

CLIMATE POWER 2020

NORTH CAROLINA

What Do Trump's Attacks On Science Mean For North Carolina?

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TL/DR:

North Carolinians Believe In Climate Change - And They Want Their Leaders To Act:

- [66% of North Carolinians](#) believe in climate change, and [58% of the state's residents](#) are worried about climate change.
- [60% of North Carolinians](#) believe both the President and Congress should do more to address climate change with [57%](#) believing their Governor and local officials should do more.
- [Click here to jump to more research below](#)

Trump's Climate Denial Is Harmful To North Carolinians' Health:

- North Carolina [currently averages](#) 10 extreme heat days annually – that number is projected to jump to [almost 60](#) extreme heat days by 2050.
- In 2018, North Carolina [recorded](#) 4,593 emergency department visits for heat-related illnesses. Currently, [more than 300,000](#) North Carolinians are especially vulnerable to extreme heat.
 - In 2019, Mecklenburg County [received](#) an F grade for its number of days of unhealthy ozone levels and Swain County [received](#) an F grade for particle pollution.
- Trump's anti-science attitude led him to block action to make polluters pay for cleaning up toxic chemicals that have been [found](#) in water supplies [across the state](#). These chemicals, called PFAS, are [linked](#) to kidney and testicular cancer, hypertension and other diseases.
- Trump's close relationship with the coal industry has resulted in looser rules for dumping toxic coal ash – the waste produced from coal-fired power plants.

- Coal ash contains chemicals [linked](#) to cancer, neurological damage, and other health impacts and is stored in sites at risk of spilling into nearby rivers and lakes.
- In 2014, 50,000 tons of coal ash from a Duke Energy facility [spilled into](#) the Dan River and in 2018, Hurricane Florence [compromised](#) two Duke Energy facilities. The company, in 2020, finally agreed to clean up [nearly 80 million tons](#) of coal ash.
- [Click here to jump to more research below](#)

Trump's Climate Denial Puts The Safety Of North Carolinians At Risk:

- North Carolina is at risk from climate-related hurricanes:
 - In 2019, [FEMA](#) incurred \$30,680,261 in disaster costs in North Carolina following Hurricane Dorian, which [caused record flooding](#) on the state's Outer Banks.
 - North Carolina has [seen eight hurricanes](#) in the past decade that caused a total of \$336.2 billion in damages and 551 deaths.
- North Carolina is at risk from climate-related wildfire and droughts:
 - [Studies show](#) climate change is increasing the severity, frequency, and extent of wildfires.
 - In 2016, North Carolina [witnessed](#) wildfires that caused \$2.6 billion in damages in 21 deaths. Wildfires in the state were [exacerbated](#) by historic dry weather conditions across Western North Carolina.
 - Climate change is [already affecting](#) global patterns of drought, and such trends are expected to continue, with longer and more intense droughts [predicted](#).
 - From 2009 through 2016, North Carolina [witnessed](#) three drought events that caused a total of 22.1 billion in damages and 95 deaths.
- North Carolina is at risk from climate-related coastal and in-land flooding:
 - Scientists have [linked](#) an increase in heavy downpours to climate change.
 - Currently, 122,000 people are [at risk](#) of coastal flooding in North Carolina and by 2050, an additional 44,000 people are [projected to be at risk](#) of coastal flooding due to sea level rise. North Carolina's Outer Banks could be [broken up or lost](#) by the year 2100.
 - Currently, more than 450,000 people are [at risk](#) of inland flooding in North Carolina.
 - In the last decade, in addition to flooding caused by hurricanes and tropical storms, North Carolina [witnessed](#) three severe flooding events that caused a total of \$5.2 billion in damages and 68 deaths.
- North Carolina's military bases are at risk from extreme weather events:

- North Carolina's Military Ocean Terminal Sunny Point is [impacted](#) by current and potential future flooding, while Fort Bragg is [impacted](#) by current and potential future wildfires.
- [Click here to jump to more research below](#)

Trump's Climate Denial Hurts North Carolina's Economy:

- Climate change will [cost](#) North Carolina \$20,207,328,000 a year by the year 2100.
- By 2100, 100,000 homes in North Carolina at an estimated worth of \$28.5 billion [will face flooding](#). Those homes at risk [currently contribute](#) around \$187 million in annual property tax revenue.
- In 2017, agriculture [represented](#) one-sixth of North Carolina's economy, generating over \$91.8 billion in gross state product and employing 728,000 workers.
 - Climate change is [projected](#) to cause a 10.66% loss in crop yields in North Carolina, including a 30.8% loss in grains.
- Outdoor recreation in North Carolina [supports](#) 260,000 jobs and \$28 billion in consumer spending. In 2018, tourism [generated](#) \$25.3 billion in visitor spending and supported more than 230,000 jobs.
 - Climate change is expected to [impact](#) North Carolina's Outer Banks' tourism industry, which produced \$255.4 million for the local economy in 2018.
 - Recreational fishing off North Carolina's coast is a [\\$3 billion industry](#) that supports over 30,166 jobs, but Trump's plans to strip offshore drilling safety rules and open North Carolina's coast to oil drilling would put all of that at risk
- In the past decade, North Carolina has [experienced](#) 35 climate-related disasters responsible for a total of \$405.6 billion in damages.
- Since Trump assumed office, North Carolina has [experienced](#) 14 climate-related disasters responsible for a total of \$247.6 billion in damages.
- In 2019, FEMA [obligated](#) \$30,680,261 to North Carolina following hurricanes and coastal storms.
- Trump's clean cars rollback will [cost](#) North Carolinians over \$1 billion per year.
- [Click here to jump to more research below](#)

Trump's Climate Denial Is Especially Harmful To People Of Color In North Carolina:

- The environmental justice movement was sparked in 1982 by Warren County's overwhelmingly African American residents' [opposition](#) to toxic chemicals being dumped in their neighborhood.
- Studies show Black North Carolinians are almost [twice as likely](#) to live near an EPA-registered polluter than white residents.

- Mecklenburg County, whose [population](#) is over 30% Black and over 13% Hispanic, [received](#) an F grade for its 2019 ozone levels.
 - Ozone has been [linked](#) to asthma, and Black children are [four times](#) more likely to be admitted to the hospital and [ten times](#) more likely to die from asthma.
- Swain County, whose [population](#) is almost 28 percent American Indian and Alaska Native and experiences a 20.9 percent poverty rate, [received](#) an F grade for particle pollution in 2019.
- Communities of color in North Carolina continue to fight against water and air pollution caused by [industrial hog farms](#), [wood burning facilities](#) and [pipelines](#).
- [Click here to jump to more research below](#)

North Carolina Has An Opportunity To Build A Strong Green Economy:

- North Carolina [leads the country](#) for clean energy jobs in rural areas, with the sector employing nearly 29,000 workers in rural areas in 2019.
- North Carolina was [ranked](#) ninth among the top 10 states for clean energy employment in 2019, with the sector employing 112,720 workers.
- In 2019, North Carolina was home to 6,617 jobs in the [solar industry](#) and 1,001 to 2,000 direct jobs in the [wind industry](#).
- [Click here to jump to more research below](#)

TL/DR:	1
HERE'S WHAT'S HAPPENING:	7
RESEARCH:	9
NORTH CAROLINIANS WANT CLIMATE ACTION	9
TRUMP'S CLIMATE DENIAL IS HARMFUL TO NORTH CAROLINIANS' HEALTH	11
Extreme Heat Days.....	11
Heat Related Illnesses.....	11
Vulnerable Populations	11
Issues With Access To Clean Air	11
Ozone Levels.....	11
Particle Pollution	12
Issues With Access To Clean Water	13
PFAS Contamination	13
Coal Ash.....	17
TRUMP'S CLIMATE DENIAL PUTS THE SAFETY OF NORTH CAROLINIANS AT RISK	20
Hurricanes	20
Link To Climate Change	20
Recent Hurricanes Affecting North Carolina.....	21
Wildfire.....	27
Link To Climate Change	27
Recent Wildfire Seasons	27
Drought.....	28
Link To Climate Change	28
Recent Droughts Affecting North Carolina.....	29
Floods	30
Link To Climate Change	30
Sea Level Rise	31
Inland Flooding.....	31
Recent Flooding Events.....	31
Military Bases Affected By Climate Change	32
TRUMP'S CLIMATE DENIAL HURTS NORTH CAROLINA'S ECONOMY	33
GDP Impact.....	33
Economic Impact Of Flooding	33
Agricultural Impacts	33
Tourism & Outdoor Recreation Impacts.....	34
Spending On Disasters.....	35

