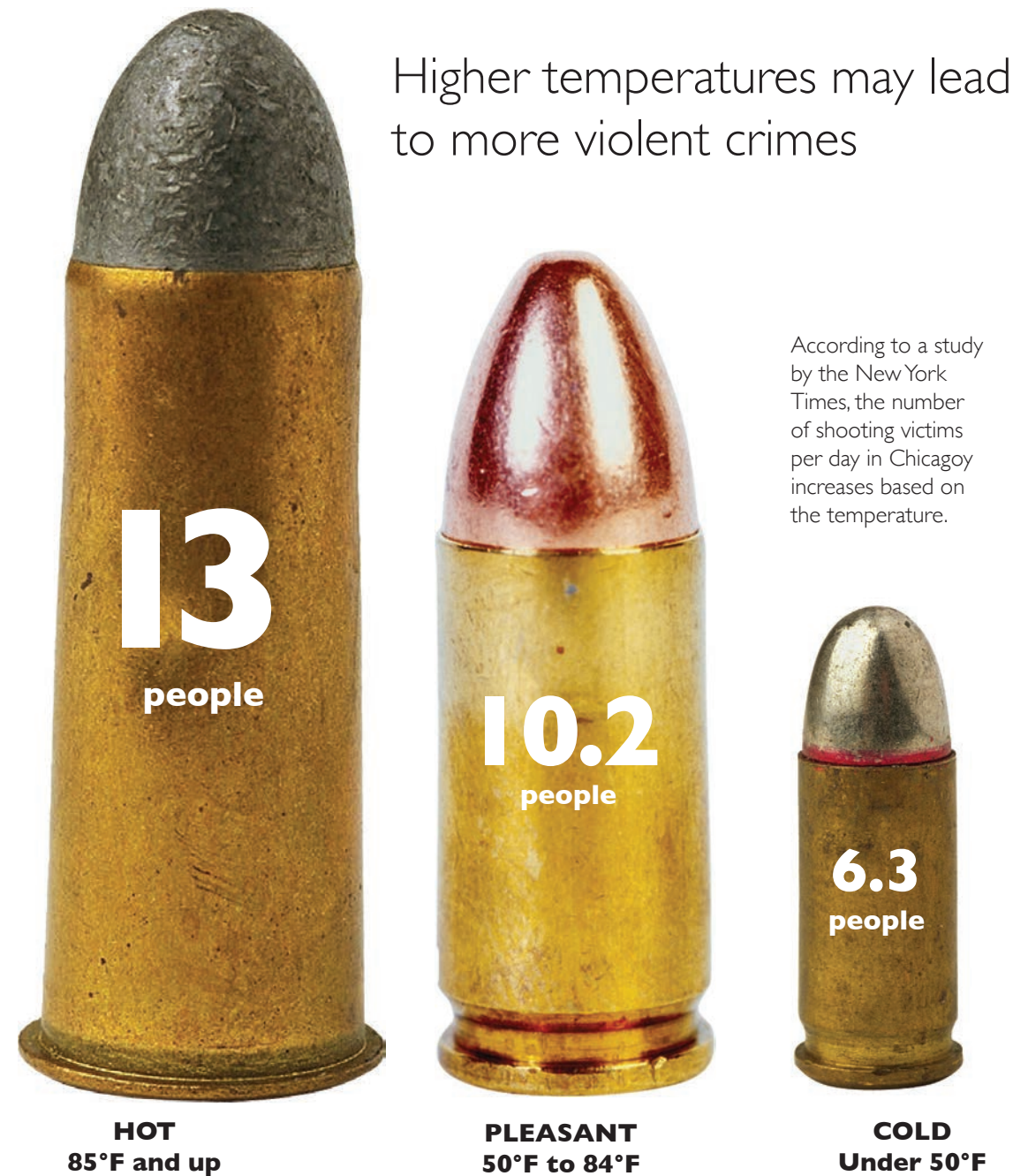
“We think every company should be focused on how to sequester the carbon that they're creating,” Benioff said in an interview with Business Insider. “Our companies need to be net zero and move to fully renewable. And Salesforce today is net zero. We'll be fully renewable by 2025.”

For a clean environment to become a reality, more companies need to follow suit. In 2010, 120 U.S. companies implemented green programs, an increase of 54% from the previous year. The public should demand more companies take similar action. Individual efforts, while effective in reducing personal carbon footprints, do little to address the bigger climate problems caused by big companies.



PHOTO ILLUSTRATION BY SARAH BOWMAN

Higher temperatures may lead to more violent crimes



According to a study by the New York Times, the number of shooting victims per day in Chicago increases based on the temperature.

CLIMATE & CRIME

BY NICOLAS TAMAYO

There is a recipe for murder. Dr. Arthur Lurigio has dedicated his life to studying its ingredients. “I like to call it homicide soup,” said Lurigio, who has an extensive background in the fields of psychology and criminal justice.

Lurigio has a cozy office on the second floor of the Sullivan Center on the south end of Loyola University Chicago’s main campus. Lake Michigan can barely be seen through one dirty window. Around his desk, there’s a glass trophy from the American Psychological Association, a colorized photograph of his father and a poster of The Beatles to remind him of his favorite album “Revolver.”

The senior associate dean and professor within the College of Arts and Sciences explained some ingredients that, when combined, may ultimately provoke someone to commit a violent crime.

“The availability of handguns in poor neighborhoods, feeling disrespected, trauma, mental illness, drug or alcohol use, and being part of a violent subculture are all important things to consider to understand why someone commits homicide in the first place,” Lurigio said.

Yet there’s another ingredient to the homicide soup that’s often overlooked. It’s invisible and often unpredictable, sometimes pleasant and sometimes suffocating. And recently, it has become more extreme because of climate change.

It’s the temperature.

According to several studies published by the National Bureau of Economic Research in the past few months, and from articles by The New York Times and The Washington Post, there is a consensus that higher temperatures can lead to higher instances of violent crime.

While the correlation between these two variables has been debated for decades, there’s one thing that rings true:

more Americans are murdered during warmer days and months compared to colder ones.

Chicago crime statistics help support this conclusion. There’s an average of 13 shooting victims on days when the temperature is over 84 degrees (in summer months like July and August). On days when the temperature is under 50 degrees, the number of shooting victims goes down to approximately six people.

“On average, about twice as many people are shot in northern cities like Chicago, Milwaukee and Detroit when it’s hot versus when it’s cold,” wrote Jeff Asher, a former CIA officer and a freelance reporter for The New York Times. “In southern cities like Atlanta and New Orleans, the effect exists but is weaker.”

There are two main theories as to why crime may go up when temperatures spike: hot weather makes people more aggressive and uncomfortable and the fact that people tend to be outside more.

“When temperatures are extremely hot and it’s very humid,” Lurigio said, “the body releases stress hormones that can make you feel irritable, especially when you can’t escape the heat. People are less tolerant and get frustrated more easily.”

He also described a concept known as routine activity, first proposed by Lawrence Cohen and Marcus Felson, former professors at the University of Illinois at Urbana.

“More people are outside, so there are more targets to shoot, if I’m being crass about it,” Lurigio said. “More shooters are driving around with open windows, but nobody notices. People are also more likely to be robbed when it’s warm because they forget to lock their doors and go on vacation in the summer more often.”

Story continues on pg. 12

“When the environment starts to become unpredictable, it makes people anxious, it makes people frightened, it makes people behave in ways they wouldn’t normally.”



Dr. Arthur Lurigio

— Arthur Lurigio, Dean

Story continues from pg. 11

As climate change gradually begins to produce sweeter, stickier and grouchier days, law enforcement also has to deal with unfavorable conditions that might make day-to-day operations more difficult, as well as needing to manage the spike in crime resulting from high temperatures.

Robert Lombardo is a sociologist and professor emeritus of criminology and criminal justice at Loyola. He worked with the Chicago Police Department (CPD) for 28 years and was involved in everything from patrolling to narcotics to intelligence.

“The summer months were always violent,” said Lombardo, reflecting on his time with CPD. “We would sometimes work all night until the sun came up. It would get really busy and the department would do its best to keep up with calls.”

However, Lombardo pointed out that the boiling summer months weren't the only challenging times of the year. Colder months were violent too.

He reminded people not to forget about the opposite perspective: “When people are cooped up in the winter and they're drinking or smoking, they definitely act out too and cases of domestic violence increase. There's always a slight crime spike in January, but people forget about that.”

Regardless, if higher temperatures usually lead to more crime, will climate change lead to more violent cities?

“If crime were to stem from climate change, and I hope it doesn't happen, it would probably have to do with resources and scarcity,” Lurigio said. “With any extreme temperatures, there might be less food available, people get desperate and neighbors will start stealing from each other.”

Does the scene Lurigio describe remind you of any dystopian sci-fi movies, say, “Mad Max?” Ariel Rand, a junior studying accounting and information systems, said that it's terrifying to think that rampant climate change could potentially make those catastrophic, crime-ridden scenes in the movie a reality.

“As much as we like to say that we are an organized society, anarchy could descend on communities when resources get scarce,” Rand said.

“People are not scared as much by remote and uncertain threats as they are by immediate and real ones,” Lurigio said. “When the environment starts to become unpredictable, it makes people anxious, it makes people frightened, it makes people behave in ways they wouldn't normally.”

At the end of the day, Rand said it's really hard to get people to care about climate change — and we might not until it's too late.

“We're taking steps in the right direction,” Rand said, “but the majority of people and corporations don't really care. It's not until the Indian subcontinent is over 150 degrees in the summer, and there are millions of people dying, and the wealthy start to seriously get affected, that we will actually start to care.”



According to a Chicago Tribune crime data analysis, from the Chicago police ranging from 2012 to 2017 hot summers can mean an increase in crimes — such as shootings, theft and criminal damage. PHOTO BY BRYAN HAYES; FLICKR

JOURNALISM

Loyola's Multimedia Journalism Program wants to acknowledge the hard work of our journalism students, and commitment to knowledge, truth, and social justice represented in these pages. Our program exemplifies a distinctive practice, system, and philosophy of reporting with integrity coupled with using the latest technological advances to tell stories that people need to know about.

CONGRATULATIONS TO THE MOSAIC STAFF!

soiled seeds

Pilsen group works to end environmental racism

BY DANIEL COLLAZO

Growing up and living in the South Shore neighborhood, Tony Harris experienced the consequences of the power plants' existence. Power plants have been allowed to zone and construct on the South and West sides of Chicago for years.

"A lot of industries are on the South Side, which is predominantly people of color," Harris said. "People of color have an increased exposure to air pollution. That's environmental racism."

A concept born out of the environmental justice movement during the 1970s and 1980s in the United States, environmental racism is used to describe environmental injustices that take place in terms of policies and practices that affect people of color.

