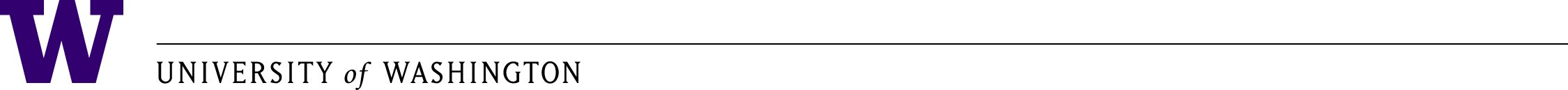
PROGRAM ON THE ENVIRONMENT



**Autumn 2020**

**CAPSTONE SYMPOSIUM**

Wednesday, December 2, 2020

Online, 4:30 – 7:30pm

**Share your thoughts on Twitter**

Students will be live-tweeting all sessions so if you miss one,   
follow the updates. If you tweet, we encourage you to share   
what you learn and use the hashtag, #POEcap.

*The Capstone experience is a three-course series (ENVIR 490, 491, 492) centered on a quarter-long project-based internship with a community site partner. Capstone sites range from community based non-profits and government agencies to faculty research projects and private sector initiatives. With the mentorship of a faculty advisor and the support of the site supervisor, students gain valuable hands-on experience, explore career possibilities, and build a wide spectrum of professional communication skills.*

***WE THANK YOU***

*To all faculty advisors, site supervisors, Program on the Environmental staff and to the audience for your support. We could not have done any of this without you!*

## DIGGING TO IDENTIFY A POTENTIAL CAUSE FOR THE SWORD FERN (Polystichum munitum) DIE-OFF AT SEWARD PARK

Session: B, Breakout Room #1

Andres Barrera\*, @EnvironmentHead, Program on the Environment, University of Washington

Site Supervisor: Tim Billo, Friends of Seward Park, Dylan Mendenhall, Haven Ecology & Research

Faculty Advisor: Gordon Bradley, School of Environmental and Forest Sciences, University of Washington

For the past decade, sword ferns across the Pacific North West have been sharply declining with no identified cause; these ferns are an essential part of a forest’s ecosystem and are supported by the soils around them. Healthy soils provide plants the ability to access nutrients, retain water, and allow for air exchange, and although sword ferns are resilient plants, without the proper soils, a sword fern’s growth can be disrupted. The purpose of this research is to help narrow down a potential cause to the sword fern die-off. To accomplish this, I interned with Friends of Seward Park and Haven Ecology & Research, which have been allocating time and resources into identifying a potential cause of this phenomenon. As part of my internship, I collected soil samples from Seward Park and Schmitz Preserve Park; from the plots we laid out, I collected bulk density samples, followed by a set of soil texture samples. Results show that bulk density is at levels that are associated with proper root growth and moisture content is not low enough to constitute drought as a potential cause. Furthermore, Seward park symptomatic ferns have a higher moisture content. However, they are still producing fewer fronds than those sword ferns found at Schmitz Preserve Park, that are experiencing a lower availability of moisture. These results are significant because they help narrow down the probable causes associated with the die-off; thus setting up the prospect for further research on other aspects of the sword fern’s environment.

## THE STRUGGLES OF FARMING DURING A PANDEMIC

Session: A, Breakout Room #1

Kaitlyn Birkholz\*, @KaitlynBirkhol2, Program on the Environment, University of Washington

Site Supervisor: Bernice Alora, Barn2Door

Faculty Advisor: Sarah Collier, Department of Environmental and Occupational Health Sciences, University of Washington

This study aimed to understand the struggles of local farms during the pandemic and how the food system should be altered to make sure these events do not happen again. This research aims to motivate citizens to rethink their food sources and restructure our food systems. I was a market research intern at Barn2Door, which gave me insight into how local farmers were struggling during the pandemic. To dig deeper I sent out a survey to local farms in Washington, Illinois, and New Jersey, and gain better insight into what specific aspects of their livelihoods had been affected. I also did a literature review of possible ways our food systems would change because of the pandemic, and what causes them to change. I found that farms had been most affected in the areas of farming operations, producer-consumer interactions, and technology use. I also found that our food system is susceptible to disruptions due to the structure of the system. These results give insight into which farms will need the most help if/when another natural disaster hits and areas those farms will need help. Farmers who used technology during the pandemic have not been as affected since they had an alternate selling technique. Therefore, implementing technology into farming can potentially save a farm’s business if face-to-face contact is limited. Finally, the effects of the pandemic point out that our food system needs to be restructured to accommodate more people and become more resilient.

