

A Research Forum on the Ethics of Climate Change: Environmental Justice in Eastern North Carolina

The University of North Carolina at Chapel Hill, April 30, 2018
Convened by Professor Rachel Willis, American Studies & Economics
and Graduate Research Consultant Jordan Clark, Doctoral Student in Geography
with Support from the Office of Undergraduate Research, UNC

Session A: Community

Gilmore, Brianna, Latin American Studies and Geography, 2020, *Hyde and Seek Help: The Relationship Between Land and Its Communities*.

Jackman, Matthew David Llewellyn, 2018, Political Science & Peace, War & Defense, Creative Writing, *Assessing the Risk to Mobile Homes in Cumberland County to Improve the Safety of Those Most Vulnerable to Hurricanes and Inland Flooding*

Thomas, Jasmyn, 2019, Environmental Health and American Studies, *Rise Up or Drown: Environmental Racism in New Hanover County*

Session B: Infrastructure

Peacock, Hailey, 2018, Public Policy, *Flooding in Edgecombe County: Infrastructure Improvements & Resilience Planning*

Wilkins, Jennifer 2019, Psychology, *Flooding in Nags Head-Infrastructure: Dare to Fix the Problem*

Ladowski, Josh, 2019, Management & Society, *Taking Storm Water Head on in Washington County*

Session C: Resources

Pistiolis, Alex, 2021, Biology and Chemistry, *Flood Vulnerabilities of the Impoverished Population in Tyrrell County*

Maddix, Olivia, 2020, Biology and Women's and Gender Studies, *Funding Sustainable Infrastructure and Flood Mitigation Plans in Bertie County*

Parrish, Grayson, 2021, Environmental Science and Geography, *Mitigating Injustices and Flood Issues in Lumberton, NC*

Vickers, Morgan, 2018, American Studies and Communication Studies, *Assessing Health Risks and Resiliency Potential in the Flood-Prone Oxford Heights Neighborhood of Elizabeth City*

Session D: Mitigation

Baer-Seltzer, Eileen, 2021, Political Science, *Carteret County Consolation*

Woodul, Rachel, 2018, Geography & Global Studies, *Tidewater, Trash, and Turtles: Mitigation efforts at Hammocks Beach State Park in Onslow County*

Session E: Policy

Booze-hall, Aisha, 2020, Environmental Studies & African American Studies, *Youth Improving Brunswick County, NC's Code of Ordinances on Coastal Policy*

Cooper, Rebecca, 2020, Biology and Marine Science, *Green City Approach to Redesign Pender County*

Mark DeVito, 2018, Asian Studies, *Solar Energy in Currituck County*

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ABSTRACTS

Session A: Community

Hyde and Seek Help: The Relationship Between Land and Its Communities

Gilmore, Brianna

Buildings and land located on Outer Bank communities are being washed away as the sea level rises. The home to Ocracoke Island, Hyde County's usage of land directly influences the quality of life of its residents. Most of Hyde county's land is used for agricultural purposes which is coincidentally the number one industry in Hyde. Hyde County should be responsible to mandate the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things. The types of federal, state, and local buildings and land will be examined with regards to types of resources needed to protect those buildings and coastal natural land in Hyde County. This seminar will highlight different options created to protect the land and hopefully stop the coast from disappearing.

Assessing the Risk to Mobile Homes in Cumberland County to Improve the Safety of Those Most Vulnerable to Hurricanes and Inland Flooding

Jackman, Matthew David Llewellyn

As defined by FEMA, *risk* is a combination of hazard, vulnerability, and exposure. Cumberland County is, unquestionably, at severe risk to the hazards of inland flooding and hurricanes: take Hurricane Matthew's \$82.1 million worth of damages to understand this. Mobile home owners in the county are the most vulnerable to these hazards, living in weak factory produced structures. Indeed, category 1-hurricane can damaged and even overturned these homes. Thus, mobile home owners are most likely to experience loss exposed to hazards, and the exposure to these disasters, significantly, is only set to increase. By state, North Carolina has the second most mobile homes in the United States: what measures are taken to protect them so that they are not abandoned or destroyed. What can we learn from Cumberland County and how they employ sustainable, innovative and resilient plans to reduce the risk, and what more needs to be done for the community.

Rise Up or Drown: Environmental Racism in New Hanover County

Thomas, Jasmyn

In 1898, Democrats successfully staged a coup d'etat in Wilmington, North Carolina terrorizing black people physically, economically, and politically. Capitalizing on racial tension, Democrats took control Wilmington and the state of for 70 years. The legacy of disenfranchisement has had tremendous implications on African Americans in Wilmington; their poverty level is more than double that of their white counterparts and they tend to live in geographic segregation. These social structures put minorities at disproportional risk for exposure to environmental disasters. The area most heavily populated by black people is expected to be inundated during a 100-year storm event. This presentation details the ways systematic racism in Wilmington has manifested as higher vulnerability to climate change and mechanisms for ensuring environmental justice.