According to a history of Pilsen published on Chicago's PBS station WTTW's website, approximately 14 percent of Pilsen's population was Mexican or of Mexican descent in the 1960s. However, in the 1970s, the population soon became predominantly Mexican or of Mexican descent.

According to its website, The Pilsen Environmental Rights and Reform Organization (P.E.R.R.O) formed in the early 2000s has since advocated for the health and safety of their community and fought the pollution taking place.

In March 2005, Pilsen residents sampled their soil and found elevated levels of lead around the H. Kramer & Company facility. This finally led to the Environmental Protection Agency (EPA) conducting a site investigation

that found elevated levels of lead near the facility, according to the 2005 EPA report found on P.E.R.R.O.'s website.

Troy Hernandez, the director of volunteering stated that P.E.R.R.O.'s founding members had to take things into their own hands to test for lead in their community in the soil and pipes.

"The EPA was taking too long," Hernandez said. "They blew off the founding members, leading to them conducting their own tests."

Exposure to lead pollution affects children the most. According to the EPA report, the health effects include reduced IQ and slower mental development. After these findings, H. Kramer & Company volunteered to clean up two sites near its plant in September 2005.

"It required so much effort from our end to prove the pollution and to get our backyards replaced," Hernandez said.

Sims Metal Management is another power plant located in Pilsen. The metal shredding plant wanted to open a second location in the community across the street from the local high school. P.E.R.R.O. fought against the implementation of that second metal shredder.

According to a January 2019 article from Recycling Today, the Illinois EPA found a harmful particle is emitted from the metal shredder and pollutes the air. The EPA and Sims reached an agreement to limit the amount of air pollutants with safer practices.

While the construction and business

of power plants are prominent on the city's South and West Sides, the city's North Side has a few of these businesses located in those communities. The residents' concerns about the health and safety from the effects of these industries being in their community seemed to have been heard louder and clearer.

In 2018, residents in Lincoln Park began to advocate for the closure of General Iron. According to a September 2019 article from the Chicago Sun-Times, the plant is set to leave the North Side and move operations on the Southeast side, across the street from a high school, where students of color are enrolled, according to Hernandez.

While a milestone in the environmental justice movement, this predominantly white and wealthy community on the North Side saw quick results compared to the efforts of their counterparts on the South Side.

"Their efforts received so much support," Hernandez said. "Our efforts require so much more work. That's environmental racism in a nutshell – the lack of support and media coverage that our community receives versus the support and media coverage that a predominantly wealthy and white community receives."



Expanding Renewables

Turning to sustainable energy is imperative for the future

BY JACOB BOLLING

The renewable energy industry is undergoing rapid expansion in response to the threat of global warming.

Climate change has already had devastating effects on the environment due to the constant use of non-renewable energy resources, according to NASA. Fossil fuels have defined human energy use for hundreds of years, but as we begin to understand the effects it has on the environment, it's clear a dependency on this type of energy is not a sustainable option.

More sustainable forms of energy must be found to help counteract this threat. According to a report from Synapse Energy Economics, electricity from renewables and energy efficiency measures are expected to be cheaper than electricity from coal and natural gas by 2030. Due to increasing fuel prices and non-clean power regulations, the use of fossil fuels is expected to decline. Electric coal plants require costly retrofits and upgrades to maintain, making electricity from coal uneconomical. By not investing in coal plant retrofits, states could save \$21 billion by 2030. Renewable energy is quickly becoming the more economic option.

The continued efforts to promote clean energy solutions are further accelerating the renewable energy market. And based on current trends, the industry is positioned to become one of the fastest-growing global marketplaces. According to data by BP's Energy Outlook, the global renewable energy market could grow by 400% by 2040. In its energy outlook, BP notes that the robust growth of the industry is largely due to the cheaper costs of renewable energy compared to oil and gas.

Prices of wind and solar energy are marginally cheaper than non-renewable resources. As the industry continues to progress, clean energy prices can be expected to decline even further. But this growth has yet to be seen at the state level.

Illinois is the most prosperous and populated Midwest state. Its central location and access to a multitude of waterways, as well as rail and aviation hubs, makes Illinois an important factor in the nation's economy.

According to the Institute for Energy Research,

Illinois is a major energy-consuming state and has large amounts of coal reserves. Almost 90 percent of the state's energy comes from coal or nuclear power generation, while renewable power only accounts for 10 percent.

However, in August, Gov. J.B. Pritzker signed a law that gives Illinois the ability to set its own limits on carbon emissions and other greenhouse gases. By signing the law, environmental advocates say Illinois is positioned to take action, addressing climate change at a time when the Trump administration has impeded similar efforts by targeting climate protections related to coal-fired power plants, methane emissions and other areas.

"While the federal government unravels the progress made under the Obama administration, Illinois will not stand idly by," Illinois Gov. J.B. Pritzker said. "We're stepping up to protect the lives of generations to come."

In early 2019, former Chicago Mayor Rahm Emanuel unveiled his clean energy plan.

The plan, dubbed "Resilient Chicago," intends on making all of Chicago's buildings run on 100 percent renewable energy by 2035 with a completely electric CTA bus fleet by 2040.

"Chicago has actually grown its economy while reducing emissions over the last decade," said Karen Weigert, senior fellow at the Chicago Council on Global Affairs and former chief sustainability officer for the City of Chicago.

"That's an amazing thing. That breaks that paradigm of you have to sacrifice one for the other. Illinois now has on the books some of the most innovative energy legislation in the country in the Future Energy Job Acts. That'll roll through 2030 ... and that will put Illinois as one of the leading states, and we've got Chicago as one of the leading cities."

Despite this progress, the renewable energy industry is still in its infancy stage, as it is expected to only account for 14 percent of the total global energy demand, according to BP's Energy Outlook. Despite the small figure, its rapid development in cities like Chicago could further expand the prevalence of the clean energy industry.



Renewable energy solutions like solar and wind are expanding to become alternatives to coal and natural gas.
PHOTOS VIA UNSPLASH

WIND GAS & SOLAR



Natural gas, wind and solar power generation is part of Invenery's diverse energy solutions. PHOTOS COURTESY OF INVENERGY

Chicago-based company investing in cleaning up the world

BY JACOB BOLLING

Invenery is the leading privately held developer and operator of sustainable energy solutions in the world.

The Chicago-based innovative energy company develops, owns and operates a network of clean energy plants that generate power across North America and Europe.

Invenery's diverse range of energy solutions consists of wind, solar and natural gas power generation, as well as battery storage projects. Invenery develops these energy centers in sustainable and responsible ways.

Their approach for both wind and solar projects follow the framework outlined in the U.S. Fish and Wildlife Service's Land-based Wind Energy Guidelines, a tiered approach to assessing and minimizing risk to sensitive wildlife and habitat. Moreover, their environmental compliance and strategy department advises internal development, project engineering, project management and asset management teams to advance projects responsibly.

Over the past year, Invenery has experienced remarkable growth in multiple aspects of the company. Their portfolio of solar energy projects grew by 2,359 megawatts, and the overall portfolio of operating and advanced

development projects such as these grew by 25 percent.

Invenery has since invested an estimated \$3.1 billion to construct new energy facilities. This investment spurred job creation and employment opportunities in the rural communities and small towns where projects are located, as well as throughout the energy industry supply chain.

Invenery believes sustainability is about working together with diverse stakeholders for a better future. Tax revenues from their energy projects support community services, strengthen schools and improve local infrastructure as well as fund critical police, fire and emergency medical services. Moreover, lease payments to farmers and ranchers who host the projects can help balance out the uncertainty of income from crops and livestock.

Renewable energy is also becoming profitable for businesses; many are actively investing to create clean energy solutions. Large international corporations such as Apple, Facebook, Google, Amazon and Walmart have all pledged to transition towards using renewable resources to power their operations. Even oil and gas giants such as Exxon Mobil have established wind and solar energy plants in an attempt to move

towards a cleaner future.

Michael Polsky, Chief Executive Officer and Founder of Invenery, said that corporations are expected to be the fastest-growing customer segment of the renewable energy market, and over the next several decades, the market share of renewable energies is expected to drastically increase compared to non-renewable resources.

"Renewable energy is good for customers, the environment and the bottom line of corporations that run their operations with it," Polsky said. "We know corporate demand for more renewables is coming. We know it's one way to prosper while cutting down on greenhouse gas emissions and other harmful air pollution. It's time to listen to the demand side and let the supply side understand that it's in their best interest to make this shift— for profit now and continued profitability down the line."

Invenery is committed to doing its part for the environment through investments in a variety of research and implementation projects. The growth of the company, paired with their commitment to environmental and ecological responsibility, proves that responsible business practices can be commercially successful.

‘Slow your roll partner’

Resale shop in Edgewater fights to slow climate change

PHOTOS & WORDS BY EMILY ROSCA

Written on Green Element Resale Shop’s storefront, in black letters that jump out from a cyan backdrop, is the store’s credo: “Slow your roll partner. Shop here. Slow down climate change. Support resale. Bring sustainability to your home. Reduce, reuse, recycle.”

As climate change becomes more prevalent in mainstream media, the Edgewater business is doing its part to reverse the cycle.

Having grown up below the poverty line as one of 10 children, shopping second-hand is second nature for Brian Haag, the resale shop’s co-founder. At the start of college, Haag, 56, said he felt pressure to buy new clothing to show people “you were something.” But it was after backpacking through Europe post-college he stopped buying new clothing.

“I realized during those years as well that I’m a tree hugger to my core and

realized ... I needed to do everything I could, everything with my life’s energy, to help correct the problem,” Haag said. “So really all it takes is a dash of self-esteem.”

His resale shop, which has occupied the space next to McDonald’s on North Broadway since 2010, was the offspring of Haag’s passion for environmental change and a nudge from the federal government.

The idea for Green Element came after Haag opened Big Medicine, NFP, a non-profit organization dedicated to educating the public about government subsidies going toward environmentally destructive industries, including cotton. Cotton is the most toxic agricultural product in the United States since it relies heavily on pesticides, according to Rodale Institute, a non-profit supporting organic farming.

A way to combat the spread of cotton’s toxicity is to shop second-hand. While Big Medicine was established for educational purposes, Haag said the government asked him to expand

the mission to include running a resale shop, leading to Green Element opening its doors.

Claustrophobia might be the first word to pop into someone’s mind upon stepping into Green Element. A glass casing protects crystal bowls and champagne flutes from smudged fingerprints. Racks of clothes and knick knacks flank display cases. A vintage floral couch hides under piles of houseware oddities and living room seating.

Handwritten signs on pink paper are taped up throughout the store: “Ask how long it’s been here — We might be negotiable on price!” Furniture is often in transition, and the shop bursts at the seams at times, pushing couches and chairs to the sidewalk outside the resale shop’s green-and-purple-painted walls.

“It’s a constant juggling act like that, whereas a little local hardware store, they get to order their inventory and just have it show up on their sidewalk and then place it on their shelves,” Haag said.