The Cost Of Trump Climate Policies.....	35
TRUMP'S CLIMATE DENIAL IS ESPECIALLY HARMFUL TO PEOPLE OF COLOR IN NORTH CAROLINA	36
Air Pollution.....	36
Environmental Justice Has Deep Roots In North Carolina.....	37
Current Environmental Justice Issues	38
Atlantic Coast Pipeline	38
Enviva Wood Pellet Plant	39
Industrial Hog Farms	39
NORTH CAROLINA HAS AN OPPORTUNITY TO BUILD A STRONG GREEN ECONOMY	41
North Carolina's Green Economy.....	41
Solar	41
Wind.....	41

HERE'S WHAT'S HAPPENING:

A [majority](#) of North Carolinians both believe in climate change and want their elected officials at all levels to do more to address the issue. President Trump's climate denial is harmful to North Carolina's health, safety, and economy – and is particularly harmful to communities of color.

In 2018, heat-related illnesses [resulted in](#) 4,593 emergency department visits in North Carolina. More than 300,000 North Carolinians being [especially vulnerable](#) to extreme heat and annual extreme heat days are project to jump to [almost 60](#) by 2050.

In 2019, North Carolina's Mecklenburg County [received](#) an F grade for its number of days of unhealthy ozone levels and Swain County [received](#) an F grade for particle pollution. In addition to air pollution, toxic PFAS chemicals have been [found](#) in water supplies [across the state](#). PFAS chemicals are [linked](#) to kidney and testicular cancer, hypertension and other diseases. North Carolina also deals with coal ash, which contains chemicals [linked](#) to cancer, neurological damage, and other health impacts. Coal ash is stored in sites at risk of spilling into nearby rivers and lakes under flood conditions. In February 2014, coal ash from a Duke Energy facility was [spilled into](#) the Dan River and in 2018, Hurricane Florence [compromised](#) two Duke Energy facilities.

In addition to health factors, Trump's Climate Denial places the safety of North Carolinians at risk. Over the past decade, North Carolina has [seen eight hurricanes](#) in the past decade that caused a total of \$336.2 billion in damages and 551 deaths. In 2019, [FEMA obligated](#) \$30,680,261 to North Carolina following Hurricane Dorian, which [caused record flooding](#) on the state's Outer Banks.

Alongside hurricanes, North Carolina is at risk from climate-related wildfire and droughts. In 2016, North Carolina [witnessed](#) wildfires that caused \$2.6 billion in damages in 21 deaths. Wildfires in the state were [exacerbated](#) by historic dry weather conditions across Western North Carolina.

From 2009 through 2016, North Carolina [witnessed](#) three drought events that caused a total of 22.1 billion in damages and 95 deaths.

Currently, 122,000 people are [at risk](#) of coastal flooding in North Carolina and by 2050, an additional 44,000 people are [projected to be at risk](#) of coastal flooding due to sea level rise. In addition, more than 450,000 people are [at risk](#) of inland flooding in North Carolina. In the last decade, in addition to flooding caused by hurricanes and tropical storms, North Carolina [witnessed](#) three severe flooding events that caused a total of \$5.2 billion in damages and 68 deaths. Two of North Carolina's military bases are also at risk from extreme weather events, North Carolina's Military Ocean Terminal Sunny Point (MOTSU) is [impacted](#) by current and potential future flooding, while Fort Bragg is [impacted](#) by current and potential future wildfires.

Trump's climate change denial harms North Carolina's economy. Climate change is estimated to [cost](#) North Carolina \$20,207,328,000 a year by the year 2100. By 2100, 100,000 homes in North Carolina at an estimated worth of \$28.5 billion [will face flooding](#). Climate change will also harm the state's [agriculture](#), [outdoor recreation](#) and [tourism](#) industries. In the past decade, North Carolina has [experienced](#) 35 climate-related disasters responsible for a total of \$405.6 billion in damages., and since Trump assumed office, North Carolina has [experienced](#) 14 climate-related disasters responsible for a total of \$247.6 billion in damages. Trump's climate policies' harm upon the state's economy can be evidenced with his administration's clean cars rollback , which will [cost](#) North Carolinians over \$1 billion per year.

Trump's Climate Denial is especially harmful to people of color in North Carolina, which is where the [environmental justice movement](#) is said to have sparked. Studies show Black North Carolinians are almost [twice as likely](#) to live near an EPA-registered polluter than white residents. Communities of color in North Carolina continue to fight against water and air pollution caused by [industrial hog farms](#), [wood burning facilities](#) and [pipelines](#).

Despite Trump's climate change denial, North Carolina has an opportunity to build a strong green economy. North Carolina [leads the country](#) for clean energy jobs in rural areas, with the sector employing nearly 29,000 workers in 2019. The state also [ranked](#) ninth among the top 10 states for clean energy employment in 2019. In 2019, North Carolina was home to 6,617 jobs in the [solar industry](#) and 1,001 to 2,000 direct jobs in the [wind industry](#).

RESEARCH:

NORTH CAROLINIANS WANT CLIMATE ACTION

66 Percent Of North Carolinians Believe In Climate Change. According to public opinion survey estimates modeled by the Yale Program on Climate Change Communication and the George Mason Center for Climate Change Communication, 66% of North Carolinians agree that global warming is happening. [[Yale Program on Climate Change Communication, 9/17/2019](#)]

58 Percent Of North Carolinians Are Worried About Climate Change. According to public opinion survey estimates modeled by the Yale Program on Climate Change Communication and the George Mason Center for Climate Change Communication, 58% of North Carolinians are worried about global warming. [[Yale Program on Climate Change Communication, 9/17/2019](#)]

60 Percent Of North Carolinians Believe The President Should Do More To Address Climate Change. According to public opinion survey estimates modeled by the Yale Program on Climate Change Communication and the George Mason Center for Climate Change Communication, 60% of North Carolinians believe the President should do more to address global warming. [[Yale Program on Climate Change Communication, 9/17/2019](#)]

60 Percent Of North Carolinians Believe That Congress Should Do More To Address Climate Change. According to public opinion survey estimates modeled by the Yale Program on Climate Change Communication and the George Mason Center for Climate Change Communication, 60% of North Carolinians believe that Congress should do more to address global warming. [[Yale Program on Climate Change Communication, 9/17/2019](#)]

57 Percent Of North Carolinians Believe That Their Governor Should Do More To Address Climate Change. According to public opinion survey estimates modeled by the Yale Program on Climate Change Communication and the George Mason Center for Climate Change Communication, 57% of North Carolinians believe that their Governor should do more to address global warming. [[Yale Program on Climate Change Communication, 9/17/2019](#)]

57 Percent Of North Carolinians Believe That Their Local Officials Should Do More To Address Climate Change. According to public opinion survey estimates modeled by the Yale Program on Climate Change Communication and the George Mason Center for Climate Change Communication, 57% of North Carolinians believe that their local officials

should do more to address global warming. [[Yale Program on Climate Change Communication, 9/17/2019](#)]

TRUMP'S CLIMATE DENIAL IS HARMFUL TO NORTH CAROLINIANS' HEALTH

EXTREME HEAT DAYS

Currently, North Carolina Average 10 Extreme Heat Days Annually. According to States At Risk, North Carolina currently averages around 10 extreme heat days per year.