Session B: Infrastructure

Flooding in Edgecombe County: Infrastructure Improvements & Resilience Planning

Peacock, Hailey

Rocky Mount is located in Eastern North Carolina within Edgecombe County. Rocky Mount has a population close to 60,000 of mostly low-income minority populations. Rocky Mount is susceptible to heavy rains, which results in the flooding of rivers, particularly the Tar River, and streams. Edgecombe county was hit by Hurricane Dennis in Sept of 1999 and twelve days later was hit by Hurricane Floyd. Due to the saturated ground and full rivers from Hurricane Dennis, Rocky Mount had little natural capacity to handle Floyd's heavy rains. This resulted in high levels of property loss for homeowners and businesses, destroyed farmland, and resulted in an overall estimated economic loss of \$6 million. In order for Rocky Mount to ensure environmental justice to those impacted by severe flooding, infrastructure improvements on the Tar River as well as long and short-term resilience plans are needed.

Flooding in Nags Head-Infrastructure: Dare to Fix the Problem

Wilkins, Jennifer

Natural disasters are a part of the world we live in, and there is very little that we can do to prevent them from happening. There is no escaping the forces of Mother Nature. Hurricanes, tornadoes, winter storms, wildfires, heavy rain falls, and flooding, these are just a few of the natural disasters which can strike at any time in North Carolina. For Nags Head hurricanes and heavy rain fall are the most devastating of them all, due to the towns in adequate storm water drainage system currently installed. When these flooding events happen, the septic systems overflow creates a public health hazard affecting the residents and the tourists. As the frequency and impact of natural disasters increase due to climate change the town of Nags Head, the city needs to find a permanent solution to this serious problem.

Taking Storm Water Head on in Washington County

Ladowski, Josh

Washington County is a poverty stricken, Tier One County located near the coast of eastern North Carolina. As of 2017, the county was labeled a Primary Natural Disaster Area by the USDA, due to excessive rain fall. Persisting rainfall and flooding will continue to reap havoc on the county who heavily relies on agriculture and farm land. The focal town of Washington County, Plymouth, and its economy has been agonized by local flooding. Environmental issues due to the flooding over the years has continuously diminished the well-being and safety of its towns citizens. Mitigation and presentation are main concerns for its town leaders, but with limited resources and inadequate storm management systems future disaster seem inevitable. With around 20 percent of the population living below the poverty line, Washington county needs extreme vetting from its local and state governments. The economic and environmental inabilities of Washington County exasperate the 12th principle of Environmental Justice, which calls for equal representation and ecological polices for all areas, urban or rural. In the presentation I will address the storm water management systems in Washington County, North Carolina, and possible solutions that will prepare its town for future disasters.

Session C: Resources

Flood Vulnerabilities of the Impoverished Population in Tyrrell County

Pistiolis, Alex

Tyrrell County in eastern North Carolina is vulnerable to floods from heavy precipitation events from hurricanes, such as hurricane Matthew, that devastate houses. Given that 22% of Tyrrell County's population is in poverty, some individuals tend to be more affected than others from flooding. A lack of income for many families in Tyrrell County has resulted in families living in houses built prior to 1978 that are exceptionally prone to flooding. Moreover, the impoverished population tends to be most affected since housing is cheapest along flood-prone areas within the county. The environmental justice that most readily applies to Tyrrell County discusses individuals having to choose between an unsafe livelihood and unemployment. Within this abstract, potential solutions to reduce this environmental injustice faced by the poor, including relocating jobs inland, refurbishing septic systems, and elevating houses, will be discussed.

Funding Sustainable Infrastructure and Flood Mitigation Plans in Bertie County

Maddix, Olivia

In 2016, Bertie County was hit by Tropical Storm Julia and was soon after hit by Hurricane Matthew. These storms caused irreparable flood damage to the county and demolished many public facilities and residential property. The poverty rate in Bertie County is 24.4%, leaving residents unable to recover from severe damage without receiving sufficient federal support. In preparation for the future, local leaders, along with NC State Engineering, are currently designing plans to reduce Bertie County's flood vulnerability. The flooding in Bertie County relates to the environmental justice issue of having to choose between an unsafe livelihood and unemployment. Although flood mitigation plans are underway, there is currently no funding to execute these plans and impoverished, marginalized residents lack adequate funds to restore personal property. For protection from future weather events, Bertie County needs funding to restore private property, establish sustainable public infrastructure, and implement flood mitigation plans.