Instead, 90 to 95% of Green

Element’s merchandise is picked up by one of the shop’s 18 staffers. The other portion comes from donations, reducing the number of textiles that end up in landfills. The Environmental Protection Agency estimated 10.5 million tons of textiles — which includes discarded clothing, furniture, footwear and towels — were landfilled in 2015, accounting for 7.6% of solid waste landfilled.

Discarded clothes don’t only see their end in landfills. British luxury fashion brand Burberry burned \$38.6 million of its own merchandise in 2017, according to a Vox report. In its 2017 annual report, the brand admitted the strategy was to preserve its exclusivity.

Burberry isn’t the only label to have torched its products. H&M, Nike and Urban Outfitters were also reported for similar actions, and people have responded with boycotts. Burberry was among the brands to announce its plans to no longer continue down this path, according to Vox.

While some brands chose to retain their aura of exclusivity for the fashion

1%, others, including Green Element, foster change through recycled fashion.

As a customer walks into the shop lugging suitcases and books, store volunteers guide her through the donation process. The books will be added to the numerous shelves throughout the shop, and the suitcases will settle until someone hits the jackpot with them.

Bill Salek, now a volunteer with Green Element, co-founded the resale shop with Haag. As the company works to become profitable after a tough patch in 2017 and 2018, Salek is a walking catalogue, knowing item prices off the top of his head and becoming a go-to for customers and employees with questions.

“Everything that goes out of [Green Element] stays out of landfills, and that is very important to me,” said Salek, 73. “[Haag’s] mission, I support it 100%, and that’s why I volunteer.”

Just down the street from Loyola’s Lake Shore Campus, Green Element is a one-stop shop for students on a budget. And some of them have been

loyal to the resale shop since their commencement. Diana Raspanti, a senior creative advertising major at Loyola, said Green Element is one of the most organized resale shops she has visited.

“Everything is fairly priced, and the staff are all so friendly,” said Raspanti, 22. “Their emphasis on sustainability is super informative, and it actually helped me realize how much waste people can save by shopping at second-hand stores like Green Element.”

Haag built Green Element from the bottom up, drawing inspiration from an organic food cooperative in his hometown of Carroll, a city along the Mississippi River in northwest Illinois. Looking back over the years, Haag said it wouldn’t have been possible without passion.

“People sort of take it for granted that certain things will emerge when you have certain density of population or certain things,” Haag said. “I don’t think that’s true at all. I think everything comes down to individuals who have a certain amount of drive.”



Green Element, located on North Broadway in Edgewater, opened its doors in 2010. Owners Brian Haag (left) and Bill Salek pose for a photo.



Green Element Resale Shop, located at 6241 N. Broadway, is open 11 a.m. to 7 p.m. Monday through Saturday and noon to 7 p.m. Sundays.

NATIVE PLANTS WE

Hate 'em, or love 'em, area plants are important to our ecological system

BY EILEEN O' GORMAN



You hear it before you see it. First is a distinct buzzing. It floats a few octaves higher than the sound of nearby waves. A couple more steps, and a chirp will startle you like a beat drop. Finally, after a chorus of ominous whistling and a left turn at some too-tall hedges, you're on top of it - the source of the symphony. Oh, and your shoes are wrecked.

The scene above is from a 7 a.m. stroll through one of three rain gardens on Loyola Chicago's campus. It's a haven for pollinators like bees and butterflies, and it's composed entirely of native plants.

The space is maintained by Loyola's Restoration Club, a group of self-proclaimed "plant nerds" on a mission to bring Chicago back to its roots.

"Native plants are basically species that were in the area before European settlers," said Sydney Nice, vice president of the Restoration Club. "They thrive in the weather, air and soil that naturally exist here. They don't need a single thing from us."

She paused to tear a handful of vetch, an invasive shrub, out of the ground. "Invasive plants outcompete the native ones," Nice said. "They take up more resources and can sometimes be dangerous to the wildlife around here because they'll eat them, even the poisonous ones, without knowing the difference."

Native plants, however, don't have that problem since they're designed to survive the mood swings of Chicago weather. You know that houseplant you forgot to water for two weeks, before you went on spring break, yet somehow it's still looking okay? Think of an entire ecosystem like that, with the Earth as a forgetful plant parent. Native plants survive and thrive with less water, no fertilizer and no pesticides.

Native plants require less water, as they are more accustomed to the soil in their home state, and also require being re-planted less, a costly process.

Because of their environmental and economic benefits, native plants are creeping back into campus landscaping with institutions such as the University of Florida, University of

Michigan and Indiana University utilizing native species in their campus designs. Still, these plants are known for a certain look: overgrown and dormant at all the wrong times.

Nice said many suffer from "plant blindness" when it comes to landscaping, which means that, to the casual observer, green will always mean good, invasive species or not. And while a campus full of cardinal flowers sounds like a dream to Nice, an official from Loyola Facilities said there are other things to keep in mind when decorating a campus.

"I can't help but walk around campus and notice a bare corner and think, 'Some black-eyed Susans might be nice there,'" said Brian Ohsowski, a restoration ecologist at Loyola. "But I'm a realist, I know that an area of relatively unkempt looking plants isn't what you want to showcase when trying to draw students to your university."

While Ohsowski has the prestige of a doctorate, he isn't necessarily the office type. He's often wearing chest-high rubber waders and peering out from five-foot-tall stalks of c attail. Restoration, he said, is something that requires all hands on deck, even his.

His class is spending the semester creating a restoration plan for the University that will hopefully bring soil quality and biodiversity back to campus.

"This whole thing is a swamp," Ohsowski said, laughing at the view of the skyline. "It doesn't matter what we've made it into, we still have the conditions and the wildlife for swamp-land, and it's time we start planting like it."

It's almost humbling, how the patch of coneflowers you stomp over on your way to an 8 a.m. class can purify water before it runs to Lake Michigan, or how that annoying hydrangea bush that attracts all those bees is the reason the air feels clearer during Chicago summers.

It may not matter to you which plant you take your afternoon nap on the quad next to, but you may care about the famous Loyola bunnies or a flooded sidewalk on your way to class. And if you care about that, then grab your nearest handful of vetch and start yanking.

"Look," Nice said, gesturing to a cluster of milkweed pods near the lakefront, "it just grows like this. That's what nature does, it just grows."



The 50,000-gallon aquaponic system at the Farm on Ogden allows for the urban garden to grow approximately 2,500 heads of lettuce year round.

Concrete Jungle

Small gardens have big impact on communities

STORY AND PHOTO BY AMANDA TELLO

Urban agriculture is becoming the answer to how people around the world living in cities can help lessen the damage being caused by climate change, while aiding their livelihoods, food supplies and communities. The practice of growing and cultivating food in or around urban areas has grown in the Chicago area thanks to its trendiness, and the

environmental, educational and economic benefits that have come with it. One of the more popular forms of urban agriculture are rooftop gardens, and small planting farms in vacant lots, or additions to a local community garden. According to the Chicago Urban Agriculture Mapping Project, there are 871 gardens within the city of Chicago, and outer lying neighborhoods and suburbs. As one of the

biggest cities in the United States, Chicagoans are proving they are taking action against climate change, while showing communities there are benefits to having a local garden to get their food.

According to The Ecology Center, when there's a local garden to get vegetables, that automatically reduces the need for transportation, which then lowers the amount of gas, fossil fuels,

gas emissions and altogether can bring down one's carbon footprint. Greenleaf Advisors, a sustainability consulting firm in Chicago, listed additional benefits to having community gardens, such as reducing waste by composting, improving food security and dietary habits, reduce risk of obesity and improve mental health.

A 2018 study by the Journal of Affordable Housing & Community Development Law stated that having a garden also proves to be beneficial for city sewers.

"First, the porous soil and vegetation curb stormwater runoff by absorbing excess water that would otherwise end up in city sewage systems," author Tatiana Pawlowski wrote. "The result limits the strain on sewage infrastructure (and city waterways). In addition, green roofs serve as a filter for water before it enters into the city's waterways."

According to the Environmental Protection Agency (EPA), with an increase in high temperatures during the summer in recent years, plants also help bring the temperature down. The "heat island" effect is the increased temperature in a city atmosphere versus the rural temperature. Instead of absorbing heat, plants reflect the heat and naturally work as a cooling system through transpiration. This is the reason why a patch of grass is much cooler in the sunlight rather than the concrete sidewalk. As climate change brings around more violent storms and hotter summers, gardens have proven to be a key factor in taking the impact to lessen the effects.

Urban gardens have also proven to aid the community as well. Multiple studies throughout the years by the University of California, Columbia University and the University of Illinois in Champaign have shown that occupying a vacant lot with a community garden helps decrease the amount of crime in the neighborhood, which in turn makes residents feel safer. For example, in Philadelphia, PA., researches from the universities

came together to fill vacant lots with gardens. Their field study found that crime was reduced by 13% and gun crime dropped 30%.

"There's just great benefits from being outdoors—socially, mentally, exposure to vitamin D, for example," William Sullivan, a landscape architect at the University of Illinois in Champaign said. "... we could expect benefits beyond the ones they documented."

In addition, it brings education and a chance to fill the "food deserts" that occupy Chicago's South and West Side. Having a garden can teach children and adults the benefits that come with having fresh produce, and increase their accessibility. Being involved in the garden can increase health, get children outside more often and provide jobs for adults in low income communities.

Carter O'Brien, the Field Museum's Sustainability Officer in the Keller Science Action Center, talked about how low-income communities are often not thought of to be the most prominent figures in climate change in a way few people think of.

"The reality is poor people are much better at minimizing waste out of just sheer necessity," O'Brien said. "People that buy less, waste less."

According to O'Brien, implementing urban gardens in the South and West Side of Chicago, such as the ones planted in Philadelphia, can greatly improve the lives of the residents living there.

A prime example of this in Chicago is at the Farm on Ogden in North Lawndale. The 7,300 square-foot greenhouse provides fresh produce, jobs and a marketplace for the community. According a 2019 study by the Community Data Snapshot, in Lawndale, the unemployment rate is approximately 20% in Lawndale compared to Chicago's 9%. The Farm on Ogden unites the community together through education and job security.

"We try to provide the community fresh vegetables and produce based

on their needs and what they would like to buy," one gardener at the Farm on Ogden said. "We grow year-round here so being able to help the community and environment at the same time is very rewarding."

In the future, urban agriculture can lead the way to solve a lot of the bigger issues that come with climate change. A 2018 study done by Matei Georgescu, a professor of geographical sciences and urban planning at Arizona State University, projects that not only could urban agriculture produce a big amount of the food's global production, but could be worth \$160 billion dollars.