[\[StatesAtRisk.Org. Accessed 4/29/2020\]](#)

By 2050, The Number Of Extreme Heat Days North Carolina Experiences Annually Is Projected To Jump To Almost 60. According to States At Risk, North Carolina is expected to see nearly 60 days of extreme heat per year by 2050. [\[StatesAtRisk.Org. Accessed 4/29/2020\]](#)

HEAT RELATED ILLNESSES

From May – September 2018, There Were 4,593 Emergency Department Visits For Heat-Related Illnesses In North Carolina. According to the North Carolina Department of Health and Human Services' 2018 Heat Report, "4593 emergency department visits for heat-related illness were observed . 73% of visits were for males, mostly aged 25-64 (Table 1). Most visits were seen in hospitals in the Coastal (43%) and Piedmont (50%) regions 15% of visits were seen in hospitals in the Sandhills sub-region." [\[North Carolina 2018 Heat Report, North Carolina Department of Health and Human Services, 2018\]](#)

Vulnerable Populations

Currently, More Than 300,000 North Carolinians Are Especially Vulnerable To Extreme Heat. According to States At Risk, there are 300,000 people who are particularly vulnerable to extreme heat – those under 6 years old, above 65 years old, or living in extreme poverty – in North Carolina. [\[StatesAtRisk.Org. Accessed 4/29/2020\]](#)

ISSUES WITH ACCESS TO CLEAN AIR

Ozone Levels

2019: Mecklenburg County Received An F Grade For Its Number Of Days Of Unhealthy Ozone Level. According to a press release from the American Lung Association on their 2020 State of the Air report, "The Charlotte-Concord metro area tied for 52nd in the nation and improved with fewer unhealthy days of ozone but Mecklenburg County received a F grade as it recorded a weighted average of 4.7 days of unhealthy levels of ozone. Despite increases in recent years, Mecklenburg County's progress is notable considering the

period with the worst ozone levels – 1997-99, when the weighted average was 92.2 days.” [\[Press Release, American Lung Association, 4/21/2020\]](#)

2019: Ozone Levels Across The Asheville-Marion-Brevard Metropolitan Area Remained Stagnant From 2018. According to the American Lung Association’s 2020 State of the Air report, “The Asheville-Marion-Brevard metro tied 122nd as its levels remained the same from last year’s report.” [\[Press Release, American Lung Association, 4/21/2020\]](#)

Particle Pollution

2019: Swain County Received An F Grade For Particle Pollution. According to the American Lung Association’s annual State of the Air report in 2019, Swain county received a grade of F grade for having high particle pollution. [\[American Lung Association State of the Air Report Card: North Carolina, 2020\]](#)

2019: The Charlotte-Concord Metropolitan Area And The Greenville-Winston-Salem-High Point Metropolitan Area Recorded Worse Levels Of Year-Round Particle Pollution Than In 2018. According to the American Lung Association’s 2020 State of the Air report, “‘State of the Air’ 2020 found that year-round particle pollution levels in the Asheville-Marion-Brevard (T-157th) area were the lowest in the history of the report. The Raleigh-Durham-Cary metro area improved again to its best levels and tied 73rd for most polluted city for year-round particle pollution in the report. The Charlotte-Concord metro area (T-64th) and the Greenville-Winston-Salem-High-Point (T-69th) metro area recorded slightly worse levels of year-round particle pollution but still meet the national standard.” [\[Press Release, American Lung Association, 4/21/2020\]](#)

Despite Particle Pollution From Coal-Fired Power Plants, Diesel Emissions, Wildfires And Wood Burning Devices Decreasing Over Recent Years, 2019 Saw A National Spike In Particle Pollution. According to the American Lung Association’s 2020 State of the Air report, “Particle pollution comes from coal-fired power plants, diesel emissions, wildfires and wood-burning devices. ‘Year-round particle pollution levels had dropped in recent years thanks to the cleanup of coal-fired power plants and the retirement of old, dirty diesel engines. However, the increase we’ve seen nationally in particle pollution in this year’s report is a troubling reminder that we must increase our efforts to reduce this dangerous pollution,’ said Deen.” [\[Press Release, American Lung Association, 4/21/2020\]](#)

2019: The Greensboro-High Point-Winston-Salem Metropolitan Area's Particle Pollution Levels Remained The Same From 2018. According to the American Lung Association’s 2020 State of the Air report, “‘State of the Air’ 2020 also tracked short-term spikes in particle pollution, which can be extremely dangerous and even lethal. The report found that Charlotte and Concord had zero days when short-term particle pollution reached unhealthy levels. The Raleigh-Durham-Cary metro area tied 64th in the report and improved by recording fewer unhealthy air days. Greensboro-High Point-Winston-Salem tied 84th and remain the same from last year’s reports.” [\[Press Release, American Lung Association, 4/21/2020\]](#)

2019: The Asheville-Marion-Brevard Area Was The Nation's 31st Most Polluted City For Short-Term Particle Pollution, With Pollution Levels Remaining At Their Worst Ever Recorded. According to the American Lung Association's 2020 State of the Air report, The Asheville-Marion-Brevard area tied 31st for most polluted city for short-term particle pollution and remains at its worst ever levels." [[Press Release, American Lung Association, 4/21/2020](#)]

- **Spikes In The Asheville-Marion-Brevard Area Were Directly Linked To Weather Patterns Impacted By Climate Change, In Addition To High Emissions From Wood-Burning Devices.** According to the American Lung Association's 2020 State of the Air report, "Many of these spikes in the Asheville-Marion-Brevard area were directly linked to weather patterns like drought or to events like wildfires, which are increasing in frequency and intensity in many areas due to climate change and high emissions from wood-burning devices." [[Press Release, American Lung Association, 4/21/2020](#)]

ISSUES WITH ACCESS TO CLEAN WATER

PFAS Contamination

GenX And PFAS Chemicals In The Cape Fear River

GenX And Other PFAS Chemicals Were Discovered In Drinking Water From The Cape Fear River In 2017. According to the North Carolina Department of Health and Human Services: "In June 2017, the North Carolina Department of Health and Human Services (NCDHHS) was notified of a chemical, called GenX, found in drinking water sourced from the lower Cape Fear River. GenX and other emerging PFAS were found in the river and drinking water in a study led by researchers at North Carolina State University. The Chemours facility in Fayetteville was identified as the source of the GenX chemical. Further investigation by the NC Department of Environmental Quality (NCDEQ) found GenX in private drinking water wells near the Chemours facility. GenX and other PFAS were measured in air emissions from the Chemours facility and have been found in rainwater and other bodies of water close to the facility. Under a consent order between NCDEQ, Chemours, and the Cape Fear River Watch, Chemours is responsible for characterizing GenX in the environment and reducing or eliminating their emissions through wastewater and air." [[North Carolina Department of Health and Human Services, 1/10/2020](#)]

News & Record: "Our Opinion: Troubled Waters" In February of 2020, the Greensboro News & Record ran an editorial titled "Our Opinion: Troubled Waters." The editorial pointed out: "Even as the Trump administration beats a disturbing retreat on environmental protections, tap water across the United States is contaminated to a much higher degree than previously known, contends a new report from the Environmental Working Group." [[Greensboro News & Record editorial, 2/2/2020](#)]

News & Record: "The Highest Rate Of Contamination Was Found... In Brunswick County On The North Carolina Coast." In February of 2020, the Greensboro News & Record

ran an editorial that brought attention to a study on PFAS contamination published by the Environmental Working Group. According to the News & Record: "The group took tap water samples from 44 places in 31 states, including Miami, Philadelphia, New Orleans and New York suburbs. And the highest rate of contamination was found ... in Brunswick County on the North Carolina coast. Water tested from there contained 185.9 parts per trillion, far above the EPA's current recommended limit of 70 ppt. Only one location, in Mississippi, had no traceable amounts of the chemicals." [[Greensboro News & Record editorial, 2/2/2020](#) (ellipses presented as they appeared in the article)]

At 186 ppt, Brunswick County, NC Had The Highest Level Of PFAS Contamination Out Of Sites Tested Nationwide By The Environmental Working Group. According to a report from the Environmental Working Group on PFAS water testing nationwide, "In the 43 samples where PFAS was detected, the total level varied from less than 1 part per trillion, or ppt, in Seattle and Tuscaloosa, Ala., to almost 186 ppt in Brunswick County, N.C. The only sample without detectable PFAS was from Meridian, Miss., which draws its drinking water from wells more than 700 feet deep." [[Environmental Working Group, 1/22/2020](#)]