Mitigating Injustices and Flood Issues in Lumberton, NC

Parrish, Grayson

With one-third of Robeson County living below the poverty line, there is no room for disaster. Hurricane Matthew, along with severe storms in April 2017, slammed the county with rainfall amounts that exceeded the banks of the Lumber River, pouring into Lumberton, NC. Since the area around the river is low-lying, once the water is there it does not have a way out. The issue still occurring is that no residents are being compensated for the damages that occur. The state of North Carolina received \$6.1 million of the \$900 million requested from the federal government for Hurricane Matthew aid in May of 2017. Residents reported some assistance from FEMA, but many victims were placed into hotels or shelters and forgotten about. Creating a flood budget and constructing flood gates to redirect the water away from residential areas could be key solutions to mitigating the flood issue in Lumberton.

Session C: Resources, continued

Assessing Health Risks and Resiliency Potential in the Flood-Prone

Oxford Heights Neighborhood of Elizabeth City

Vickers, Morgan

Since its creation in the 1960s, the Oxford Heights neighborhood of Elizabeth City, Pasquotank County has flooded with each heavy rainfall, storm, and hurricane. The neighborhood only has one entrance and exit, is located miles from the county hospital, and is surrounded on three sides by swamplands, and thus does not have the resources to provide effective medical support and safe evacuation for their residents. Consequently, the Oxford Heights neighborhood does not adhere to environmental justice principles; the neighborhood is dangerously situated and contains antiquated infrastructure, including the primary access bridge that cannot support the weight of most emergency vehicles. It thus neither protects the rights of the population, nor ensures the health and security of those therein. This presentation introduces potential solutions to help mitigate the risk of water damage, health crises, and disaster-related deaths in the Oxford Heights neighborhood of Elizabeth City.

Session D: Mitigation

Carteret County Consolation

Baer-Seltzer, Eileen

Carteret County is highly susceptible to damage from severe weather events, as the county resides in flood prone areas. It is also vulnerable to pollution of its White Oak river due to runoff from surrounding areas and activities. Carteret County does a very effective job at educating their population on the risks associated with residing in such vulnerable areas, as well as building responsibly. However, Carteret County cannot control the problems that arise due to surrounding counties and the large season tourist population. Carteret County is responsible for mitigating the damage that is cause by factors out of their control. This seminar will highlight potential solutions for mitigating the damage.

Tidewater, Trash, and Turtles: Mitigation efforts at Hammocks Beach State Park in Onslow County

Woodul, Rachel

This fragile ecosystem of Hammocks Beach in Swansboro, North Carolina is threatened by increasingly large amounts of ocean pollution, the effects of which are exacerbated during flooding events. The first principle of environmental justice calls for the reaffirmation of the sacredness of Mother Earth, ecological unity and interdependence of all species, and the right to be free from ecological destruction. An additional principal of environmental justice mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things. The people of Swansboro uphold these principals as best they can, but does this burden of protection of this ecosystem and its inhabitants fall solely on them?

Session E: Policy

Youth Improving Brunswick County, NC's Code of Ordinances on Coastal Policy

Booze-hall, Aisha

Brunswick County is a medium sized county on the coast of North Carolina. Since 2006 Brunswick County has had a set of ordinances which perform a set of tasks such as, protect human health, minimize prolonged business losses, protect public property, and to make future buyers aware of the dangers of owning property in Brunswick County. The problem with Brunswick County is the ordinance does not protect private property. Locals are not buying land in Brunswick County because they will not be covered in the case of a natural disaster. Personal land owners need the option to be protected and there needs to be more protective measure to help Brunswick County thrive. This change will be made my students and youth and will be implemented to protect the people of Brunswick County's future. Youth are quite literally the future.

Green City Approach to Redesign Pender County

Cooper, Rebecca

In May 2017, Pender County released a resilient redevelopment plan following the aftermath of Hurricane Matthew. As expected, a list of projects was proposed on a high to low priority bases. The majority of these projects are short term fixes to problems that will be recurring due to urban sprawl from Wilmington and increased coastal climate change impacts. Pender County needs to start planning for the future now, beyond short sighted ideas. What if the foundations and core values of green cities was applied to a rural county with the idea of climate change resilience at its focus? Working with farmers, small business owners, fishermen, the unemployed, health care workers, and all other residents, the county could bring together a community of ideas and skills to create a better home strategically redesigned to be prepared for the future.

Solar Energy in Currituck County

Mark DeVito

One of the many principles of environmental justice states that all people have the right to ethical, balanced, and responsible uses of land and renewable resources. In Currituck County, the board of commissioners has implemented policy that restricts the development of solar farms. Due to these restrictions, developers have had to jump through hoops in order to build satisfactory renewable energy sources for the county. Ecoplexus and Currituck Sunshine Farm were forced to turn to the NC Board of Appeals after their permits were denied for their future solar projects. This research project will attempt to shine a light on access to renewable resources in Currituck County. It will also attempt to answer the question: Was Currituck County's restriction on solar farm development justified, even though it infringed on citizens' right to responsible use of renewable resources?