Chicago has taken urban agriculture in with open arms and is working toward becoming a more eco-friendly city. The benefits of having an urban garden, no matter the size, can make a little difference in the overall impact of climate change. Even those living in high rises can contribute to the cause by having plants around their apartment. Urban agriculture is available to everyone and is one way to help the world become a little more green.

BENEFITS OF COMMUNITY GARDENS



Reduces waste by composting



Improves food security & dietary habits



Reduces risk of obesity



Improves mental health

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Congratulations to our journalism students on the newest issue of Mosaic. Their commitment to lead, to serve, and to live extraordinary lives inspires us all.



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Bee Keeper

Martin Lopez goes the extra mile for his honey bees

BY SYDNEY OWENS

Some people get nervous when they hear the distinct buzzing noise of a bee flying nearby. However, Chicago beekeeper and Sweet Comb Chicago owner Martin Lopez finds the humming sound from the constant to and fro of his hard-working honey bees to be relaxing.

After reading about colony collapse disorder (CCD) — a phenomenon where worker bees leave behind their hive and queen for some unknown reason — and the plight of the honey bee, Lopez wanted to help save the bees but was always traveling for work and feared he could not commit. When he learned that honey bees required little to no maintenance after the initial set-up, he knew he wanted to contribute.

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FROM ONE HIVE TO 30

Lopez purchased a box of honey bees and one \$300 cedar hive, thinking he would only need one.

“Initially, I thought I was just going to have one hive, so I bought an expensive cedar hive that will last forever and then it just kind of turned into a thing,” he said.

Now, Lopez maintains over 30 rooftop and park hives in Glencoe, Oakbrook and in his own Rogers Park backyard. Lopez creates honey and beeswax products that are sold online and in local stores, including Merz Apothecary, Whole Foods and Rogers Park Pet Salon. Recently, Lopez even began selling many of his products on Amazon, which is where his “Bee Bald Head Polish” does extremely well, according to him.

Other products include lip balm, candles, tattoo renewal and beard conditioner. He even started making dog shampoo and also a paw moisturizer for his miniature schnauzer Ripley who hates wearing her winter booties.

Despite the wide range of products, Lopez said he is extremely conservative when harvesting honey and wax from his hives. He will harvest once during the summer, pulling from one or two frames per hive, and make it last until after winter is over. By taking too much, beekeepers run the risk of starving their bees during the winter.

“So rather than risking ... that I’m going to take too much, and it’s going to be a long winter and they’re going to starve or whatever, I just won’t harvest until winter is over and then it’s all just extra fall honey,” he said.

Even still, Lopez had only one hive make it through Chicago’s “Polar Vortex” of January 2019. He said it is the hardest part about beekeeping since it can be difficult not to get attached to the bees.

“That’s a bummer because it’s like man ... you feel like you killed them all,” he said.

REWARDING WORK

Other than the devastating feeling that results from high attrition rates, Lopez said there are not a lot of down-

sides to being an urban beekeeper.

Since he chooses not to wear any protective gear, he occasionally gets stung, but it only happens if he accidentally bumps a bee, making it feel threatened. According to Lopez, honey bees are generally very friendly and only sting if they feel they must. He said overcoming the fear of bees is an important part of beekeeping that starts with trust.

“You have to trust it. If you’ve ever done that thing where you just fall back and people catch you, it’s kind of like that,” he said.

Lopez’s neighbors have learned to trust the honey bees as well. As gardeners, they reap many benefits of having bees nearby and are only bothered when the bees occasionally swarm, according to Lopez. As an additional peace offering, Lopez gives them both a jar of honey each year.

His stepdaughter Erin Murtha, who lives a few houses down, said the bees are always in her backyard pollinating the plants in her garden. She said her children, who are not afraid of the bees, also enjoy seeing them around.

“My six-year-old thinks that they all have individual names, so every time we see one, she asks me what that one’s name is,” she said.

Lopez still works his full-time job but hopes to someday profit enough from Sweet Comb Chicago to make it his primary concern. With all the community support he’s received thus far, he said it is only getting bigger as time goes on.

“An interesting thing I learned,” he said, “is that if what you’re doing it for the benefit of something else, it’s like the universe kind of lines up and helps you out. I think if you’re just trying to make money, you can do it, but it’s an uphill... struggle.” ■



PHOTOS BY SYDNEY OWENS



Rogers Park resident Martin Lopez (opposite page) set up a beehive in his backyard to help save the population. He uses the honey to sell his Sweet Comb Chicago products.

Almonds Love Honey Bees



- The California almond industry generates more than \$21 billion in revenue each year. SOURCE: Almond Board of California
- The 2017 almond acreage was estimated at 1.3 million. SOURCE: CDFA
- Roughly two bee hives are needed to pollinate one acre of almonds, which requires over half of the honey bee population in the United States. SOURCE: The Conversation
- The average cost of renting honey bees for almond pollination in 2019 was just under \$200 per hive.
- One semi-truck can hold 400-450 hives, but a one-way trip from Florida costs up to \$8,000. SOURCE: The Bee Corp



1 acre of almond trees needs 2 hives for pollination.



1 truck carries 450 hives



1 hive costs \$200.

Rooftop Bees

Urban beekeeping spikes, but attrition remains high

BY SYDNEY OWENS



City Bee Savers owner Bill Whitney works with his assistant to check the overall health of the hives at 540 W. Madison before winter. PHOTOS BY SYDNEY OWENS

Chicago's honey bee population faces an alarmingly high attrition rate each winter despite community efforts to preserve the species.

According to the Illinois Department of Agriculture, the number of registered apiaries in Illinois almost tripled from 2010 to 2018, rising from 2,565 to 6,000. In Cook County alone, the numbers rose from 168 to 517 over the same eight-year span.

COLONIES IN DECLINE

This spike in urban beekeeping could be attributed to the discovery of the mysterious Colony Collapse Disorder (CCD) phenomenon in 2006 and National Geographic's 2013 article titled "The Plight of the Honey Bee." Commercial beekeeper David Hackenberg coined the term CCD when he noticed his worker bees leaving their hives and queens without cause. The Environmental Protection Agency (EPA) has yet to pinpoint an exact motivating force for CCD.

These findings alarmed readers like Martin Lopez who now manages over 30 different hives on various rooftops and in backyards across the Chicago-land community. Lopez also owns Sweet Comb Chicago — a business that produces and sells all-natural honey and wax products.

"After reading about the bees dying and the plight of the honey bee ... that's pretty much how I got started," said Lopez.

Luckily, cases of CCD have significantly declined over the past five years, according to the EPA.

However, even with a reduced number of CCD cases and an increased number of apiaries, beekeepers in Illinois still faced a 62% mortality rate during 2014, according to Chicago Mag.



The commercial high-rise 540 W. Madison St., located in Chicago's West Loop neighborhood, has its own rooftop apiary.

Owner of City Bee Savers and local beekeeper Bill Whitney theorizes that the honey bees' weakened immune systems have been the driving force of rising attrition rates rather than CCD or harsh winters.

ROUGH WINTERS

"There's more people participating as beekeepers, but our attrition rate is horrible," he said. "Honey bees do not have a problem with winter or cold weather. They've got it taken care of, that's not the issue. The issue is their immune system and how it's being compromised."

Whitney described the honey bees' winter routine where the worker bees surround the queen and vibrate to keep her warm. They also take turns being the outermost layer which is always the coldest place to be.

"They have fantastic techniques

for taking care of winter just like penguins... they do that dance and everything, and honeybees have a really interesting dance, and it's just an absolutely ingenious method of keeping the queen at 94 and a half degrees all winter long."

Even still, honey bees can only tolerate so much extreme weather, especially if their immune systems are compromised.

During Chicago's polar vortex of Jan. 2019, temperatures dropped to as low as -23 degrees in some areas. According to The Washington Post, the 2018-2019 winter season exhibited the highest winter loss of honey bees since the annual survey began 13 years ago, which was reflected in the case of Lopez.

"I'm hoping we have a light winter,"

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Story continued from pg. 33

he said. "It was bad last winter. I only had one survivor."

According to the U.S. Geological Survey (USGS), natural disasters and extreme weather conditions are expected to worsen in the coming years due to the climate crisis. These threats to the honey bee species are in addition to the ongoing threats of varroa mites, pesticides and unsustainable farming practices.

PREDATORS OR CLIMATE?

Varroa mites are parasites that feed off of honey bees and spread to other hives, resulting in debilitating viral illnesses and sometimes even the death of a colony. The EPA now has a list of pesticides that are safe to use in hives without harming the bees. Varroa mites are difficult for beekeepers to fight off because they must be treated



Honeybee hives are located on the 29th floor roof of 540 W. Madison in Chicago.



In order to inspect the hives, Whitney lifts one frame away from another.

immediately before spreading to other hives and colonies.

Likewise, many pesticides and insecticides are extremely harmful and sometimes deadly to honey bees. According to CNN, an insecticide targeting Zika-carrying mosquitos killed more than three million honey bees at just one farm in South Carolina in 2016. In May of 2019, the EPA banned 12 different neonicotinoids due to negative effects on pollinators. Many of these chemicals have been used in crops like corn and soybeans since the 1980's.

Finally, unsustainable farming practices in the U.S. can be detrimental to the general health of honey bees as well. Since U.S. farmers partake in

monocropping, bees are left with little to no variety and are forced to migrate. As a result, farmers rent beehives that are trucked from all over the country during pollination season. California almond farms alone require over half of the U.S. honey bee population during the month of February, according to the Conversation.

The spike in urban beekeeping keeps Lopez and Whitney hopeful for the survival of honey bees. Even if keeping a hive is unfeasible, Whitney suggested growing bee-friendly plants to help boost their immune systems so they can fight off varroa mites, pesticides and the effects of climate change.



a greener field



Carter O'Brien (third from right) and his team work to reduce its carbon footprint by initiating the zero-waste model throughout the Field Museum. PHOTOS BY CARTER O'BRIEN

The Field Museum improves its conservation efforts

BY AMANDA TELLO

The Field Museum of Natural History sits as a landmark for Chicago and a place for families to enjoy, learn and discover a new world with limitless information. Behind the scenes of what's in the display and in the grand halls are people who work to try to make the museum and the city of Chicago just a little bit greener. One of those people is **Carter O'Brien**.

Growing up in Logan Square, Carter has been working at the Field Museum for 22 years, working his way to becoming the museum's Sustainability Officer. O'Brien originally got his start in the Field Museum's A Greener Field (green team), which he happened to just stumble into while working as the museum's operations manager, that works to install sustainability practices such as recycling, food operations, alternative transportation, urban agriculture/community gardening and renewable energy.

"Somebody at some point caught me in the hallway and was like, 'Hey you, you look like you'd like recycling.' You know, what do you say to that? It gets me up and moving and meeting people, that sounds kind of okay," O'Brien said.

During his volunteer time Carter and the other volunteers put their heads together and decided to fully implement recycling into the museum as part of a regular operation, not just once a month. After that success, they started looking at ways of including renewable energy, composting and implementing green practices into already existing ones.