December 2018: GenX Detected In A North Carolina Food Product For The First Time. In December of 2017, the Associated Press reported: "The unregulated compound found in more than 80 drinking water wells near a chemical company's manufacturing facility in North Carolina has been found in a food product for the first time. Tests found honey collected by a farmer about 2 miles southwest of the Chemours Co. plant outside Fayetteville had levels of the potentially harmful compound GenX nearly 15 times higher than the health goal set by state officials, The StarNews of Wilmington reported." [[Associated Press, 12/5/2017](#)]

GenX And Other PFAS Compounds Found In Leafy Greens Collected From Fayetteville Farmers Markets. In June of 2019, NC Policy Watch blog reported: "Leafy greens collected at local farmers markets near Fayetteville contained elevated levels of GenX and other perfluorinated compounds, according to a recent FDA study. The FDA shared the findings at an environmental conference in Finland, but not publicly in the US. The Environmental Defense Fund obtained photographs of the agency's findings." [[NC Policy Watch, 6/3/2019](#)]

Health Risks

Environmental Working Group: PFAS Contamination of Drinking Water Far More Prevalent Than Previously Reported, Detectable In All Major Water Supplies In The U.S. In January of 2020, the Environmental Working Group published a report stating: "New laboratory tests commissioned by EWG have for the first time found the toxic fluorinated chemicals known as PFAS in the drinking water of dozens of U.S. cities, including major metropolitan areas. The results confirm that the number of Americans exposed to PFAS from contaminated tap water has been dramatically underestimated by previous studies, both from the Environmental Protection Agency and EWG's own research. Based on our tests and new academic research that found PFAS widespread in rainwater, EWG scientists

now believe PFAS is likely detectable in all major water supplies in the U.S., almost certainly in all that use surface water. EWG's tests also found chemicals from the PFAS family that are not commonly tested for in drinking water." [[Environmental Working Group, 1/22/2020](#)]

PFAS Chemicals Were Linked To Kidney And Testicular Cancer, Hypertension, And Other Diseases. According to Politico: "The chemicals, known as PFOA and PFOS, have been linked to kidney and testicular cancer, hypertension and other ailments. Major chemical companies like 3M as well as the Defense Department would face billions of dollars in liability from aggressive efforts to regulate and clean up the chemical, which has contaminated groundwater near hundreds of military bases and chemical plants." [[Politico, 1/28/2019](#)]

Per- And Polyfluoroalkyl Substances, Known As PFAS, Are Prevalent Man-Made Chemicals That Do Not Break Down And Accumulate Over Time In The Environment And Human Body. According to the EPA, "Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s. PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both chemicals are very persistent in the environment and in the human body – meaning they don't break down and they can accumulate over time. There is evidence that exposure to PFAS can lead to adverse human health effects." [[EPA.gov, accessed 6/13/2020](#)]

PFAS Are Known As "Forever Chemicals" Because They Do Not Break Down. According to The Washington Post, "Because PFAS do not break down in the environment, they have become known as 'forever chemicals.'" [[Washington Post, 2/14/2019](#)]

PFAS Chemicals Are Currently Not Designated "Hazardous Substances" Under The Superfund Law. According to the Environmental Working Group: "Superfund distinguishes between chemicals that have been designated as 'hazardous substances' and things that are merely considered 'pollutants or contaminants.' Under current law, PFAS chemicals are considered 'pollutants or contaminants' but not 'hazardous substances.' This significantly limits the power of the Environmental Protection Agency and the states to clean up PFAS pollution. A 'hazardous substance' designation under Superfund triggers reporting requirements for releases over a certain threshold. Anytime the hazardous substance is released into the air, land or water in amounts exceeding the threshold, it triggers an investigation and potential cleanup. By contrast, when a substance is simply a 'pollutant or contaminant,' it must be shown to pose an 'imminent and substantial danger' to public health before the site can be investigated and cleaned up – and, even then, the EPA has considerable discretion over whether to pursue cleanup." [[Environmental Working Group, 7/3/2019](#)]

Under Superfund, Parties Responsible For Contamination Are Forced To Either Perform The Cleanup Work Or Reimburse The Government For Cleanup Costs. According to the Environmental Protection Agency, "CERCLA is informally called Superfund. It allows EPA to clean up contaminated sites. It also forces the parties responsible for the contamination to either perform cleanups or reimburse the government for EPA-led cleanup work."

[[Environmental Protection Agency "What is Superfund" accessed 2/5/2020](#)]

Other PFAS Chemicals

Other PFAS Chemicals, Including C8 (PFOA) and PFOS Were Found In Wilmington Residents' Blood. In November of 2018, the Wilmington Star News reported: "Residents of the Lower Cape Fear region likely have a "unique" set of man-made chemicals in their blood, researchers from N.C. State University said in a Tuesday presentation. Researchers found newly identified per- and polyfluoroalkyl substances (PFAS) including Nafion byproduct 2, PFO4DA, PFO5DoDA and Hydro-EVE in 99, 98, 98 and 76 percent of the blood samples taken, respectively." The article later stated: "In addition to the four chemicals researchers are describing as "new" PFAS, Wilmington residents have levels of better-studied PFAS chemicals such as C8 and PFOS in their blood that near the levels found in the rest of the country about 20 years ago. 'It suggests that there's been an unusually high exposure to historically used PFAS in Wilmington compared to the United States,' Kotlarz said." [[Wilmington Star News, 11/14/2018](#)]

PFAS Chemical Called PFOA Was Also Found In Wells Near The Chemours Property. In March of 2019, the Fayetteville Observer reported: "Water from wells on the Chemours property is not used for drinking. Tests also showed that another compound, PFOA aka perfluorooctanoic acid, which has not been made at the plant since 2009, also is in the water. PFOA, which also is known as C8 because it has eight carbon atoms, has a suggestive risk for cancer, according to the Environmental Protection Agency."

[[Fayetteville Observer, 3/6/2019](#)]

Wilmington Star News Headline: "Brunswick County Tops National List For PFAS Contamination." In January of 2020, the Wilmington Star News reported: "Wilmington is also in the top five of nationwide sites tested by Environmental Working Group for 'forever chemicals' A study from the Environmental Working Group tested tap water samples from 44 sites across the county in 2019. The results of that study, fully released at 12:01 a.m. Wednesday, found Brunswick County had the highest level of PFAS contamination at 185.9 parts per trillion. Wilmington, at 50.5 ppt, was also in the top five on the list that ranks 31 states and the District of Columbia for presence of these per- and polyfluoroalkyl compounds that includes PFOA, PFOS, GenX, and more than 600 others. 'This was a broader look at PFASs,' said David Andrews, a senior scientist with the EWG, a non-profit focused on human health and the environment. The group wanted to expand on the testing and the types of testing that have been done in the past." [[Wilmington Star News, 1/22/2020](#)]

News & Record Headline: “Our Opinion: Troubled Waters” In February of 2020, the Greensboro News & Record ran an editorial titled “Our Opinion: Troubled Waters.” The editorial pointed out: “Even as the Trump administration beats a disturbing retreat on environmental protections, tap water across the United States is contaminated to a much higher degree than previously known, contends a new report from the Environmental Working Group. ‘Forever chemicals,’ also known as perfluoroalkyl substances (PFAS), are resistant to breaking down and may affect hundreds of millions of Americans. Some of the chemicals classified as PFAS may cause cancer, liver damage, low birth weight and other health problems.” [[Greensboro News & Record editorial, 2/2/2020](#)]

“The Highest Rate Of Contamination Was Found... In Brunswick County On The North Carolina Coast.” In February of 2020, the Greensboro News & Record ran an editorial that brought attention to a study on PFAS contamination published by the Environmental Working Group. According to the News & Record: “The group took tap water samples from 44 places in 31 states, including Miami, Philadelphia, New Orleans and New York suburbs. And the highest rate of contamination was found ... in Brunswick County on the North Carolina coast. Water tested from there contained 185.9 parts per trillion, far above the EPA’s current recommended limit of 70 ppt. Only one location, in Mississippi, had no traceable amounts of the chemicals.” [[Greensboro News & Record editorial, 2/2/2020](#) (ellipses presented as they appeared in the article)]

