The following is a summary of the talk my family had after we watch the movie "Kiss the Ground"

• What was your main takeaway from the film? Did anything surprise you?

The soil's healing power of sequestering carbon is vital to reverse the effects of climate change.

Regenerative farming will restore our damaged lands and recreate the soil living system of organisms who will re-capture the carbon from the atmosphere.

None of us knew that the dust bowl in 1930 was a consequence of farming methods. We had heard how the dust bowl exacerbated the economic effects of the Great Depression, but we did not remember teachers emphasizing the root cause of it: farming techniques that led to soil erosion.

The story of the pesticides, how it was used in the concentration camps and then brought back from Germany to the US in our farm was particularly emotional and shocking.

• What was the most powerful or impactful scene for you?

The scenes from the Loess Plateau in China were particularly impactful. The film powerfully contrasted the images of the Plateau in 1994 to images from the present. It showed that 35,000 hectares of degraded land, seemingly hopeless land, was transformed into a thriving ecosystem which benefitted communities surrounding the land. The economy is thriving, and human lives have been uplifted.

The farmer in North Dakota who was showing his neighbor's farmland that was desertified because of his use of tilling and pesticide while his regenerative techniques was keeping his land resourceful and lush. It clearly showed the divide between how healthy and beautiful regenerative farming is compared to conventional agriculture.

• What are the limitations and challenges of regenerative agriculture? How do you think these can be overcome?

About 99% of crops in the U.S. are used for animal feed! Corn, hay, and soybeans are almost entirely grown through conventional farming practices which includes tillage and use of fertilizer and pesticides. To implement regenerative agriculture, all those farmers will need to acquire new knowledge and skills.

It is going to take up farmers' time learn and implement new regenerative techniques, and someone will have to pay for it. We need government subsidies. Western governments have already heavily subsidized farming, so all we need is smarter farm subsidies. The government should focus the bulk of their agricultural funds to programs that help educate farmers on the benefits and implementation of land restoration. Big corporate brands should invest in promoting regenerative farming. This would ensure their long-term profit as well as the preservation of the soil's health. If companies continue to utilize conventional farming techniques, there will be no more harvests to profit from.

• After watching the film, do you think regenerative organic agriculture could be a solution in the fight against climate change? Why or why not?

The current struggle to implement renewable energy will not remove the lingering carbon in our atmosphere. Even though renewable energy has the power to decrease our carbon emissions, it cannot remove the damage we have already done. On the other hand, the following graph from the movie shows that if we apply regenerative farming, we could produce global cooling by capturing those existing atmospheric greenhouse gases (in about thirty years we will be back at CO2 levels lower than when we started major fossil fuel consumption):



I was strongly convinced that regenerative organic agriculture is a solution in the fight against climate change.

• Where do we go from here? What steps do you think we can take, both individually and collectively, to advance this movement and work towards implementing regenerative agriculture on a larger scale around the world?

Education on the benefits of regenerative farming is an important step to take, but it should not be the end of your activism. One should buy from regenerative farmers to promote their agriculture practices. For example, go to your local farmer's market and ask the vendors if they utilize regenerative farming making sure to buy from the ones that do. Also, find avenues to pressure brands to develop relations with regenerative farmers thus promoting their business. Lastly, one should try to find ways to pressure the government in passing incentives for regenerative farming while also punishing the ones who do not practice such a crucial step towards a healthier future.



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fabmrvincent PGC Extra Credit Day 11:

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I was strongly convinced that regenerative organic agriculture is a solution in the fight against climate change. And I think you should watch @kissthegroundmovie to understand how healthy soil = healthy planet!

@turninggreenorg @kisstheground #PGC 2021

6 SECONDS AGO

(::

Add a comment...

Post



Here is a link to watch the video:

https://www.instagram.com/tv/CU859VjLis5/?utm_source=ig_web_copy_link

cmunson@co.monroe.in.us

Dear Monroe County Council Member Cheryl Munson,

My name is Vincent Kreft, a current junior at Bloomington High School North. I am currently researching water insecurity issues and I wanted to look close to my hometown of Bloomington, IN. I discovered that Monroe County is home to Indiana's largest inland lake: Lake Monroe, which serves as Bloomington and the surrounding areas' main source of water. The Monroe Water Treatment Plant processes an average of <u>15 million gallons of water a day</u>.