"We realized that right off the bat a lot of these kind of green things that we wanted to do if, you did the research and you kind of framed it properly, that there could be benefits in terms of safe labeling," O'Brien said. "Sometimes it costs more, but there's a benefit because your staff will be happier or it connects to a public message."

The museum then sets up the Abbott Hall of Conservation to display their worldwide conservation efforts, which begged the question, 'What are you doing here to conserve the environment?' Carter and his team then began putting their heads together to launch projects around the museum such as installing a garden in front and

around the museum's entrance, a zero waste initiative, and turned the museum's Corner Bakery restaurant into the only restaurant to serve first fair trade coffee in America.

"There was a real opportunity to take a museum that it's a natural history museum and since our collections are essentially records of the changes in earth and it's life over hundreds and millions of years. I have, colleagues that are trying to make these kind of efforts and other museums, it's more challenging," O'Brien said. "The [Museum of] Science and Industry is a good example. I know lots of people that are working there, but when you think of the Museum of Science and Industry... you're not thinking is composting."

With his help, the Field Museum was showing dedication to not only Carter and his work, but to the entire field of conservation and sustainability. The museum added two restaurants, the Field Bistro and the Explorer Café, which focused on getting fresh and locally sourced food while bringing down the use of energy. The restaurants have a 74% waste diversion rate, 5% locally sourced food and 18% of all food purchases met one or more sustainable standards, according to the Field Museum.

Stephanie Katsaros, Founder and President of Bright Beat, an environmental implementation group, reflects on what it's like working with Carter and sharing the same passions. They work together and meet as members of the Chicago Sustainability Task Force after working with him through the Zero Waste initiative at the museum.

"I got to see first-hand the way Carter's efforts are not only implemented, but the people that work around him understand what he does and why," Katsaros says. "Can always count on him to give his honest opinion and he



O'Brien works with solar panels at the Field Museum of Natural History.

cares about what's going on in the city. We need that kind of candor to deal with the issues that we're facing right now."

"The most important thing that I've learned is that just keep your ears to the ground and keep absorbing the information like a sponge to stay on top of what's happening," O'Brien said.

Carter's work and passion has led him down the path of inspiring others to get behind the trail he is creating. Others have looked up to him and see him as a bright, passionate and prominent voice. Sarah Sutton, member of We Are Still In, works with institutions like the Field Museum to help change their cultural impact, has worked with Carter and reflects on his personality going hand in hand with his work.

"For me, he is positive when I am struggling, he is creative when faced with delays or resistance, and he knows that since there is not a single answer to any of these challenges, that he must keep extending and expanding the work," Sutton says. "His love for the work of The Field, and his role there, means he gets to do great climate work at a great institution."

Practices such as these have given the museum proof of their determination to show they are partners in conservation. With Carter's help, the museum has become a pillar for environmental sustainability, as well as a pioneer in fighting climate change.

Loyola's farmer's market
brings locally sourced food
from garden to table



FRESH

PHOTOS & STORY
BY JUSTYNA SKOWRONSKI

At the start of each week, people coming from the Red Line stop at Loyola University Chicago are greeted by the sweet smell of fresh produce, tamales and bakery goods.

Every Monday from 4-8 p.m., Rogers Park community members gather with Loyola students and other Chicagoans to participate in the Loyola Red Line station Farmer's Market. The goal of the Farmer's Market is to support sustainable agriculture, know where your food comes from within your sustainable community and provide fresh food to all community members regardless of their societal status.

"It's an actual place where we can embody the Jesuit ideals we talk about on campus and care for the community we interact with," said Kevin Erickson, Loyola University's urban agriculture coordinator. "It's not for Loyola, but for the community to participate in a market that causes fresh produce to reach low-income customers and diverse people."

The Farmer's Market brings locally sourced products from farms within a 100-mile radius of Chicago. Fewer fossil fuels are used traveling shorter distances since the market produce is local, so less energy is emitted in the process and items are fresher and more affordable to all community members.

Farmer's Market organizer Chelsea Denault said, "I always like to tell folks we have two missions. We're focused on bringing local healthy food to our community, emphasis on local, all of our farmers are coming with food closer than your local grocery store in the city of Chicago, or an hour outside of the city."

According to the Loyola Farmer's Market blog, present vendors include Loyola Urban Agriculture, La Boulangerie, Black Dog Chicago, Hearts & Flour, Patyk's Farm, Tamales Express, Stamper Cheese and Farmer Nick's.

Steven Frank farms in Holland, Michigan, used to be one of the Loyola Farmer's Market vendors, but their businesses are changing due to climate change.

"They're the only farm at the farmer's market that is outside of Illinois," Denault said. "But Michigan has a very unique climate in how climate changes in comparison to the lake and the way the wind and weather moves."

With longer winters and shorter springs, the Midwest region has not been producing the same crops it does each year. Peach season usually lasts from July to mid-September,

but the polar vortex last winter caused low production of peaches during the summer season since it took longer for the temperature to get warm.

"What are those farmers supposed to do?" Denault said. "They imported peaches from Georgia and it totally messed up the angle of a Farmer's Market. ... I couldn't let them sell peaches that were not local."

Farmers have relied on the same crops for decades, but many of those crops aren't growing anymore due to significant weather changes.

The Farmer's Market is more than just a local fresh produce business. It offers help to low-income families and access to fresh produce for marginalized communities.

"Every time a Link card holder makes a purchase we give them the same amount back, \$20 on meat, we give them \$20 for kale," Denault said. "They can double up on the ability to help nourish people and their families."

Loyola's Farmer's Market offers a program called Link Match that is open to every market program in Illinois. After applying for a USDA grant, the state distributes money to every market as needed.

"It's our signature program," Denault said. "It allows us to get good healthy food into the hands of people who need it the most."

Loyola's Urban Agriculture program grows its own produce to sell at the Farmer's Market Winthrop Garden location at the Lakeshore Campus. The Urban Agriculture program grows a wide array of products, including arugula, swiss chard, meadowlark kale, garlic, zucchini, basil, spearmint, chives, parsley and oregano.

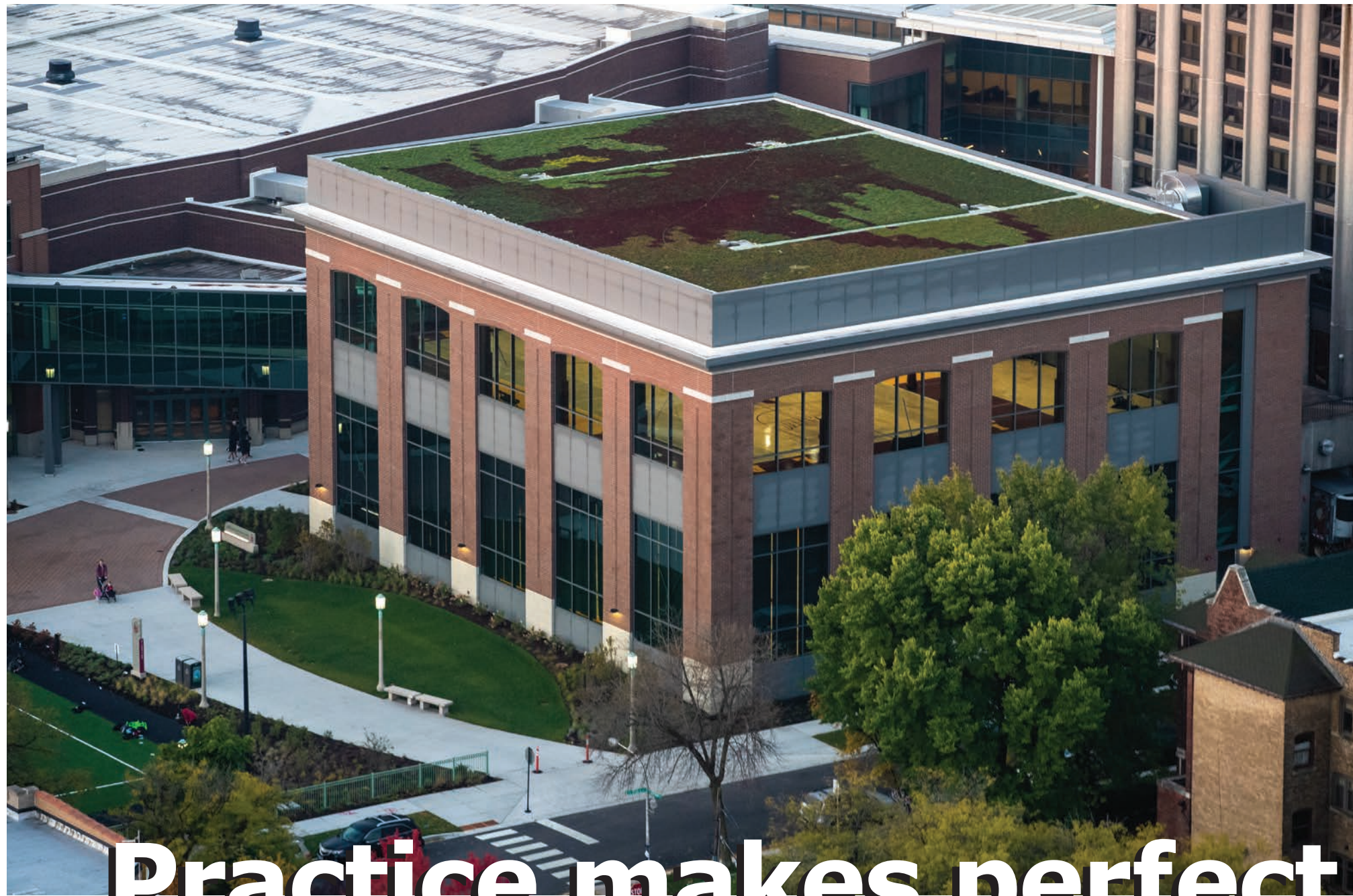
Urban Agriculture intern Frances Rafferty works within the Institute of Environmental Science at Loyola. She and spent the last few summers at Bethlehem Farm in West Virginia learning about sustainable agriculture while working on a "garlic hermitage" their greenhouse.

"I have this chemical burn on my thumb from touching garlic so much last summer. It's kind of like my 'green thumb' I guess," Rafferty said.

Rafferty grows produce organically on Loyola's land and property which serves to mitigate climate change by not using machinery or fossil fuels.

"It all stems down to one thing: cura personalis," Rafferty said. "It's a Jesuit ideal we talk about a lot here at Loyola in being responsible with the food we eat. You can't care for the community if you can't care for your environment."

Loyola University Chicago grows their crops at Winthrop Garden and then they are sold by students at Loyola Farmer's Market.