At 186 ppt, Brunswick County, NC Had The Highest Level Of PFAS Contamination Out Of Sites Tested Nationwide By The Environmental Working Group. According to a report from the Environmental Working Group on PFAS water testing nationwide, “In the 43 samples where PFAS was detected, the total level varied from less than 1 part per trillion, or ppt, in Seattle and Tuscaloosa, Ala., to almost 186 ppt in Brunswick County, N.C. The only sample without detectable PFAS was from Meridian, Miss., which draws its drinking water from wells more than 700 feet deep.” [[Environmental Working Group, 1/22/2020](#)]

Coal Ash Pollution Risks

Coal Ash Contains Chemicals Known To Cause Cancer, Neurological Damage, Or Heart Ailments And Is Stored In Sites At Risk Of Spilling Into Nearby Rivers And Lakes Under Flood Conditions. In August of 2019, Politico reported: “The ash, left behind when coal is burned for power generation, contains arsenic, selenium, lead, mercury, boron and other contaminants known to cause cancer, neurological damage or heart ailments. Electric utilities usually store it in massive landfills or unlined ponds that are at a risk of spilling when nearby lakes and rivers flood — as happened in a \$1.2 billion disaster that damaged dozens of homes in Tennessee in 2008, as well as two breaches that fouled a river and lake in North Carolina last year after Hurricane Florence.” [[Politico, 8/26/2019](#)]

Unsafe Levels Of Toxic Metals Found In Groundwater Near More Than 90% Of Power Plants Subject To Monitoring Requirements. In March of 2019, Reuters reported “More than 90 percent of U.S. coal-fired power plants that are required to monitor groundwater

near their coal ash dumps show unsafe levels of toxic metals, according to a study released on Monday by environmental groups. The groups, led by the Environmental Integrity Project and Earthjustice, said their findings show the potential harm to drinking water from coal ash and indicate that stronger regulations are needed. Data made public by power companies showed 241 of the 265 plants, or 91 percent, that were subject to the monitoring requirement showed unsafe levels of one or more coal ash components in nearby groundwater compared to EPA standards, according to the analysis by the groups. The report also found that 52 percent of those plants had unsafe levels of cancer-causing arsenic in nearby groundwater, while 60 percent showed unsafe levels of lithium, which can cause neurological damage." [\[Reuters, 3/4/2019\]](#)

More Than 100 Storage Sites For Coal Ash Are At High Risk For Flooding. In August of 2019, Politico reported: "More than 100 storage sites for coal-burning power plants' toxic leftovers lie in areas that federal emergency managers have labeled a high risk for flooding, according to POLITICO's examination of government and industry data. That finding comes as scientists and pollution experts warn that coal ash — a multibillion-dollar liability problem for communities across the country — may become an even greater danger because of heavier rains triggered by climate change. Already, federal agencies warn that the government's flood maps most likely understate the risks of deluges in much of the country, including the Southeast, where at least 42 storage sites in POLITICO's analysis are located." [\[Politico, 8/26/2019\]](#)

Local Incidents

Coal Ash Became A Major Issue In North Carolina Following A February 2014 Duke Energy Coal Ash Spill Into The Dan River. According to WRAL, "Coal ash became a front and center political issue for North Carolina following a Feb. 2 spill from a former Duke Energy power plant that dumped roughly 40,000 tons of the toxin-laced goop into the Dan River. Duke owns 14 power plants throughout the state that are either actively generating electricity or recently shuttered." [\[WRAL, 8/20/2014\]](#)

Two Duke Energy Coal Ash Facilities Were Compromised As A Result Of Hurricane Florence. In October of 2018, professors from the Department of Agricultural and Resource Economics at North Carolina State University wrote: "Two Duke Energy coal ash facilities were compromised in North Carolina as a result of Hurricane Florence. Duke Energy has confirmed that there were numerous breaches in containment ponds at its Sutton facility near Wilmington. The Sutton Coal Plant was retired in 2013, but the site continues to have two coal ash pits and a cooling pond which sit adjacent to the Cape Fear River. A coal ash landfill on the site also appeared to be leaking in a separate incident. In addition, three coal ash pits at the retired Lee Station coal facility near Goldsboro were inundated with floodwaters. Duke Energy and a nonprofit environmental group have released conflicting results of water quality tests on the Neuse River near Lee Station. It is strongly contested at this point whether coal ash was released at any of the North Carolina facilities, and what the environmental or health impacts will be. The North Carolina Department of Environmental Quality is monitoring both the Neuse and Cape Fear

Rivers, but water quality test results are not yet available. Reputable local and national newspapers are often the best source for current information on coal ash spills and water quality." [[NC State University Agricultural and Resource Economics News, 10/1/2018](#)]

TRUMP'S CLIMATE DENIAL PUTS THE SAFETY OF NORTH CAROLINIANS AT RISK

HURRICANES

Link To Climate Change

New York Times Headline: "Climate Change Is Making Hurricanes Stronger, Researchers Find." On May 18, 2020, the New York Times reported: "Hurricanes have become stronger worldwide during the past four decades, an analysis of observational data shows, supporting what theory and computer models have long suggested: climate change is making these storms more intense and destructive. The analysis, of satellite images dating to 1979, shows that warming has increased the likelihood of a hurricane developing into a major one of Category 3 or higher, with sustained winds greater than 110 miles an hour, by about 8 percent a decade." [[New York Times, 5/18/2020](#)]

NOAA: Human Activities May Have Already Made Changes To Atlantic Hurricanes.

According to the Geophysical Fluid Dynamics Laboratory, "It is premature to conclude that human activities—and particularly greenhouse gas emissions that cause global warming—have already had a detectable impact on Atlantic hurricane or global tropical cyclone activity. That said, human activities may have already caused changes that are not yet detectable due to the small magnitude of the changes or observational limitations, or are not yet confidently modeled (e.g., aerosol effects on regional climate)." [NOAA, Geophysical Fluid Dynamics Laboratory, accessed [8/29/17](#)]

Anthropogenic Warming Is Likely To Increase Intensity Of Hurricanes By As Much As 11%.

According to the Geophysical Fluid Dynamics Laboratory, "Anthropogenic warming by the end of the 21st century will likely cause tropical cyclones globally to be more intense on average (by 2 to 11% according to model projections for an IPCC A1B scenario). This change would imply an even larger percentage increase in the destructive potential per storm, assuming no reduction in storm size." [NOAA, Geophysical Fluid Dynamics Laboratory, accessed [8/29/17](#)]

Increased Hurricane Activity Is Linked To Higher Surface Temperatures Caused By Man Made Carbon Emissions. According to the National Climate Assessment, "The recent increases in activity are linked, in part, to higher sea surface temperatures in the region that Atlantic hurricanes form in and move through. Numerous factors have been shown to influence these local sea surface temperatures, including natural variability, human-induced emissions of heat-trapping gases, and particulate pollution. Quantifying the

relative contributions of natural and human-caused factors is an active focus of research." [National Climate Assessment, Extreme Weather, [2014](#)]

Warming Water Would Provide Fuel For More Intense Hurricanes. According to NASA, "The one way in which global warming could impact hurricanes is by making them more intense. More heat and water in the atmosphere and warmer sea surface temperatures could provide more fuel to increase the wind speeds of tropical storms." [NASA, Earth Observatory, accessed [8/28/17](#)]

Recent Hurricanes Affecting North Carolina

2019: Hurricane Dorian

August – September 2019: Hurricane Dorian Caused \$1.6 Billion In Damages And Resulted In 10 Deaths. According to NOAA's National Centers for Environmental Information, Hurricane Dorian, which hit North Carolina in August and September of 2019, caused \$1.6 billion in damages and resulted in 10 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