## BUILDING RESILIENCE IN URBAN FOOD DISTRIBUTION

Session: A, Breakout Room #2

Kyle Crane\*, @KyleCra59380126, Program on the Environment, University of Washington

Site Supervisor: Jenna Duncan, Homegrown Organics

Faculty Advisor: Eli Wheat, Program on the Environment, University of Washington

Development of industrial scale farming since the Great Depression has drastically increased the total yield of US agriculture, but has decreased the number of farms contributing. While this system is ideal for high output, the reduced number of farms can lead to boom and bust cycles of growth, and can leave communities with no easy access to produce, creating food deserts. Local urban agriculture methods such as food gardens, food forests, and farm-to-school projects aim to fill in the gaps caused by industrial scale farming, but are still vulnerable to certain stressors that can cause them to fail. These local food growing operations are often the last line of defense that keeps a family from going hungry, so any pressure placed on these operations is often directly felt by the community being served. My research aims to identify what causes these food systems to buckle under pressure, and how best to design them with resilience in mind. My research found that lack of ongoing support can cause projects to fail over time, with public school gardens being particularly vulnerable to this, as students and parents tend to only support the project as long as they are enrolled. Lack of continuous funding and volunteering creates strains on resources for urban food systems, and while government support could solve both of these issues, getting local government involved often requires having a successful proof-of-concept, which cannot happen without that funding.

## SYSTEMS THINKING IN FOOD SYSTEMS: HOW A BALL OF STRING CAN RESHAPE THE WAY WE THINK ABOUT OUR FOOD.

Session: A, Breakout Room #3

Krista Einarsson\*, @KristaEin1, Program on the Environment, University of Washington

Site Supervisor: Hallie Sykes, Oxbow Farm and Conservation Center

Faculty Advisor: Eli Wheat, Program on the Environment, University of Washington

The food system (FS) is a complex system made of many interconnected working parts. We are reliant on these different parts successfully working together in order to get food from the field to our plate. Often the FS is thought of in a linear model from harvest to consumption that fails to address the environmental, social, economic, and political subsystems that shape it. In order to solve environmental and social injustices within the FS we must learn how to look at all factors and subsystems involved. The goal of this project aims to address any gaps in what kids know about the FS while working to implement systems thinking as a tool to deepen their understanding. My internship at Oxbow Farm & Conservation Center focused on creating a journal prompt and systems thinking lesson plan that was implemented during their summer camp for 10-14 year olds. I used the journal prompt as a pre and post assessment to analyze how the systems thinking lesson plan affected children’s knowledge of the FS. Through my research I found that kids have a basic understanding of a linear FS model. Introducing concepts of systems thinking allowed kids to have a deeper understanding of the interconnected systems and issues within the FS. If we educate young people about the negative drawbacks of our FS while providing them with the tools to apply solutions through systems thinking, we can help create educated consumers that use critical thinking to reform the FS to be sustainable and resilient.

## BUILDING SMOKE READY COMMUNITIES IN WASHINGTON: HOW TO PREPARE, NOT REACT

Session: B, Breakout Room #2

Nektarios Hagler\*, @NektariosH, Program on the Environment, Political Science, University of Washington

Site Supervisor: Michael McGown, United States Environmental Protection Agency, Region 10

Faculty Advisor: Elena Austin, Department of Environmental and Occupational Health Sciences, University of Washington

My motivation for my Capstone Project has been to learn about the impacts of wildfire smoke and woodsmoke on Washington State communities. In order to research how a community can prepare for smoke incidents, I interned with Region 10 of the EPA, built several community resources for their smoke management team, and conducted interviews of field experts. Over the course of my internship, I conducted seven different interviews with experts in smoke management, air quality research, forest management, public health, and tribal air quality programs. Using the responses from these interviews, I identified several critical opportunities and challenges which, I argue, will help communities to prepare, rather than react, to smoke. These opportunities include increasing funding for air quality programs, creating targeted social media messaging, consolidating a concrete position on the role of prescribed burning, and expanding collaboration between different air quality programs. Acting on these opportunities is critical because human driven climate change will continue to increase the frequency and severity of wildfires for the foreseeable future. Without immediate and decisive action, vulnerable communities in the State of Washington, who are already disproportionately impacted by smoke, will be exposed to even more of the negative health and lifestyle impacts.