The Problem: Lake Monroe is under direct threat from fertilizer runoff contamination (Indiana's cornfields produce runoff that contains atrazine) and also polychlorinated biphenyl and mercury contaminants that lead to unusual algae growth in the water harming the ecosystem. Furthermore, Monroe County is forecasted to suffer from more severe drought and flooding as the impacts of climate change in the state continue to become more pronounced, which will put further strain on the health of Lake Monroe. All of these threats to the area's main water supply will be compounded by the <u>8% county population growth</u> that is forecasted over the next decade.

Water Injustice: Lake Monroe is located in between the second-highest annual median income census tract in the county (<u>CT 15.01 \$86,602</u>) and the second-lowest annual median income census tract in the county (<u>CT 14.02 \$57,148</u>). The portion of Lake Monroe that is currently classified as "impaired," meaning that it is not safe to swim, drink, or fish, is located nearest to the low-income census tract.

The Start of a Solution: A non-profit organization, <u>Friends of Lake Monroe</u>, has been formed to draft an action plan for assessing and improving the water quality of Lake Monroe. The plan will be drafted by January 2022. This organization has received financial support from the Indiana Department of Environmental Management and even a one-time <u>\$20,000 grant from Duke</u> <u>Energy</u>, as well as ongoing expert assistance from Indiana University's School of Public and Environmental Affairs and Chemistry Department.

Unfortunately, even with this non-profit's network of friends, Lake Monroe remains in a fragile state given the forecasted increase in its external risks (contamination, climate change, and population growth).

More Government Leadership is Needed: Given that the most impaired portion of Lake Monroe is located in one of the most economically vulnerable portions of Monroe County, I am calling on representatives of the City of Bloomington and Monroe County to pledge more infrastructure investment to be earmarked to this vital public resource. Is this a pledge that you are currently considering, as I know that you are actively involved with supporting Friends of Lake Monroe? Any perspective that you can provide me on this subject would be very much appreciated and helpful in the development of my perspective on local water insecurity issues.

Sincerely, Vincent Kreft

304 West Kirkwood Ave #302 Bloomington, IN 47404 vincentdariuskreft@gmail.com

Not only would I target the above Monroe County Council member, but I would start a grass roots movement with Indiana University students to put more pressure on the local government officials. IU students love to spend days boating on Lake Monroe and would be more inclined to take action if informed about the water injustice.

Impaired Lake Monroe More than a Student Drinking Problem

PROBLEM: Part of Lake Monroe is considered "impaired" meaning that it is not safe to swim, drink, or fish in the area.

WATER INJUSTICE: The most impaired portion of Lake Monroe is located in one of the most economically vulnerable portions of Monroe County.

SOLUTION: Demand that **r**epresentatives of the City of Bloomington and Monroe County pledge more infrastructure investment to Lake Monroe, to protect this vital community resource.

Attention IU Students Friends of Lake Monroe Need You!

https://friendsoflakemonroe.org/watershed-plan/

Name: Vincent Kreft Username: kreftvin0 School: Bloomington High School North

Water Injustice at Lake Monroe			ē	Ø			
Vincent Kreft ≺vincentdariuskreft@gmail.com> to cmunson ▼	8:31 PM (0 minutes ago)		•	:			
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Sincerely, Vincent Kreft

304 West Kirkwood Ave #302 Bloomington, IN 47404 <u>vincentdariuskreft@gmail.com</u>



Cheryl Munson

to watershed@friendsoflakemonroe.org, me 👻

Wed, Oct 6, 4:19 PM 🔥 🔦

Dear Vincent,

Thank you for your letter. I want to apologize for my late reply but I have had computer issues.