- **Dorian Was A Category 1 Hurricane That Caused Significant Flood, Severe Storm, And Tornado Damage On North Carolina's Outer Banks.** According to NOAA's National Centers for Environmental Information, "Category 1 hurricane makes landfall on the Outer Banks of North Carolina, after devastating the northern Bahama Islands as a historically-powerful and slow-moving hurricane. Dorian tracked offshore parallel to the Florida, Georgia and South Carolina coastline before making a North Carolina landfall, bringing a destructive sound-side surge that inundated many coastal properties and isolated residents who did not evacuate. Significant flood, severe storm, and tornado damage to many homes and businesses occurred on the Outer Banks of North Carolina." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]
- **Dorian Reached A Maximum Sustained Wind Speed At Landfall At 185 Miles Per Hour, The Highest Since The 1935 Labor Day Hurricane.** According to NOAA's National Center for Environmental Information, "Dorian's intensification to a category 5 storm marks the fourth consecutive year, in which a maximum category 5 storm developed in the Atlantic basin - a new record. Dorian also tied the record for maximum sustained wind speed for a landfalling hurricane (185 mph) in the Atlantic, a record shared with the historic 1935 Labor Day Hurricane." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

Washington Post: The Science Connecting Climate Change To Hurricanes Like Dorian Is Strong. On September 4, 2019, the Washington Post reported: "The science connecting climate change to hurricanes like Dorian is strong. Warmer oceans fuel more extreme storms; rising sea levels bolster storm surges and lead to worse floods. Just this summer, after analyzing more than 70 years of Atlantic hurricane data, NASA scientist Tim Hall reported that storms have become much more likely to 'stall' over land, prolonging the time when a community is subjected to devastating winds and drenching rain. But none of the numbers in his spreadsheets could prepare Hall for the image on his computer screen this week: Dorian swirling as a Category 5 storm, monstrous and nearly motionless, above the islands of Great Abaco and Grand Bahama." [[Washington Post, 9/4/2019](#)]

Hurricane Dorian Caused Record Flooding On North Carolina's Outer Banks. In February of 2020, the Associated Press reported: "More than 9,000 dump truck loads of debris have been hauled away from Ocracoke Island after it was battered by Hurricane Dorian five months ago, according to numbers released this week. All of the lingering storm debris is set to be cleared from the island by the end of February, Hyde County emergency management director Justin Gibbs told The Virginian-Pilot. Crews have already disposed of about 6,650 tons of waste, including thousands of damaged trees, parts of hundreds of ruined homes and even household appliances like refrigerators and washing machines, Gibbs added. The September storm inundated the Outer Banks island with waters surging to a record 7 feet in some places, news outlets reported at the time. The storm heavily damaged homes, businesses and other infrastructure, and the recovery effort has been ongoing. Hyde County crews have been filling trucks with debris for months, dumping waste in a trash mound two stories tall on a parking lot near the Cape Hatteras National Seashore, the newspaper said. The estimated cost of the debris removal was \$26 million two months ago, but the most recent numbers weren't immediately available, according to Gibbs." [[Associated Press, 2/7/2020](#)]

2019: Hurricane Michael

October 2018: Hurricane Michael Caused \$25.5 Billion In Damages And Resulted In 49 Deaths. According to NOAA's National Centers for Environmental Information, Hurricane Michael, which hit North Carolina in October 2018, caused \$25.5 billion in damages and 49 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

- **Hurricane Michael Was A Category 5 Hurricane That Reached Wind Speeds Of 160 Miles Per Hour.** According to NOAA's National Centers for Environmental Information, "Powerful category 5 hurricane made landfall at Mexico Beach, Florida with devastating winds of 160 mph and storm surge in excess of 15 feet. [...] Michael's intense winds also reached well inland causing billions in damage costs to agriculture and forestry, as high winds hit during harvest season for numerous crops across several states. [...] Michael was initially rated as a category 4 with 155 winds but upgraded to a category 5 with 160 mph winds upon further analysis." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]
- **Hurricane Michael Was The Third Category 4 Or Higher Storm To Make Landfall In The U.S. Since 2017.** According to NOAA's National Centers for Environmental Information, "Michael is the third category 4 or higher storm to make landfall in the U.S. since 2017. Michael is the first category 5 to strike the U.S. mainland since Hurricane Andrew in 1992 and is only the fourth on record. The others are the Labor Day Hurricane (1935) and Hurricane Camille (1969)." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

CBS News: "Sometimes Connecting Climate Change To A Specific Weather Event Is Difficult. With Hurricane Michael, It's Not." In October of 2018, CBS News reported: "Sometimes connecting climate change to a specific weather event is difficult. With Hurricane Michael, it's not. The science is easy: Earth's waters are getting warmer due to an increasing global temperature, and warmer waters fuel hurricanes. Water temperatures in the far northern Gulf of Mexico were 3 to 5 degrees Fahrenheit higher

than normal for this time of year. Instead of water temperatures being near 80, they were in the mid-80s as Michael moved over the Gulf and approached the Florida coast. That's a huge difference. Even a small temperature bump in the ocean causes a tremendous addition of energetic heat and water vapor to a storm, meaning higher wind speeds and more storm surge. All other things being equal, a storm hovering above 85-degree water will become much stronger than a storm hovering above 80-degree water." [CBS News, [10/13/2018](#)]

2018: Hurricane Florence

September 2018: Hurricane Florence Caused \$24.5 Billion In Damages And Resulted In 53 Deaths. According to NOAA's National Centers for Environmental Information, Hurricane Florence, which hit North Carolina in September 2018, caused \$24.5 billion in damages and 53 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

- **Hurricane Florence Produced Extreme Rainfall Reaching Almost 36 Inches In North Carolina.** According to NOAA's National Centers for Environmental Information, "Hurricane Florence was a large and very slow moving hurricane that produced extreme rainfall across eastern North Carolina (up to 35.93") and South Carolina (up to 23.81"), as prodigious amounts of rainfall were common in many locations." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]
- **Hurricane Florence Made Landfall As A Category 1 Hurricane At Wrightsville Beach In North Carolina With A Storm Surge Of Up To 10 Feet And Winds Gusts At Over 100 Miles Per Hour.** According to NOAA's National Centers for Environmental Information, "Florence made landfall as a category 1, at Wrightsville Beach, NC with damaging storm surge up to 10 feet and wind gusts reported over 100 mph. However, the majority of the damage caused by Florence was due to the rainfall inland, which caused many rivers to surpass previous record flood heights." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]
- **U.S. Marine Base Camp Lejeune In North Carolina Suffered Extensive Damage Costing Billions To Repair.** According to NOAA's National Centers for Environmental Information, "U.S. Marine base Camp Lejeune in North Carolina suffered extensive damage that will cost billions to repair." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]
- **The Total Damage North Carolina Saw From Hurricane Florence Was More Than The Damage From Both Hurricane Matthew In 2016 And Hurricane Floyd In 1999 Combined.** According to NOAA's National Centers for Environmental Information, "The total damage from Florence in North Carolina is more than the cost experienced during Hurricane Matthew (2016) and Hurricane Floyd (1999) combined." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

Hurricane Florence Was Described As One Of The Worst Hurricanes To Hit The Carolinas Since Hugo In 1989. In September of 2018, National Geographic reported: "The slow-moving storm pushed storm surges as high as 10 feet onto the shore when it makes landfall Friday morning. It was described as one of the worst hurricanes to hit the coastal Carolinas since Hurricane Hugo battered Charleston in September 1989. But it is the

potential for days of drenching rainfall, already causing flooding, that has officials most worried." [[National Geographic, 9/13/2018](#)]

2017: Hurricane Irma

September 2017: Hurricane Irma Caused \$52.5 Billion In Damages And 97 Deaths.