## LEEDing THE WAY TO A HEALTHIER CONSTRUCTION INDUSTRY

Session: B, Breakout Room #3

Emma Helm\*, @emhelm24, Program on the Environment, Construction Management, University of Washington

Site Supervisor: Colton Twiddy, Mortenson Construction

Faculty Advisor: Bill Bender, Department of Construction Management, University of Washington

Construction continues to be a booming industry as the population rises and urbanization increases. The industry has done a great job of meeting demand and building successfully, but at the expense of the environment. One source says that about 40% of carbon emissions in the world come from the building sector, 28% coming from building operations and 11% coming from construction and materials. Green building systems have become increasingly popular with programs like LEED being the most popular in the United States. The purpose of this study was to find how LEED is currently being used in the construction industry and how it can be used better to continue the movement for healthier people and a cleaner environment. To accomplish this task I worked for Mortenson Construction on a hopeful LEED silver certified building and I also completed a literature review on the topic. Findings show that LEED is mostly implemented due to client demands and environmental regulations and it is successful because it lowers operating costs and increases occupant well-being. It has also been found that there are three main issues with LEED; it is much more costly upfront, the documentation process is complicated, and LEED can make a project timely. Incentive options like loans, grants, expedited permits, and increased building size have been shown to increase the likelihood of using green building systems. Incentives should be more widely accessible to owners and contractors so that they will be more willing to look past the barriers and build green.

## COVID & CUISINE: CAN A GLOBAL PANDEMIC LEAD TO SOCIAL AND SUSTAINABLE FOOD?

Session: A, Breakout Room #4

Caitlin Kelly\*, @1nquisitiveCat, Program on the Environment, University of Washington

Site Supervisor: Judy Feldman, The Organic Farm School

Faculty Advisor: Stanley Asah, College of the Environment, University of Washington

The US food system is highly centralized and specialized. This industrial organization of this system not only positions agriculture as one of the leading causes of exceeded planetary boundaries, but it also leaves the supply chain vulnerable to shocks and disruptions, as demonstrated by COVID-19. The aim of this study was to analyze how COVID-19 impacts people’s food choices, evaluate their knowledge of the US food system, and ultimately compile key points to address in an agricultural podcast. The goal of the podcast is to promote a sustainable and equitable food system for producers and consumers through educational outreach. The base of my internship was the creation of the podcast itself, curated topics, and a few relevant interviews in my own completed episode. The research to support the podcast was a survey of people’s food behaviors and system knowledge before, during, and anticipated after the COVID-19 pandemic. The survey showed that during the pandemic, meat consumption and eating food from restaurants decreased while vegetable consumption, gardening, and cooking at home increased. Respondents overall expressed concern about the ethical treatment of farmworkers, the accessibility of healthy food, and had a desire to learn how to support local agriculture and eat more healthfully than they did pre-pandemic. All of this information gives the podcast focus and direction to create content that is highly relevant and informative for listeners and confirms that there is already a desire within the community to learn how to create a more social and sustainable food system.

## COMMUNICATING THE CLIMATE CRISIS: ASSESSING THE ROLE OF RHETORIC IN CLIMATE CHANGE COMMUNICATION

Session: B, Breakout Room #4

Allison Kirste\*, @AllisonKirste, Program on the Environment, Law, Societies & Justice, University of Washington

Site Supervisor: Jamie Stroble, King County Climate Action Team

Faculty Advisor: Lubna Alzaroo, Department of English, University of Washington

Though more information is readily available and accessible regarding climate change disasters, we do not see a proportional response of behavior changes to mitigate such disasters. This study aimed to better understand the role of rhetoric in climate change communications, as well as explore what other factors informed whether climate change communications would be effective or inspire action in their audiences. To answer this question, I drew on experience that I received as an intern with the King County Climate Action Team, where I was responsible for aiding in communications strategy to build support for the Strategic Climate Action Plan. Additionally, I conducted a survey amongst young people to better understand how they perceived their roles as audience members in climate change communications. Lastly, I interviewed professionals in the climate change communications field to better understand the ways that their strategies or methods differed. The main takeaways that I derived from this research and internship were that most audiences respond better to personal stories or situations in which they can understand the direct impact that an issue has on them, which can be achieved through metaphor, imagery, and framing. Additionally, I learned that, more important than any specific rhetorical device was finding a communicator that the community could trust. The biggest implication of this work is this idea that community leaders are trusted as communicators and hold the rhetorical tools and connections necessary to meaningfully engage an audience.