Practice makes perfect

Loyola furthers its green initiative with new environmentally friendly Alfie Norville Arena

BY LUCAS WILLIAMSON



There's more to being here at Loyola than just getting a degree or playing a sport.

— Steve Watson,
Athletic Director

Loyola University Chicago has consistently backed green and sustainable energy initiatives, and now they're adding buildings to their portfolio. This makes the newest addition – the \$20 million Alfie Norville Practice Facility – more noticeable.

The facility, nicknamed “The Alfie,” was a project head basketball coach Porter Moser and Loyola graduate Allan Norville had been working on for eight long years. Looking past the intriguing skywalk, polished interior and exquisite architecture, is a building designed to be environmentally friendly at its core.

Sustainability is an important part of life on campus. An example of this is Loyola's Climate Action plan initiated in 2012. The plan is designed for the campus to lower emissions and become carbon neutral by 2025.

“Sustainability is important for higher education for a number of reasons,” said Aaron Durnbaugh, the university's director of sustainability. “We're a school committed to social justice and if we don't address sustainability topics like climate change and environmental justice, we'd only be making things worse.”

As climate change becomes a more prominent issue, Loyola has been trying to set an emphasis on sustainability in its curriculum. Students play a major role not only in learning about the effects of climate change but acting on them as well.

“We don't need everyone to be an environmental scientist,” Durnbaugh said, “but we need a lot more environmental lawyers, sustainable business owners, and teachers explaining climate change and environmental racism to kids of all ages.”

Although green building can be a bit more expensive, Loyola holds its building to a higher U.S. “Green” Building Council (USGBC) certification than the bare minimal.

“All Loyola buildings are designed to meet at least a USGBC - LEED Silver rating,” said Peter Schlecht, the assistant vice president for campus planning. “In order to do this, many systems of the building are considered in the design process as to how they contribute to the energy savings.”

The USGBC is an organization that is committed to leading the discussion for green buildings. They use LEED as a way to give scores based on the different green features a building might have. In order to become LEED certified, a building must record a score of 47-49 points. Scores recording higher than that either enter the silver (50-59), gold (60-79) or platinum (80-110) ranges. Loyola is making a statement by having all buildings have a silver requirement and not just the certification requirement.

The Alfie was also recognized by The National Association of Collegiate Directors of Athletics (NACDA) and USG Corporation (USG). The Alfie beat out two other finalists and was awarded the 2019 USG NACDA Sustainability Award. This award goes to the university in the NACDA that incorporates sustainable practices and materials into their athletics facilities.

Steve Watson, Loyola's athletics director, said building the Alfie is a part of a bigger goal for athletics.

“We're trying to send the message that there's more to being here at Loyola than just getting a degree or playing a sport,” Watson said.

Watson was also very happy with the recognition the Alfie has received. Sustainability is a global effort from people of all shapes and sizes. Watson hopes that Loyola Athletics has a lasting impact on its student athletes and helps continue the conversation of climate change and sustainability.

“It makes a statement to the students,” Watson said. “But it really tells the entire country that that's a priority and something really important at a place like Loyola.”

**campaigns
protests
fossil fuels
plastic water bottles
divestment**



PHOTO UNSPLASH

**student
environmental
alliance
fights for sustainability**

BY DANIEL COLLAZO

a

ll over the world, young people are working together to raise awareness of the effects of climate change. Environmental activism is taking place in the form of social media campaigns, marches, strikes and walkouts. They're even happening here at Loyola University Chicago (LUC).

The Student Environmental Alliance (SEA) is a student-run organization focused on environmental activism and education. According to the SEA website, the group works to educate, advocate and act on environmental issues not only within Loyola but in the greater Chicagoland area.

Laura Orrico, a Loyola senior studying environmental science, serves as one of the co-presidents of SEA. After being a student within the IES, she wanted to understand what she was learning in a real-world setting. That's how SEA helped her the most.

"I joined SEA in my sophomore year and was interested in working to make Loyola more sustainable," Orrico said. "I wanted to put that education to use."

SEA members work on campaigns to get Loyola's administration to implement more sustainable initiatives. One of the most famous campaigns from SEA was the plastic water bottle ban on Loyola's campuses. They were responsible for banning the presence of single-use plastic water bottles. The issues relating to plastic water bottles include the privatization of water and the use of plastics that are harmful to the planet.

An ongoing SEA effort is the divestment campaign, aimed at keeping Loyola from investing its endowment money in industries that harm the environment.

Sophomore environmental science student Shriya Patel serves as the community partnerships chair and secretary for SEA. She also leads the organization's divestment campaign.

"We're calling out the university to stop investing their endowment on fossil fuels and to be more in line with their mission of social justice and environmental sustainability," Patel said. "We also want to call on the university to be more transparent with where the endowment goes."

According to the Loyola Phoenix, LUC spent about \$12 million in the fossil fuel industry, in 2016. The movement for fossil-fuel divestment is demanding institutions move their money out of oil, coal and gas companies. According to a June 2015 article published by The Guardian, there are two main arguments in favor of divestment.

The first argument is based on morality. Investing in companies that further damage the environment,

causing rising sea levels, droughts and more, is viewed as morally wrong. By investing in companies that perpetuate those damages, investors are indirectly adding to the effects of climate change.

The second argument is based on finances. Money could be spent elsewhere instead of adding to the damage being done to the planet. If potential customers realize where and how institutions are spending their money, those customers might be more likely to spend their money on the institutions.

"Since Loyola is a private school, we don't know when they host board meetings and we don't know who is on the board," Patel said. "We want transparency regarding the endowment because that is essentially where, as students, our money goes toward."

Working with the administration to implement divestment comes with roadblocks. Members of SEA get bounced around from one person to the next when trying to discuss this issue with the administration.

"A lot of the work is keeping pressure on the administration," Patel said. "It's also about building public support on campus for the things we're trying to get passed."

Patrick Chan, a Loyola sophomore studying environmental science, wants students to know that environmental activism isn't just protestors on the street. It takes many forms and requires implementing small changes into their daily routines.

"They can be the person that advocates for having a recycling or compost bin in their place of work," Chan said. "It can look like starting a community garden or pushing their family to produce less plastic waste."

Aside from educating their peers on campus, SEA members work to provide support to Chicagoland environmental activist groups, like the Little Village Environmental Justice Organization and the Sunrise Movement. Orrico said this is all part of the group's mission.

"Off campus we work as a supportive role and want to make sure that our efforts are being a good neighbor to Chicago," Orrico said. "We really want students to be involved in the Great Chicago community."

As this is Orrico's last semester, she does have one wish for the student body and for environmental activism at Loyola.

"I would really like to see more discussion on campus," Orrico said. "I want SEA to be more known and for students of all backgrounds to get involved."

SEA hosts their general body meetings at 7 p.m. on Thursday evenings in the IES room 111.

Student group takes the swap approach to help save the planet

PHOTOS AND STORY BY MAGGIE MICHAUD

Twice a year, a Loyola University Chicago student organization turns a room in the Damen Student Center into a Magnificent-Mile-worthy thrift shop. The goal is simple: Raise awareness of the cost of textile waste, an issue even the most environmentally conscious student might not have considered.

During the fall semester's swap, Lillian Syme, a Loyola sophomore majoring in international studies, joined other students at the Clothing Swap, sifting through new-to-them clothes of every shape, size and color.

"I think a lot of issues with climate change are so broad and people don't know exactly what they can do," Syme said. "But I think little instances like this help people understand what they can do in their daily life right now, right away, to help with climate change."

According to the U.S. Environmental Protection Agency (EPA), discarded clothes are the main source of textiles in municipal solid waste. On average, the United States generates about 25 billion pounds of textiles per year, of which 85% ends up in landfills. That's about 70 pounds of textile waste per person per year.

The primary goal of the Clothing Swaps is to limit that waste by extending the life of the textiles students already own.

Grower's Guild Loyola, an organization run by students at the university, prides itself on its broader mission to teach environmental sustainability.

"Our newest open motto would be to grow yourself, grow change and grow community," said junior Elizabeth Moravec, the guild's co-president. "The focus is on incoming freshman or people just now living on their own for the first time to learn how to live on their own, but live sustainably."

That means teaching students to buy a reusable rag instead of 20 rolls of paper towels or donate old clothes and get reused clothing in return.

"It's mostly just trying to start people off as being environmentally sustainable rather than when you're older and trying to change it," Moravec said.

Doria Fredrickson, co-president of Grower's Guild Loyola, said doing the Clothing Swap is the perfect way to reduce waste.

"We do the Clothing Swap, which everyone loves, but little do they know as we're doing this, and it's a fun event, you're reducing your textile waste because a lot of the

clothes that people bring that they don't want, they might have just thrown away," she said.

It's not just the waste in landfills to consider. Fredrickson emphasized the other factors that go into producing textiles.

"It takes a lot of power and energy and factory work into making the clothes and shipping the clothes," she said. "So just donating your clothes or doing this Clothing Swap or turning your old clothes into something new in itself is very beneficial to the environment."

EPA studies have shown that textiles create 2% of all greenhouse gas emissions. This comes from fossil fuel combustion in transportation of textiles and purchased electricity from the production of textiles.

"By not going to the store and buying something new, you're saving a lot of extra energy that goes into making those products," Fredrickson said.

The clothing that doesn't end up being swapped at the event still will not see the end of its life. Grower's Guild Loyola just plays the middle man in the donation process.

"It is true, a lot of people would end up throwing their clothes away if they weren't planning on using them anymore," Moravec said. "Whatever we don't give away or have someone trade off, we donate it to Green Element, the resale shop a couple blocks down. ... Either way we're going to give it somewhere else so it won't be the end of the clothing's life."

As for the rules of the Clothing Swap, there really aren't any. Students come with clothes they no longer want or come with nothing. No need to swap if a student has nothing to give away. Just come, shop and extend the life of some other textile.