I am serving on the Steering Committee for the Watershed grant project, representing the County Council and will help edit the Watershed Plan that is currently in the writing stage. In a separate capacity I serve on the Board of Directors of Friends of Lake Monroe, so I'm up to date on most issues regarding the lake at water quality.

The portion of the LM watershed that is within Monroe County is very small, and the study for the Watershed Plan will lay out best practices by geographic area for the prioritized adverse effects that should be mitigated.

County government has supported the Watershed study with matching funds for the grant, and will support our investigations and planning further in 2022. That is NOT the case for the City of Bloomington. If you want to know more about this discrepancy we could set up a phone appointment.

Have you spoken with Maggie Sullivan regarding the Watershed Plan and study? If not, I highly recommend this step. Her email is in the CC above.

Please let me know if you wish to discuss Lake Monroe further. Also, if you have an interest in becoming involved with Friends of Lake Monroe (check out their website and Facebook page).

Yours truly, Cheryl

Cheryl Munson

Monroe County Council Member At-Large 6707 W. Rock East Road Bloomington, IN 47403 (812) 325-3407

<u>cmunson@co.monroe.in.us</u>

www.cherylmunson.us

Maggie Sullivan to me, Cheryl 👻

Thu, Oct 7, 10:57 AM 🕁 🔦 🗧

Hi Vincentl

I am the watershed coordinator for Lake Monroe and have been studying problems facing the lake for the last two years as well as investigating potential solutions. I am very excited to see you working to build more support for improving and maintaining high water quality in Lake Monroe. I would like to offer a few clarifications based on my own research.

You have correctly identified harmful algal blooms as one of the major threats facing Lake Monroe and fertilizer runoff as one of the main contributors of nutrients that can lead to algal growth. However, atrazine is not a fertilizer; it is an herbicide (weed killer). Atrazine is a concern throughout Indiana, as you mentioned, because (like most herbicides and pesticides) it can be harmful to human health at high levels. We are fortunate that this is not an issue in Lake Monroe as atrazine levels are well below recommended limits. You also mention PCBs and mercury which are definitely concerning but again, are not linked to algal blooms. PCBs have actually <u>not</u> been detected at levels of concern in Lake Monroe though they are a major concern in the downstream Salt Creek watershed. Mercury is a concern in Lake Monroe because it is present, it tends to bioaccumulate in fish, and people can be harmed if they consume too much fish. Again, this is a pretty common concern across Indiana.

I would revise the problem statement to focus on the direct threat posed by harmful algal blooms (HAB), which can limit recreational use, cause taste and odor issues in drinking water, harm pets and, in extreme cases, cause lakes to become unswimmable. The US EPA lists Lake Monroe as impaired for algae as well as taste and odor, which is often linked to algal blooms. Each year HAB recreational advisories are issued for Lake Monroe. This threat is associated with elevated nutrient levels in the lake. Major contributors of nutrients include agricultural runoff (entilizer and manure), home/business fertilizer use, failing septic systems, and soil erosion.

I love that you point out climate change and increased population as putting further strain on the situation. That's exactly right. Another thing you could mention is that climate change is forecast to increase temperatures in the summer, which is another factor linked to algal blooms.

You state that "The portion of Lake Monroe that is currently classified as "impaired," meaning that it is not safe to swim, drink, or fish, is located nearest to the low-income census tract." I want to clarify that the EPA classifies streams or lakes as "impaired" when they do not meet state water quality standards. That does not necessarily mean unsafe and in this case I would not say that Lake Monroe is unsafe for swimming, drinking, or fishing. It is regularly used for all of those things and in fact is a huge source of income for our area, generating an estimated \$29,000,000 in recreational spending every year. You could correctly say that both the upper and lower basins of Lake Monroe are currently classified as "impaired" for algae, mercury in fish, and taste and odor issues. My understanding is that the "impaired" classification pertains to the entire lake so I'm not sure about your statement that the impairment "is located nearest to the low-income census tract."