## FOR WHOM DO THE SALMON RUN? COMMERCIAL FISHING RIGHTS IN BRISTOL BAY, ALASKA

Session: B, Breakout Room #5

Elizabeth Landefeld\*, @LizLandefeld, Program on the Environment, University of Washington

Site Supervisor: Chris Boatright, Alaska Salmon Program, School of Aquatic and Fishery Sciences, University of Washington

Faculty Advisor: P. Joshua Griffin, American Indian Studies & School of Marine and Environmental Affairs, University of Washington

The Bristol Bay sockeye run is one of the last remaining healthy salmon systems on the west coast of North America, with tens of millions of fish returning annually. Salmon are harvested by people in enormous numbers for both commercial purposes and as part of complex “subsistence” lifeways. Bristol Bay is celebrated as a poster child of fisheries sustainability, meaning that annual harvest of salmon is limited to ensure a viable return in the future. For my capstone I addressed the question: is the structure of fisheries governance in Bristol Bay conducive to residents’ participation in the commercial sockeye fishery? To address my question I reviewed scholarly writing and engaged with non-academic sources (personal experience, websites, news). I found that the limited entry system, which restricts commercial fishery participation to a fixed number of permit-holders, has resulted in the exclusion of local people. Millions of dollars are generated by the commercial fishery, but fewer of those dollars are remaining in local communities as time goes on. Concern about the rapid decline of local permit holdings has been prominent in recent years, and more people are asking whether there is a different way to govern the fishery that secures the local right to fish for generations to come. Permit banks, local preference, and community allocations are all plausible considerations for the future of fisheries governance. A guarantee of access opportunity for local people would re-ground commercial fishing benefits in communities, instead of perpetuating treatment of Alaska as an extractive resource frontier.

## TECHNOLOGY AND NATURE: FRIENDS OR ENEMIES?

Session: B, Breakout Room #6

Megan Lee\*, @leemegan143, Program on the Environment, University of Washington

Site Supervisor: Garrett Esperum, Friends of Discovery Park

Faculty Advisor: Tim Billo, Program on the Environment, University of Washington

Technology is dominating many aspects of our day to day lives, so much so that the average American spends over 5 hours on their phone daily. As a result, folks are spending increasingly less time in nature and developing higher levels of ecophobia. While the environmental sector has slowly adopted technology into its framework, many argue that technology and nature are inherently opposed, and that technology has no place in nature. The aim of this study was to identify best practices for using technology in nature. I did this by analyzing different nature-centric mobile apps and conducting a literature review to understand how technology can be leveraged in outdoor settings to increase folk’s engagement with nature. To accomplish this, I interned with Friends of Discovery Park to make two interactive ArcGIS story maps that served as self-guided tours throughout the park as a means to engage folks with nature. Users took a self-administered survey after using the story maps and recorded their experience. Findings show that in order to utilize technology effectively in nature, apps must i. include multimedia components, particularly audio ii. limit text iii. remind folks to periodically disengage with technology, and iv. give users incentives to go outdoors. By using technology properly to engage folks with nature, humans will inherently benefit from their relationship with the natural environment as nature is vital for our physical and psychological wellbeing. If utilized properly, technology use in nature can lead to enhanced biophilia, increased health benefits, and more environmental stewards.