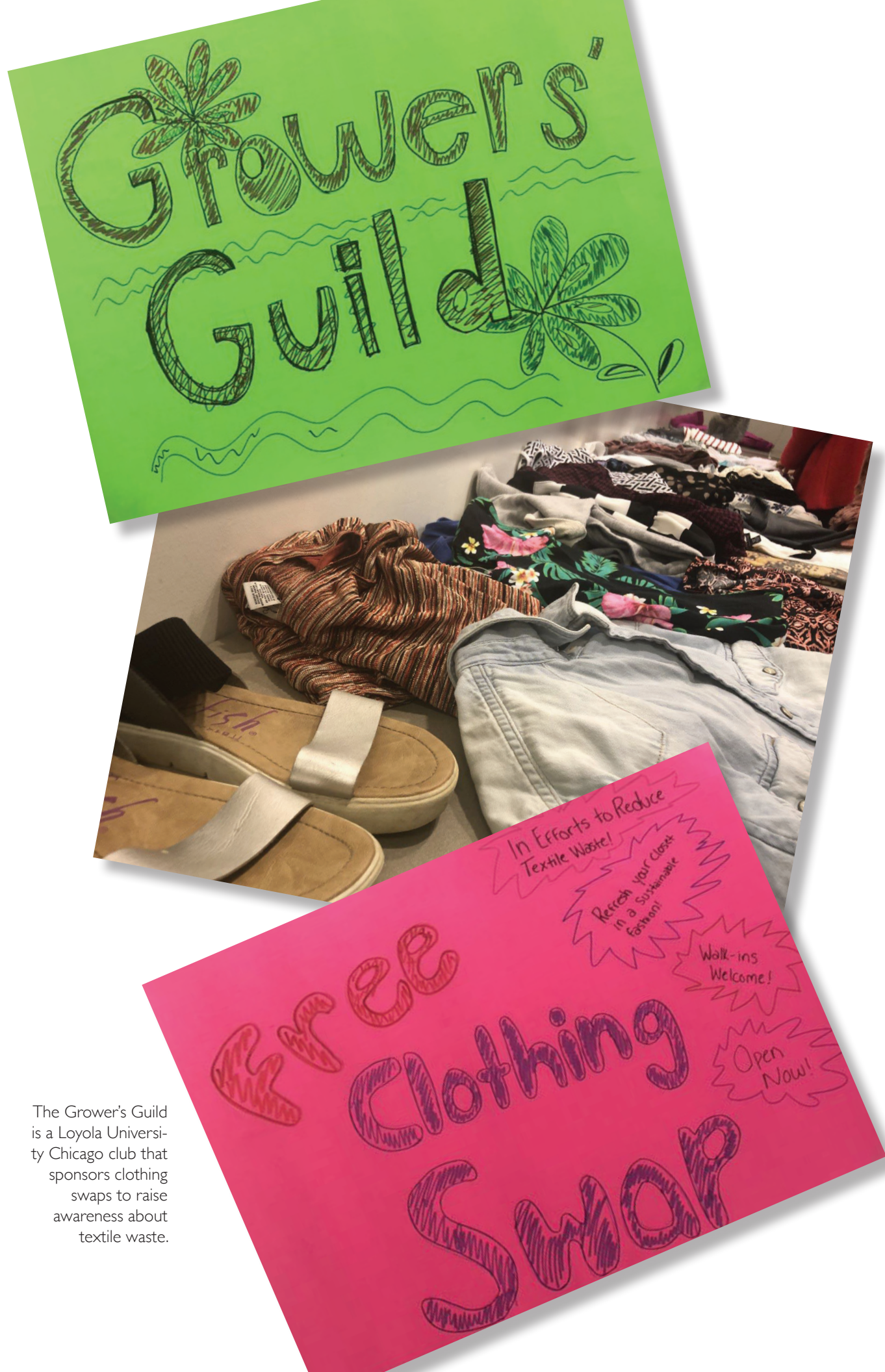
And the best part? Everything's free. Teaching fellow college students the importance of being sustainable is something Fredrickson loves about Grower's Guild.

"Especially college students, they're so impactful," she said. "You just throw things at them and they just absorb it."

Syme, the sophomore, said she enjoyed the fall Clothing Swap, both for the clothes and the message.

"It's just a really fun event to spread sustainability," she said. "I think especially because I like thrift shopping as well, this is cool to have our own little thrift shop here."

That's music to Moravec's ears. "Everyone has their own impact," she said, "even if it's small."



The Grower's Guild is a Loyola University Chicago club that sponsors clothing swaps to raise awareness about textile waste.

Dirty Drinking Water

Loyola professor analyzes the effects of trash on potable H₂O



Plastic bags, bottles and other litters are draped over a log in Baltimore during Hoellein's field research in 2017. Hoellein's research analyzes the effects these pollutants have on water quality. PHOTOS BY TIMOTHY HOELLEIN



Studying trash means closer examination is sometimes necessary. Hoellein lays out strips of plastic trash in his research laboratory during his 2017 field research in Baltimore.

BY MARCELLO PICCININI

Timothy Hoellein (Whole-Line) – Assistant Professor of Biology at Loyola University Chicago – has spent a good amount of time researching litter. With that progress, he's also made headway in expanding the discussion around his work as well.

Hoellein was born in Morgantown, West Virginia on June 7, 1978. He says a lot of his motivation for studying water pollution comes from where he's from.

"I grew up in 'coal country,'" Hoellein said. "It's a really beautiful part of the world but it's also a really polluted part of the world. There's a lot of mining, industry and manufacturing so my experience of nature was that you could look in one direction and it would be very pretty and then you could look in the other direction and it would be very oppressive."

Hoellein finished his Ph.D. – studying water quality and river restoration – in 2008. Afterward, he moved to New York City where he worked on water quality issues and later started a side project on measurements of trash. From there, it grew into a much larger endeavor with linked sets of projects.

Hoellein always sensed that the research he did, especially on water quality, would help improve the environment in some way. His work has brought him to many different places – such as Florida, Montana and the Caribbean – but he sees a lot of the same problems in all these areas.

"In many places that I've lived, people are willing to trade environmental quality for investment in industry and urban development," Hoellein said. "I think that sacrifice doesn't have to happen. I think it's a false choice, but I think it's something people are sold on

in all these communities."

Over the years, Hoellein finds change more in his network of researchers than his research methods. As his work has gone on, he's ended up doing more interdisciplinary work, including giving presentations to community groups and government agencies and working with professors in different fields.

This year, Hoellein has given presentations at the Chicago Field Museum, the McCormick Bridgehouse and Chicago River Museum, the Illinois Microscopy Society and many more places. He's happy that people are interested in the work he does and want to hear more about it.

"Ultimately, I want to be part of a solution toward improved environmental conditions," Hoellein said. "That's really done through communicating science."

Hoellein and his colleagues approach their work as a way to answer questions about trash and litter and their sources, interactions and fate. The goal of him and his team is to find information that can answer these questions so they can be communicated to others.

"I'm not able to write a law or craft a policy but I'm happy to talk with people who do those sorts of things and communicate to them what I think some of those important conclusions are," Hoellein said.

Hoellein enjoys the sense of discovery and the advancement of knowledge that's associated with what he does in his work the most.

"When we accomplish something that's difficult and feel like we've discovered something new, that's a really rewarding experience," Hoellein said. "It's exciting to see our results come together and find how it's answering

our questions."

Hoellein does his best to help his students understand these interactions as well. Samuel Frederickson – an undergraduate student at Loyola working with one of Hoellein's graduate students – finds Hoellein's lab environment to be very welcoming.

"I've found that he's very involved in the project process and makes sure you're on the right track," Frederickson said. "You can tell he wants his students to succeed and he gives them the tools to do so. If you're confused or stuck on what to do, he happily guides you back."

Hoellein's participation in this field has come with its own benefits. According to Hoellein, for most of its time in science litter research had been looked at as an ocean problem, but his experience with polluted rivers in his hometown has opened the conversation with marine biologists as well.

"I think one of my contributions to this research has been to speak the same language and to collaborate with people who're thinking at the other end of the continent" Hoellein said. "That discussion has been really fruitful."

Hoellein believes the problem with plastics is the way they're produced without a proper plan for disposal. He finds the solution to be the manufacturing of new materials that have this disposal plan in place.

"A big part of what would ultimately be the solution to this problem is engineering," Hoellein said. "We don't have a good system for recycling things like plastic Coke bottles and I think new materials need to be developed that can either be recycled better or aren't persistent in the environment. I don't know about that kind of material science, but I'd be happy to help to whatever extent I can."

WASTE COVERED WATERFRONTS

Build up of trash could have devastating effects on Chicago's fresh water source

STORY & PHOTOS BY MARCELLO PICCININI

The sandy shoreline of Lake Michigan holds proof of a grim future for the world's largest collection of fresh water.

According to the Rochester Institute of Technology (RIT), 22 million pounds of plastic debris from the United States and Canada enter the Great Lakes each year. Over 8 million cubic feet of plastic litter is accumulated in Lake Michigan yearly.

The same study found that plastic debris spreads differently in the Great Lakes than the ocean. Whereas garbage patches in the ocean – such as the North Atlantic Garbage Patch – float on the surface of the water, trash in the Great Lakes is pushed by currents and winds to other shorelines.

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Story continues on pg. 50

Story continued from pg. 49

For about 10 years, Assistant Professor of Biology at Loyola Timothy Hoellein has been conducting research on trash and other litters in fresh water with a network of researchers.

“We’ve analyzed litter composition in the Chicago river and beaches, and we’ve found that the materials are different,” Hoellein said. “On the beaches, a lot of what we find is coming from people eating, drinking and smoking.”

According to the Chicago Tribune, a study published by Hoellein and a team of researchers in 2018 found that 85% of fish caught from the St. Joseph, Muskegon and Milwaukee tributaries in Lake Michigan had microplastics in them.

“We find litter items found on the beaches in the river as well, but we also find evidence of two other sources,” Hoellein said. “We find evidence of illegal dumping of household trash and of sewage related trash that comes from the way our sewer system is designed to overflow into the river.”

These actions directly affect the citizens of Chicago. Using the tax bill of a property valued at \$224,500 as a baseline, the Chicago Park District sees \$202.32 out of \$4,106.23 – exactly 4.93% of the total tax bill.

According to the Chicago Park District’s 2019 Budget Summary, Chicagoans located in the Central Region – specifically the near north, near south and west side parks – pay into the upkeep and maintenance of the city’s shoreline from North Avenue South to 51st Street.

Despite the city’s efforts, it’s becoming difficult to prevent litter from reaching the water. Research is beginning to look at the emergence of nanoplastics – microplastics that have broken down to the point they may be able to penetrate the membranes of blood cells.

A 2019 study by *Frontiers in Environmental Science* found that micro and nanoplastics negatively affected sizable portions of groups of arthropods they tested on, causing developmental, reproductive, behavioral and life-threatening effects. Scientists haven’t yet determined if exposure to threatening toxins can be caused by the consumption of microplastic-tainted seafood.

Estimates by the Alliance for the Great Lakes – a non-profit dedicated to ensuring the health of and protection for the Great Lakes - and RIT stated that there were over 11 million pounds – or 384,729 pieces – of plastic in Lake Michigan in 2018, more than the amount in Lakes Erie, Ontario, Huron and Superior combined.

“Each year, we hold hundreds of cleanups along Lake Michigan in Chicago,” Alliance for the Great Lakes Senior Volunteer Engagement Manager Tyrone Dobson said.

“Some of these event organizers are people that are really amped up about making a change, some are cor-



Recent estimates state close to 400,000 pieces of plastic reside in Lake Michigan with illegal dumping the main culprit.