There certainly are social justice issues associated with protecting Lake Monroe. One of the challenges of watershed planning is that water quality in a water body is directly impacted by activities in its watershed but people who live in the watershed offen do not have a strong connection to the watershed. In this case, the Lake Monroe watershed spans portions of Monroe, Brown, and Jackson Counties with many people in Brown and Jackson Counties unaware that their property drains to Lake Monroe. Here's a map of the watershed: https://integradiatesnorce.org/watershed-plan/

There are large income discrepancies within Monroe County, as you noted, and also between the different counties in the watershed. Ideally, Bloomington and Monroe County should consider financing projects in all three counties that would lead to water quality improvements in Lake Monroe. However, that can be politically challenging as most government officials want to focus their spending on projects within their jurisdiction. Hopefully Bloomington and Monroe County can at least be persuaded to support Friends of Lake Monroe in implementing their forthcoming watershed management plan. As Cheryl mentioned, the county has provided matching funds for our most recent grant application, while the city did not. We would definitely like to see the city step up and the county continue its support.

To give you an idea of the dollars involved, we are almost done with our 2.5 year watershed planning process with a total project cost just under \$200,000. That included hiring a watershed coordinator, monitoring water quality in Lake Monroe and its tributaries, and conducting a terries of outreach and education projects (community forums, education in schools, new brochures, quarterly updates on our website, watershed tour, signs marking the boundary of the watershed, and many public presentations). This was funded primarily with a \$119,000 grant from the Indiana Department of Environmental Management, \$37,500 from Monroe County.

We just applied for a second grant to launch an implementation project putting our management plan into action. That includes hiring a watershed coordinator, launching a cost-share program to subsidize the installation of conservation practices on farms and along streams in the watershed, and conduction additional outreach and education (septic system maintenance workshops, agriculture conservation practice field days, forestry workshops, brochures mailed to residents about stream protection, boat tours, trash cleanups, and many more public presentations.) The total project cost would be \$299,000 for three years with \$180,000 in grant funds from IDEM, \$50,000 in matching funds from Monroe County, \$30,000 in matching funds from and \$30,000 in in antiching form our partner organizations.

I hope I am not overwhelming you with information. Thank you again for working to build support for Lake Monroe and please feel free to reach out with any further questions or comments.

Thanks,

Maggie Sullivan Lake Monroe Watershed Coordinator watershed@friendsoflakemonroe.org (812) 558-0217 https://www.friendsoflakemonroe.org https://www.friendsoflakemonroe.org

Cheryl Munson

to me, Maggie 🧃

Good luck in your research. You might look into the work of the Environmental Commission of the County and the Sustainability Commission of the City. My internet is in the Fritz or I'd send you links but they should be easy to find. Let me know if you have further questions.

Cheryl

(from my IPhone)

Cheryl Munson Monroe County Council Member At-Large 6707 W Rock East Road Bloomington, IN 47403 (812) 325-3407

cmunson@co.monroe.in.us

www.cherylmunson.us

Fri, Oct 8, 6:30 PM 🔗 🔦



Add a comment...

(...)

Citations:

- "Clean Water, Healthy Town: The Importance of the Monroe Watershed." *ScIU*, 16 Jan. 2021, blogs.iu.edu/sciu/2021/01/16/clean-water-monroe-watershed/.
- Duke Energy. "Duke Energy Foundation's 'Powerful Communities' Program Awards over \$269,000 for Nature Grants in Indiana." *Duke Energy / News Center*, 2019, news.dukeenergy.com/releases/duke-energy-foundations-powerful-communities-program-awardsover-269-000-for-nature-grants-in-indiana.
- "Monroe County, in | Data USA." *Datausa.io*, 2019, datausa.io/profile/geo/monroe-countyin#economy.
- "Monroe County, Indiana Population 2021." *Worldpopulationreview.com*, 2021, worldpopulationreview.com/us-counties/in/monroe-county-population.
- "Watershed Plan Friends of Lake Monroe." *Friendsoflakemonroe.org*, 4 June 2020, friendsoflakemonroe.org/watershed-plan/.



Instead of building ice-rinks above ground, we should look to mimic the natural year-round insulation of underground caves.

Going underground would extend the operating season of local community ice-rinks.