## CLIMATE ACTIVISM: A CONNECTION BETWEEN THE YOUTH AND MINORITIES

Session: B, Breakout Room #7

Brian Muoneke\*, @brianenvr495, Program on the Environment, University of Washington

Site Supervisor: Rachel Brombaugh, King County Clumate Action Team

Faculty Advisor: Eli Wheat, Program on the Environment, University of Washington

Global Warming and Climate Change have been two overwhelming factors in the world, especially in recent years with the wildfires occurring on the west coast towards the end of the summer. Some of the most affected due to global warming and Climate Change are disadvantaged communities and people of color (POCs). The purpose of this story was to see how we can connect more involvement between the minority and youth groups on climate action planning and discussions. To accomplish this task, I sat in varied meetings about climate discussions, created a social media plan, hosted a group session for the youth for King County’s Climate Action Team. My findings from the summer show that in order to get more input from disadvantaged communities, Climate Change needs to be communicated more effectively. Communicating climate change by using the best practices and the insights from a variety of social sciences to help elevate the motivation to change and simultaneously contribute to lowering the barriers and resistances to change. Connecting communication between those communities that disadvantaged, minorities, youth, and etc. could be prepared with their background and values in mind. For engaging the youth more, more disruptive dissenters are needed in order. So when discussing Climate Change, we can make sure all parties are involved and they don’t get left behind.

## THE REALITIES OF HOME COMPOSTING

Session: A, Breakout Room #5

Amber Pfeifer\*, @Amber\_Pfeifer, Program on the Environment, University of Washington

Site Supervisor: Jenna Duncan and John Coghlan, Homegrown Organics

Faculty Advisor: Eli Wheat, Program on the Environment, University of Washington

People in Seattle utilize city composting to greenly dispose of organic waste. Although this is better than landfilling, it is not as sustainable as publicly thought. The unprecedented speed of global warming shows a necessity for us to be living the most sustainable ways possible, now, and not later. The purpose of this study was to discover what inhibits home composting and to illuminate new methods to the public eye. To do this, I researched several home composting methods that would appeal to different lifestyles, as well as the challenges of city composting. I then held an interview with a compost expert and launched a survey to Seattle residents; to collect information on what people were gaining from city composting that they otherwise lacked in home composting. I found that many people thought city composting to be more sustainable than home composting, because they felt they could compost more diverse material. I also found that most were resistant to home composting because they only knew of hot composting methods, which are labor intensive and can attract pests. This shows a need for education on different methods as well as dispersion of resources to make the switch easier, more likely, and longer lasting. For these changes to be well received and have the farthest reach possible, a government program to implement container based composting at the household level and hot composting at the neighborhood or community level would have the most impact on emissions reduction, and take-up of this sustainable behavior.

## HOW GLEANING ORGANIZATIONS CONTRIBUTE TO FOOD WASTE REDUCTION & FOOD SECURITY

Session: A, Breakout Room #6

Kai San Jose\*, @kai\_sanjose, Program on the Environment, University of Washington

Site Supervisor: Juan Pena, City Fruit

Faculty Advisor: Lubna Alzaroo, Program on the Environment, University of Washington

Food waste in the United States is estimated between 30-40 percent of the food supply and accounts for a significant portion of food insecurity in this country. Gleaned produce offers an alternative to food waste and food insecurity. In addition, it promises improved health for people and the environment. The purpose of this study aims to inform community organizers and the general public on what the opportunities and challenges are in operating a gleaning organization in hopes that local gleaning organizations will gain more support. Gleaning discussed in this study refers to the process of collecting and redistributing leftover crops after they have been harvested. Through a four-month internship at a Seattle gleaning organization called, City Fruit, I participated in their summer operations as an in-person, case study observer. To supplement my research, I conducted a literature review and an online survey within the organization to understand these opportunities and challenges better. The findings show that gleaning has the potential to immediately serve and support many underserved communities with fresh, free produce and reduce food waste. However, the evidence for long term food security is insufficient. Ultimately, gleaning produce will not be sufficient to mitigate food waste and food security as a long-term, single-handed solution. A government shift in favor of food system reform rather than maximized profits is vital to sustain the environment, reduce food waste, and promote food security.