According to NOAA's National Centers for Environmental Information, Hurricane Irma, which hit North Carolina in September 2017, caused \$52.5 billion in damages and 97 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

- **Hurricane Irma Was A Category 4 Hurricane And A Category 5 Storm.** According to NOAA's National Centers for Environmental Information, "Category 4 hurricane made landfall at Cudjoe Key, Florida after devastating the U.S. Virgin Islands - St John and St Thomas - as a category 5 storm." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]
- **Hurricane Irma Sustained Winds Of 185 Miles Per Hour For Longer Than 37 Hours, The Longest Recorded In The Satellite Era.** According to NOAA's National Centers for Environmental Information, "Category 4 hurricane made landfall at Cudjoe Key, Florida after devastating the U.S. Virgin Islands - St John and St Thomas - as a category 5 storm. [...] Irma maintained a maximum sustained wind of 185 mph for 37 hours, the longest in the satellite era. Irma also was a category 5 storm for longer than all other Atlantic hurricanes except Ivan in 2004." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

Scientists Say Climate Change Made Hurricane Irma Much Stronger. In September of 2017, BloombergNEF reported: "Climate change didn't cause Hurricane Irma, the most powerful storm to form in the open Atlantic Ocean, but did make it much stronger, scientists in Germany and the U.K. said. Irma made landfall in the Caribbean early Wednesday and barreled toward Puerto Rico on a path that may bring it ashore in Florida and destroy so much property that damages surpass Hurricane Katrina. 'Unfortunately, the physicality is very clear: Hurricanes get their destructive energy from the warmth of the ocean, and the region's water temperatures are super elevated,' said Anders Levermann, a climate scientist at the Potsdam Institute for Climate Impact Research, in an emailed statement on Wednesday." [[BloombergNEF, 9/6/2017](#)]

2017: Hurricane Harvey

August 2017: Hurricane Harvey Caused \$131.3 Billion In Damages And 89 Deaths.

According to NOAA's National Centers for Environmental Information, Hurricane Harvey, which hit North Carolina in August 2017, caused \$131.3 billion in damages and 89 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

NYT Op-Ed: "The Severity Of Harvey, In Other Words, Is Almost Certainly Related To Climate Change." According to an op-ed in the New York Times, "The severity of Harvey, in other words, is almost certainly related to climate change. Yes, I know the sober warning that's issued whenever an extreme weather disaster occurs: No individual storm can be definitively blamed on climate change. It's true, too. Some version of Harvey probably would have happened without climate change, and we'll never know the hypothetical truth." [New York Times, [8/29/17](#)]

- **“Add Up The Evidence, And It Overwhelmingly Suggests That Human Activity Has Helped Create The Ferocity Of Harvey.”** According to an op-ed in the New York Times, “Add up the evidence, and it overwhelmingly suggests that human activity has helped create the ferocity of Harvey. That message may be hard to hear — harder to hear, certainly, than stories of human kindness that is now mitigating the storm’s toll. But it’s the truth.” [New York Times, [8/29/17](#)]

Politico: “Harvey Is What Climate Change Looks Like In A World That Has Decided, Over And Over, That It Doesn’t Want To Take Climate Change Seriously.” According to Politico, “But there’s an uncomfortable point that, so far, everyone is skating around: We knew this would happen, decades ago. We knew this would happen, and we didn’t care. Now is the time to say it as loudly as possible: Harvey is what climate change looks like. More specifically, Harvey is what climate change looks like in a world that has decided, over and over, that it doesn’t want to take climate change seriously.” [Politico, [2/28/17](#)]

- **“If We Don’t Talk About The Climate Context Of Harvey, We Won’t Be Able To Prevent Future Disasters And Get To Work On That Better Future.”** According to Politico, “If we don’t talk about the climate context of Harvey, we won’t be able to prevent future disasters and get to work on that better future. Those of us who know this need to say it loudly. As long as our leaders, in words, and the rest of us, in actions, are OK with incremental solutions to a civilization-defining, global-scale problem, we will continue to stumble toward future catastrophes. Climate change requires us to rethink old systems that we’ve assumed will last forever. Putting off radical change—what futurist Alex Steffen calls “predatory delay”—just adds inevitable risk to the system. It’s up to the rest of us to identify this behavior and make it morally repugnant.” [Politico, [2/28/17](#)]

Human Contribution Responsible For Up To 30% Of Rainfall From Hurricane Harvey. According to the Atlantic, “But [Kevin Trenberth, a senior scientist at the U.S. National Center for Atmospheric Research] says that the extra heat could make the storm more costly and more powerful, overpowering and eventually breaking local drainage systems. ‘The human contribution can be up to 30 percent or so of the total rainfall coming out of the storm,’ he said. ‘It may have been a strong storm, and it may have caused a lot of problems anyway—but [human-caused climate change] amplifies the damage considerably.’” [Atlantic, [8/27/17](#)]

2016: Hurricane Matthew

October 2016: Hurricane Matthew Caused \$10.9 Billion In Damages And 49 Deaths.

According to NOAA’s National Centers for Environmental Information, Hurricane Matthew, which hit North Carolina in October 2016, caused \$10.9 billion in damages and 49 deaths. [ncdc.noaa.gov, Accessed 4/30/2020]

- **Hurricane Matthew Made Landfall In North Carolina As A Category 1 Hurricane.** According to NOAA’s National Centers for Environmental Information, “Category 1 hurricane made landfall in North Carolina, after it paralleled the Southeast coast along Florida, Georgia and the Carolinas causing widespread damage from wind, storm surge and inland flooding.” [ncdc.noaa.gov, Accessed 4/30/2020]

- **Hurricane Matthew Caused Damage From Wind, Storm Surge And Inland Flooding, With The Most Costly Impacts Stemming From Historic Levels Of River Flooding In Eastern North Carolina.** According to NOAA's National Centers for Environmental Information, "Category 1 hurricane made landfall in North Carolina, after it paralleled the Southeast coast along Florida, Georgia and the Carolinas causing widespread damage from wind, storm surge and inland flooding. The most costly impacts were due to historic levels of river flooding in eastern North Carolina where 100,000 homes, businesses and other structures were damaged." [[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]
- **100,000 Homes, Businesses And Other Structures Were Damaged By River Flooding That Reached Levels Comparable To Hurricane Floyd In 1999.** According to NOAA's National Centers for Environmental Information, "The most costly impacts were due to historic levels of river flooding in eastern North Carolina where 100,000 homes, businesses and other structures were damaged. This inland flooding was comparable to Hurricane Floyd (1999) that also impacted eastern North Carolina." [[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]

2012: Hurricane Sandy

October 2012: Hurricane Sandy Caused \$74.1 Billion In Damages And 159 Deaths.

According to NOAA's National Centers for Environmental Information, Hurricane Sandy, which hit North Carolina in October 2012, caused \$74.1 billion in damages and 159 deaths. [[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]

- **Damage From Wind, Rain And Heavy Snow Impacted North Carolina As Hurricane Sandy Merged With A Developing Nor'easter Storm.** According to NOAA's National Centers for Environmental Information, "Extensive damage across several northeastern states (MD, DE, NJ, NY, CT, MA, RI) due to high wind and coastal storm surge, particularly NY and NJ. Damage from wind, rain and heavy snow also extended more broadly to other states (NC, VA, WV, OH, PA, NH), as Sandy merged with a developing Nor'easter." [[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]

2011: Hurricane Irene

August 2011: Hurricane Irene Caused \$15.8 Billion In Damages And 45 Deaths. According to NOAA's National Centers for Environmental Information, Hurricane Irene, which hit North Carolina in August 2011, caused \$15.8 billion in damages and 45 deaths.