Indiana has a lot of bats (we have had several get into our apartment), and I saw many flying around when I took my nature walk at dusk—their preferred time for insect hunting. This made me think of all the bat caves in the limestone hills of Indiana. This made me think of the ice caves that exist in one of my favorite video games: Terraria. This made me ask the question, why aren't hockey rinks built underground like ice caves?

Define: My local ice rink is only open five months out of the year, so I have to drive one-hour to the closest city with a year-round ice-rink in the months that Bloomington's rink is closed. I would like my design to extend the operating season of local ice-rinks.

Biologize: Does nature have "indoor" ice all year long? Is there a natural habitat that has constant cool temperature?

Discover: Ice caves naturally have temperature under zero Celsius all year long. And bedrock caves have near constant temperatures all year long. Indiana has a lot of limestone, where the caves would have constant yearly temperatures.

Abstract: The ice cave is removed from fluctuations in surface temperature and seasonal weather patterns. The cave is naturally insulated.

Emulate: Ice rinks are basically trying to re-create ice caves, but above the ground where we constantly battle surface temperature and seasonal weather changes. It takes a lot of resources to make ice and then keep ice from melting.

Evaluate: Building an ice-rink underground, where it would be naturally insulated all year, would save on operating costs of the rink, and would extend its operating season. It might just be more expensive to dig the hole upfront. But, in thinking about how long an ice rink lasts (my local rink—Frank Southern Ice Arena—was opened in 1996), the costs upfront would be worth the savings in operating costs over the decades.

When I researched ice rinks underground I was inspired to see that there are some, like this one in Norway: <u>Gjøvik Olympic Cavern Hall</u>, which is 120 meters underground. But also some NHL stadiums actually have the ice sheet below surface level. My favorite team, the <u>Detroit</u> <u>Redwings</u>, recently built their stadium with an ice sheet that is 40 feet below street level.





Redlined Indianapolis neighborhoods nearer to combined sewer overflows have

Higher Percent Minority Residents



Lower Average Life Expectancy



Source

Pipeline of Continued Abuse

- Indianapolis just built a four mile long sewer pipeline, at a cost of nearly \$7 million.
 - The pipe stretches from the Broad Ripple Neighborhood to the Fall Creek Neighborhood.
- It was built to solve a sewer overflow problem in a predominantly white, affluent neighborhood by transferring it to a historically black and marginalized one.





<u>Source</u>

Cities that suffer from Combined Sewer Overflow, like Indianapolis, can plant trees as a Solution.



One large tree can keep thousands of gallons of stormwater out of the sewers every year!

Source



source



The problem is that Indianapolis is regularly ranked last in investment in park infrastructure

- Across the US, city governments budget about \$80 per resident for park infrastructure.
- Indianapolis spends less than half that, at \$35 per resident spent on park infrastructure.

10K Tree Initiative is a Good Start

- Citizens Energy Group, Keep Indianapolis Beautiful, and the Indianapolis Department of Public Works have joined forces to plant 10,000 trees across the city to reduce combined sewer overflows.
- Call to Action:
 - The city should be targeting historically redlined areas for a more aggressive tree planting program, as these areas suffer more from poor infrastructure in dealing with sewer overflows.



<u>source</u>



I also sent the presentation to leadership in the Indianapolis City Council:

Redlining's Impact On Indianapolis Neighborhoods					
Vincent Kreft <vincentdariuskreft@gmail.com> to City-County.Council, william.oliver ╺ Dear Councillor Oliver,</vincentdariuskreft@gmail.com>	€ 9:14 PM (0 minutes ago)	☆	4	:	
My name is Vincent Kreft, and I am a high school student trying to better understand the lingering effect that redlining has had on Indianapolis neighborhoods. I am attaching a PowerPoint of my research and was wondering if you could point me in the direction of any initiatives that mi target park infrastructure in those specific neighborhoods.					
I am inspired by your activism in civil rights and know that your perspective will be very enlightening to me.					
Respectfully, Vincent Kreft					
Refining in Indianapolis Indi					
P Redlining's Impact					
Reply Reply all Forward					