## 4 WAYS INDIGENOUS KNOWLEDGE CAN HELP IMPROVE THE WORLD FOOD SYSTEM

Session: A, Breakout Room #7

Elena Spasova\*, @ecologicalelena, Program on the Environment, University of Washington

Site Supervisor: Judy Feldman, Organic Farm School

Faculty Advisor: Charlotte Coté, American Indian Studies, University of Washington

Environmental degradation, disenfranchisement of farmers, and the over industrialization of foods are common characterizations of our modern food system. Unfortunately, these practices are both unsustainable and unethical. The rate at which we are industrializing our food is leaving our people hungry, our land barren, and our economy too abstract for consumers or producers to participate in. On the other hand, Indigenous people have been living sustainably off of the land for centuries. We must view this as an opportunity to look and listen to Indigenous knowledge about how to keep our land and people living in harmony. The aim of my study was to explore how Indigenous knowledge can improve agricultural practices on a global scale. Results were collected from individual research and conversations with Indigenous food scholars. I also learned more about the agricultural system through my internship working on a podcast for the Organic Farm School. In my research I found that implementing Indigenous practices could foster a natural respect for the environment in people, as well as improve interpersonal relationships in the global food system. These results are important for building global systems using a diversity of perspectives, so that we can ensure more equitable systems for all. In addition to making the global food system more ethical and in line with consumer values, creating space for Indigenous knowledge within societal structures is a significant pathway towards reparations and healing for Indigenous people.

THINK GLOBAL, ACT LOCAL: ESCAPED TRASH REDUCTION

Session: B, Breakout Room #11

Kate Terrado\*, @katerrado\_, Program on the Environment, University of Washington

Site Supervisor: Margaret McCauley, United States Environmental Protection Agency, Region 10

Faculty Advisor: Kristina Straus, Program on the Environment, University of Washington

The Pacific garbage patch is an example of the several swirling garbage zones in the oceans where all kinds of trash - including plastics, glass bottles, cigarette butts, and mattresses - end up. Both microplastics and whole plastic products have adverse effects on marine life. Reports suggest that 80% if microplastics in the gyres come from land-based activities, while the rest come from items that are lost or thrown overboard from ships. Garbage in the ocean come from trash from trash cans, the streets, and landfills that gets blown into sewers, rivers, or directly into the ocean. The purpose of this study was to create a mobile application with an ability to collect data on trash types, amounts, or what areas pose the greatest risks to humans and wildlife. This will support the Environmental Protection Agency’s (EPA) Trash Free Waters (TFW) Program to have a usable product that will increase the ability to track trash during site cleanup. To accomplish this task, I utilized my connections within several mobile application creators to be able to gather input on good practices for mobile experience design. I also utilized my connections with the members of TFW Program to ensure that its goals and needs in trash tracking are considered. The resulting mobile app provides an easy-to-use methodology for identifying a cleanup site, picking up the trash, and cataloguing it in a way that produces reliable data on the characteristics of trash as well as potential threats posed by waste.

## SUSTAINABLE EATING IN SCHOOLS: INCREASING STUDENT PARTICIPATION THROUGH FOOD CULTURE

Session: A, Breakout Room #8

Hanna Treppenhauer\*, @HTreppenhauer, Program on the Environment, University of Washington

Site Supervisor: Jenny Cooper, The Northwest School

Faculty Advisor: Eli Wheat, Program on the Environment, University of Washington

Across Washington state, many schools participate in some form of the farm-to-school approach, where a percentage of school food is acquired from local farmers or school gardens. However, the extent to which students are interested in these sustainable foods varies on a case-by-case basis. I completed my internship with The Northwest School (NWS) by writing a curriculum that incorporates their urban farm into school operations. It was through this work that I gathered anecdotal observations about how the NWS engages students with the sustainable foods they were serving in their dining hall through school food culture. I was interested in how these anecdotal observations of food culture at the NWS would be reinforced by how other schools within WSDA’s Farm-to-School program engaged students with their food. The aim of this study was to determine what specific aspects of food culture may influence a student’s likelihood to consume the sustainable foods offered at their schools. I investigated this by sending surveys to over 50 schools in the program, looking for correlation between student perceptions of food and aspects of ‘food culture’ that were present. The results of the survey determined that the largest factors influencing a child’s enthusiasm towards sustainable school food options were knowledge available to them about the food they were eating and the amount of support that the school meal program receives from staff. These results are significant because they represent easily employable changes that schools may implement to influence children to eat healthier.