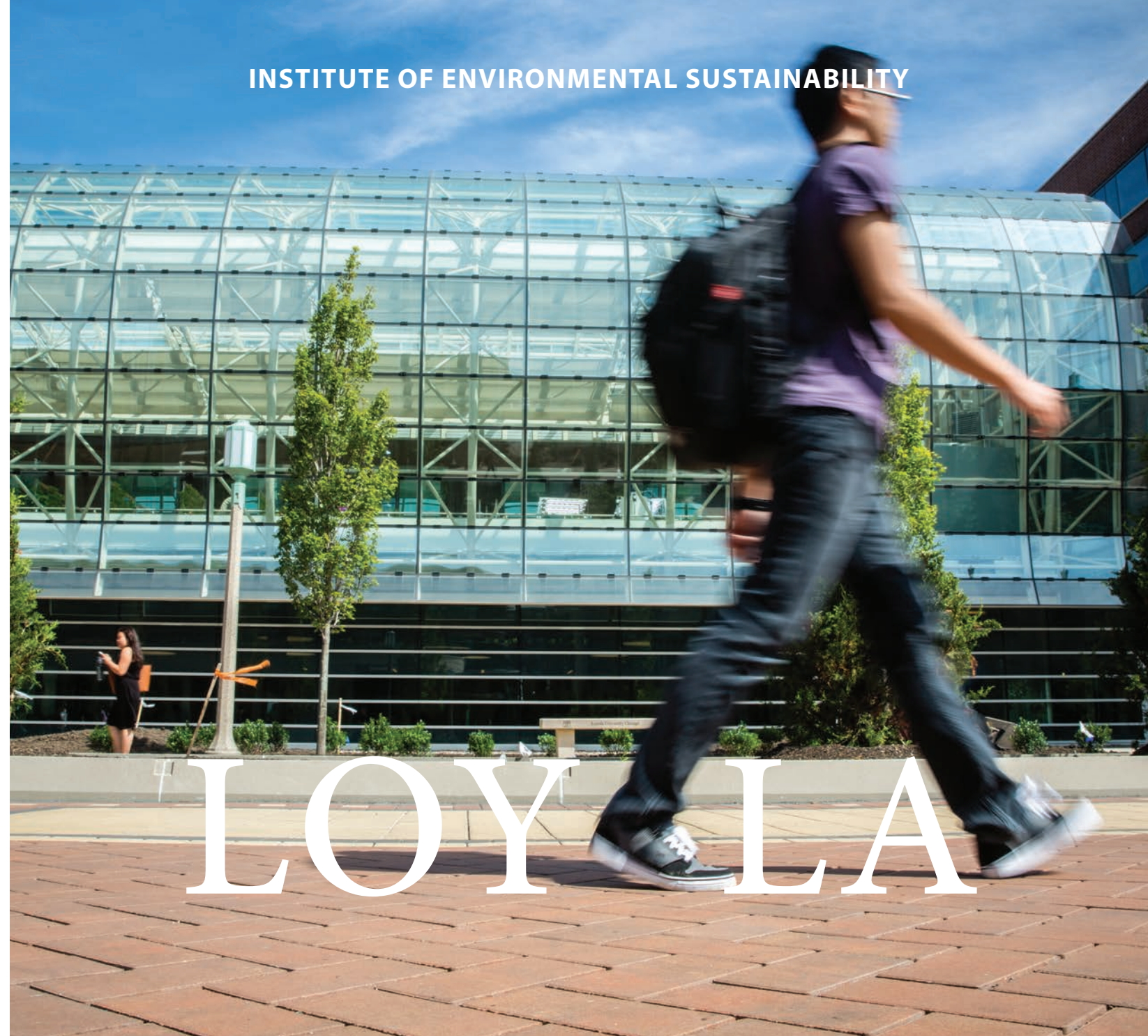
porations in the area that use this as an opportunity to engage their employees and some are other non-profits.”

According to their Annual 2018 Report, the Adopt-a-Beach program involved 14,354 volunteers, held 900 cleanups and picked up 35,606 pounds of trash across the Great Lakes in 2018, with 87% of collected trash being plastic litter.

“People that live in this area have a connection to the Great Lakes whether they realize it or not,” Dobson said. “A big connection is that we get our drinking water from the Great Lakes. We have to make sure that the Great Lakes are healthy because it impacts us on a very personal level.”

With the Great Lakes being an important part of the Midwest’s economy and services, the well-being of countless citizens could rely on the ability of the public to address litter in the sand and on the water.

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Lake Michigan is swalling up smaller beaches

PHOTOS & STORY BY JAMES WON

Lake Michigan's rise in water levels is proving to be hazardous for both Chicago beaches and residents. The combination of strong winds and high-water levels has produced powerful waves that have penetrated the shorelines of Chicago, compromising many aspects of the city.

Out of the five Great Lakes in the Midwest, Lake Michigan has seen the biggest increase in water levels. According to the U.S. Army Corps of Engineers, Lake Michigan has gained 16 inches of water since last December.

Chief of Watershed Hydrology for the Detroit District of the U.S. Army Corps of Engineers Keith Kompoltowicz, believes the Great Lakes is experiencing a spike in water levels because of the high amounts of precipitation in the Midwest.

"We're seeing some of the highest water levels in recorded history on the Great Lakes, and that's the result of very wet weather experienced over the last several years," Kompoltowicz said.

The National Weather Service reports that 2018 was one of the wettest years in Chicago history, seeing a total 49.23 inches of water. 2019 has also been one of the wetter years in city history, gaining about 49.54 inches of water.

The precipitation Chicago has dealt with the last couple of years translates directly to the issues Lake Michigan is currently dealing with, as 2018 and 2019 ranked fifth and third respectively in Chicago's history of annual precipitation ranks. With precipitation levels that high, it's no surprise to see Lake Michigan overtaking shorelines throughout the city.

For Chicago residents, the local beaches have been a huge part of the community for years, with several beaches located throughout the smaller parts of the city. With the rise of Lake Michigan, access and usage of these beaches have been compromised, and the stability of these beaches are at risk. Juneway Beach, located on the northern part of Chicago, is one of the beaches that have been swallowed up by the lake.

Residents can expect to see a drastic change on the overall



Frozen beaches during winter months in Chicago show significant rise of water levels as rain levels have increased in recent years.

landscape of these beaches according to Rob Moore, a Chicago-based climate adaptation expert with the National Resources Defense Council.

"People who don't frequent the lake in the winter are going to see a very different shore than the one they remembered from the end of the last beach season," Moore said in an interview with Scientific American.

The Chicago Park District released an emergency alert stating that Juneway Beach has been shut down due to water levels submerging the land, banning all visitors from being able to access the beach. This trend can be seen throughout the northern part of Chicago, as Juneway isn't the only beach that has been shut down.

According to the Chicago Tribune, both Fargo Beach and Rogers Park Beach implemented an indefinite swim ban, placing chain-linked fences along the shore. Other smaller beaches and lakefront sections in Chicago are being monitored by the Chicago Park District to determine the current and future states of these areas.

While the smaller beaches of Chicago are being impacted heavily by Lake Michigan, the increase in water levels also



Lake Michigan has risen nearly 6 feet since 2013, according to the Chicago Tribune. Unusually high waves have eroded area beaches.

poses a danger to residents, as drownings have increased dramatically. High water levels and forceful currents created an unstable swimming environment for residents of Chicago. Drownings in Lake Michigan have gone up by nearly 87% since last year.

Lake Michigan has been responsible for nearly half of the drownings that took place in the Great Lakes. According to the Great Lakes Surf Rescue Project – a non-profit organization that tracks drownings in the Great Lakes – the Great Lakes as a whole had a total of 93 drownings in 2019. Lake Michigan had 47 drownings in 2019, making it the location for 50.5% of drownings in 2019. Lake Erie had the second most, recording 25 drownings.



We're seeing some of the highest water levels in recorded history on the Great Lakes."

— Keith Kompoltowicz, Chief at U.S. Army Corps of Engineers

Chicago Park District working hard to protect the lakefront

Assuring the Shore

BY JAMES WON

PHOTO BY VICTOR LOZANO ON UNSPLASH

The Chicago Park District — the nation’s largest municipal park manager — is searching for solutions to battle the historic rise of Lake Michigan.

According to WTTW News, a state of emergency was declared at a Chicago City Council meeting on Jan. 15, 2020. The resolution addresses lakefront erosion,

citywide flooding and severe unseasonal weather and calls for a mobilization “not seen since World War II in order to reach zero greenhouse gas emissions across all sectors of the economy.”

Lake Michigan has gained over 16 inches of water since last December, which led to a shutdown of several beaches. In response, the city of Chicago has proposed and implemented several ideas that could help sustain the overall landscape of the beaches and the lakefront.

In order to properly monitor the lakefront, the Chicago Park District has been using drones to capture footage of the city’s shoreline and observe the impact erosion has had so far. The drones shot footage of the shores of Juneway Beach, located in northern Chicago.

According to the Chicago Tribune, the Chicago Park District has been working with the U.S. Army Corps of Engineers to evaluate the footage of the drones, and to produce solutions that would benefit the city’s 18-mile lakefront. In July 2019, “the Army Corps’ Chicago District activated its emergency operations center to provide technical assistance to local agencies and shoreline owners.”

Juneway Beach has already been shut down by the Chicago Park District due to erosion and massive currents, which have grown tremendously and penetrated the shoreline.

Vasile Jurca, a civil engineer for Chicago’s Department of Transportation, has been noticing the impact the lake has had on the shoreline of the beach, with an emphasis on

how the currents are making things harder for Juneway Beach.

“In the past, maybe you had 6-foot waves hitting the shoreline, which would have been no big deal, but now you have 12-foot waves hitting the lakefront,” Jurca said.

Chicago Park District’s Director of Planning and Development Heather Gleason, eventually realized that temporary solutions are having no effect and chose to utilize more architectural methods.

“The lake has been so high and powerful this year that a lot of our temporary effects that we can do in-house at the Park District failed,” Gleason said. “They collapsed, so we realized we needed a long-term engineering solution.”

Workers have been using boulders and natural obstacles to help fortify the front of Juneway Beach, stopping erosion at the source of impact, and will assist in delaying problems until a proper long-term solution is found.

Ald. Maria Hadden (49th), who oversees Juneway Beach, has been active with the Chicago Park District on saving the beaches, but Hadden admits that these projects are very expensive, stating, “It’s a couple million dollars’ worth of work at least.”

Other issues are present as well. A study by the United States Geological Survey (USGS) showed that the continued braking up of near-shore ice ridges carries great amounts of sediment entrapped in the ice away from the shoreline. This causes the shoreline to erode. The study concluded that future water level fluctuations due to climate change are probable.

Officials have been requesting federal funding of research for six years now. The research would examine the effects of storms and waves on the Lake Michigan shoreline, however, Congress hasn’t funded the proposal.

The gradual loss of the City of Chicago’s shoreline can have severe ramifications on the local economy if left unchecked, so it’s important for the city to attend to it while it still can.




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