## 15-MINUTE NEIGHBORHOODS: IMPROVING ENVIRONMENTAL HEALTH BY INCREASING WALKABILITY

Session: B, Breakout Room #8

Nick Tritt\*, @nicktritt1, Program on the Environment, University of Washington

Site Supervisor: Gordon Padelford, Seattle Neighborhood Greenways

Faculty Advisor: Julie Johnson, Department of Landscape Architecture, University of Washington

More people are living in cities today than ever before and that number is ever increasing. Transit infrastructure in cities for the last century has focused on moving as many vehicles as possible, not pedestrians. When urban planning focuses on cars instead of people this leaves cities with more air & noise pollution, social isolation, unsafe pedestrian routes, less physically active population, and transportation inequities. Additionally, the cumulative global impact of vehicle greenhouse gas emissions contributes to climate change. The aim of my internship with Seattle Neighborhood Greenways was to find out how a 15-Minute Neighborhood plan could be integrated into Seattle urban design. 15-Minute Neighborhoods bring amenities to people rather than focusing on transit by increasing urban greenspace and parks, and using mixed-use development to integrate residential, commercial, and recreational spaces. They also fully connect a safe, accessible pedestrian network. My internship approach was to collect walkability data stemming from three questions: what do people need to walk to, does a choice of multiple amenities matter and how far are people willing to walk to get to them? I performed online research of academic papers, transit studies, municipal plans, census data and conducted local expert interviews. The top factors that make a city more walkable are mixed-use development, more grocery and convenience stores, urban park space, safe road crossings, path connectivity, social gathering spaces, and appealing aesthetics. A more walkable city has more social connection, better environmental health, money savings for residents and more economic vitality.

## TECHNOLOGY IN NATURE, WHO CAN BENEFIT?

Session: B, Breakout Room #9

Gert-Jan van Doorn\*, @Doorn\_gert, Program on the Environment, University of Washington

Site Supervisor: Garrett Esperum, Friends of Discover Park

Faculty Advisor: Kristi Straus, Program on the Environment, University of Washington

The disconnect with nature in the 21st-century results in a list of problems for us humans. Not only our health and well-being is suffering from this disconnect but also the environment. But what if we use technology to fight this disconnection. For my internship, I work with Friends of Discovery Park, an all-volunteer organization that looks after Discovery Park. For Friends of Discovery Park, we created interactive walking tour maps for the park. Using mobile technology, park visitors can use interactive tours to better understand the park’s history, flora and fauna.

My independent study aimed to answer the following questions: what traits characterize someone that would benefit from using technology in nature, and how would those people be best served by that technology? I asked these questions to better elucidate how to translate technology into nature, and to figure out which groups would be most amenable to using technology to establish a better relationship with nature. I did this by sending out a survey to the greater Seattle area. The survey was a mixture of questions about their personal experiences with technology, age, gender, education level and the willingness of the use of technology in nature. These survey results show us what sort of technology can be used and what part of the demographic can benefit from the use of technology in nature.

## THE ROLE OF ENVIRONMENTAL INDICES IN INFORMING POLICY MAKING

Session: B, Breakout Room #10

Selena Xie\*, @Selenaaaxie, Program on the Environment, Environmental Sciences and Resource Management, University of Washington

Site Supervisor: Zach Hedgpeth, United States Environmental Protection Agency, Region 10

Faculty Advisor: Tim Larson, Civil and Environmental Engineering, University of Washington

Air pollution has been an ongoing public health problem that has worsened over the years. Since 1977, the US Environmental Protection Agency (EPA) has been monitoring air pollution levels and presenting it a single value known as the Air Quality Index (AQI). This was designed to be easily understood by combining five major pollutants regulated under the Clean Air Act into six levels of health risks to inform and recommend actions for people of different vulnerabilities. However, reports have shown little use of AQI in policy making and personal decision-making. For my independent research, I explored successful environmental indices to find out the characteristics that make them useful for policy making and whether anything can be learned to increase the use of AQI. I found that indices accounting for two or more of the Pillars of Sustainability are more relevant to citizens. Indices with comparable environmental data across large geographic scales have increased applicability for policymakers. I identified the most suitable type of data for various places along the policy cycle. These findings were informed by my internship at EPA Region 10, where I worked on a project that looks at cost information available to state permit engineers when they make permitting decisions for major stationary sources of air pollution. Some permit engineers reflected that there were few data available for them and they lacked standardized and comprehensive guidelines when making these regulatory decisions, which further emphasizes the importance of environmental data and indices.