[[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]

- **Hurricane Irene Was A Category 1 Hurricane That Made Landfall Over Coastal North Carolina.** According to NOAA's National Centers for Environmental Information, "Category 1 hurricane made landfall over coastal NC and moved northward along the Mid-Atlantic Coast (NC, VA, MD, NJ, NY, CT, RI, MA, VT) causing torrential rainfall and flooding across the Northeast." [[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]
- **North Carolina Experienced Considerable Wind Damage.** According to NOAA's National Centers for Environmental Information, "Wind damage in coastal NC, VA, and MD was moderate with considerable damage resulting from falling trees and power lines, while flooding caused extensive flood damage across NJ, NY, and VT. Over seven million

homes and businesses lost power during the storm. Numerous tornadoes were also reported in several states further adding to the damage.” [[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]

WILDFIRE

Link To Climate Change

Climate Change Is Increasing The Severity, Frequency, And Extent Of Wildfires. According to a report from the EPA: “Higher temperatures and drought are likely to increase the severity, frequency, and extent of wildfires in Colorado, which could harm property, livelihoods, and human health. In 2013, the Black Forest Fire burned 14,000 acres and destroyed over 500 homes. Wildfire smoke can reduce air quality and increase medical visits for chest pains, respiratory problems, and heart problems. The size and number of western forest fires have increased substantially since 1985.” [[Environmental Protection Agency, “What Climate Change Means for Colorado” August 2016](#)]

The National Climate Assessment Has Found That The Number Of Wildfires Is Likely To Increase As The Climate Warms And Could Induce “Profound Changes To Certain Ecosystems.” In August of 2018, The Atlantic reported: “As if there wasn’t enough evidence of that. Last year, the National Climate Assessment—written by a panel of scientists in the military, federal civilian agencies, and private universities—reviewed the complete scientific literature on climate change and wildfires. They concluded that the number of large blazes had increased since the early 1980s. They also said the number of wildfires ‘is projected to further increase in those regions as the climate warms.’ They warned this could induce ‘profound changes to certain ecosystems.’” [The Atlantic, [8/10/18](#)]

Acres Burned By Wildfire Doubled In Recent Decades Due To Climate Change. According to the 2018 National Climate Assessment Report: “Wildfire is a natural part of many ecosystems in the Southwest, facilitating germination of new seedlings and killing pests. Although many ecosystems require fire, excessive wildfire can permanently alter ecosystem integrity. Climate change has led to an increase in the area burned by wildfire in the western United States. Analyses estimate that the area burned by wildfire from 1984 to 2015 was twice what would have burned had climate change not occurred. Furthermore, the area burned from 1916 to 2003 was more closely related to climate factors than to fire suppression, local fire management, or other non-climate factors.” [[National Climate Assessment, Chapter 25, 2018](#)]

Recent Wildfire Seasons

2019 Fire Season

In 2019, 14,548 Acres Of Land Were Burned Due To Wildfire In North Carolina. According to the National Interagency Fire Center’s 2019 report, 14,548 acres of land were burned in 3,872 fires across North Carolina in 2019. [[National Interagency Fire Center, National Report of Wildland Fires and Acres Burned by State, 2019 Report](#)]

2018 Fire Season

In 2018, 18,058 Acres Of Land Were Burned Due To Wildfire In North Carolina. According to the National Interagency Fire Center's 2018 report, 18,058 acres of land were burned in 3,625 fires across North Carolina in 2018. [[National Interagency Fire Center, National Report of Wildland Fires and Acres Burned by State, 2018 Report](#)]

2017 Fire Season

In 2017, 46,507 Acres Of Land Were Burned Due To Wildfire In North Carolina. According to the National Interagency Fire Center's 2017 report, 46,507 acres of land were burned in 5,125 fires across North Carolina in 2017. [[National Interagency Fire Center, National Report of Wildland Fires and Acres Burned by State, 2017 Report](#)]

2016 Fire Season

Summer – Fall 2016: Western/Southeastern Wildfires Caused \$2.6 Billion In Damages And 21 Deaths. According to NOAA's National Centers for Environmental Information, Western/Southeastern Wildfires that sparked in North Carolina through the Summer and Fall of 2016 caused \$2.6 billion in damages and 21 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

The Wildfires Were Exacerbated By Historic Dry Weather Across Western North Carolina. According to WCNC, "We're in a historically dry fall here," said Catherine Hibbard with the U.S. Forest Service. It's fifth-driest season in the past 104 years for Western North Carolina. Dry weather and no rainfall combined with high wind gusts and low humidity levels have led to difficulties to contain the blaze. Additionally, dry leaves scatter the forest floor and firefighters are battling 3- to 4-foot flames on steep, rugged terrain." [[WCNC, 11/15/2016](#)]

In 2019, Forest Officials Warned That Ripe Conditions Could Result In Wildfires On The Scale Seen By The State In 2016. According to Fox8, "Fire officials are having flashbacks to the fall of 2016 when wildfires burned nearly 60,000 acres across North Carolina. Sam Griffith, with North Carolina Forest Service's District 10 office, says this year could be just as bad, if not worse. The N.C. Forest Service uses readiness plans to determine its daily staffing levels for emergency response resources. They range from 1 to 5. On Oct. 8, the district was at a level 3. They say high winds, low humidity and the recent dry spell are a dangerous combination." [[Fox8, 10/8/2019](#)]

DROUGHT

Link To Climate Change

NASA Research Showed Human Activity Has Been Influencing Global Patterns Of Drought, With Increased Drought Occurring In Response To Greenhouse Gas Emissions. According to NASA, "Warming temperatures and changing precipitation patterns can lead to droughts, and NASA research shows that humans have been influencing global patterns of drought for nearly a century. Kate Marvel and Ben Cook, researchers at NASA's Goddard

Institute for Space Studies and Columbia University in New York City, investigated humans' influence on 20th-century drought patterns using historical weather data and drought maps calculated from tree rings. They found that a data 'fingerprint' – a drying and wetting pattern predicted to occur in response to greenhouse gas emissions – was visible as far back as the early 1900s." [[climate.nasa.gov, 6/13/2019](https://climate.nasa.gov/6/13/2019)]

Climate Change Is Already Affecting Global Patterns Of Drought, And Such Trends Are Expected To Continue. According to NASA, "Demonstrating that humans influenced global drought patterns in the past is an important part of understanding how we may influence them in the future, said Cook. 'Climate change is not just a future problem,' he said. 'This shows it's already affecting global patterns of drought, hydroclimate, trends, variability — it's happening now. And we expect these trends to continue, as long as we keep warming the world.'" [[climate.nasa.gov, 6/13/2019](https://climate.nasa.gov/6/13/2019)]

Longer And More Intense Droughts Are Expected In The Future Due To Climate Change. According to NASA, "Demonstrating climate models' ability to accurately depict past droughts, helps to confirm their ability to model future droughts as well. Other research of Cook's shows that if greenhouse gas emissions continue to increase along current trajectories, the U.S. Southwest could see 'megadroughts' lasting more than three decades. Cook and his team ran 17 different climate models, and all of them agree that there are likely to be longer and more intense droughts in the future." [[climate.nasa.gov, 6/13/2019](https://climate.nasa.gov/6/13/2019)]

Recent Droughts Affecting North Carolina

2016 Drought Impacts

2016: West/Northeast/Southeast Drought Caused \$3.8 Billion In Damages And Zero Deaths. According to NOAA's National Centers for Environmental Information, droughts across the Western, Northeastern and Southeastern States including North Carolina in 2016 caused \$3.8 billion in damages and zero deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](https://ncdc.noaa.gov/4/30/2020)]

2011 Drought Impacts

Spring - Summer 2011: Drought And Heat Waves Across The Southern Plains And Southwest Caused \$14 Billion In Damages And 95 Deaths. According to NOAA's National Centers for Environmental Information, drought and heat waves across the Southern Plains and Southwest, which impacted North Carolina in the Spring and Summer of 2011, caused \$14 billion in damages and 95 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](https://ncdc.noaa.gov/4/30/2020)]

2009 Drought Impacts

2009: Drought Across The Southwest And Great Plains Caused \$4.3 Billion In Damages And Zero Deaths. According to NOAA's National Centers for Environmental Information, drought across the Southwest and Great Plains caused \$4.3 billion in damages and zero deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](https://ncdc.noaa.gov/4/30/2020)]

FLOODS

Link To Climate Change

Scientists Have Linked Increases in Flooding to Climate Change. According to the National Climate Assessment, “Floods are caused or amplified by both weather- and human-related factors. Major weather factors include heavy or prolonged precipitation, snowmelt, thunderstorms, storm surges from hurricanes, and ice or debris jams [...] Increasingly, humanity is also adding to weather-related factors, as human-induced warming increases heavy downpours, causes more extensive storm surges due to sea level rise, and leads to more rapid spring snowmelt [...] The risks from future floods are significant, given expanded development in coastal areas and floodplains, unabated urbanization, land-use changes, and human-induced climate change” [National Climate Assessment, Extreme Weather, [2014](#)]

Heavy Rainstorms Have Become Heavier And More Frequent In The U.S. In The Past Three To Five Decades. According to the National Climate Assessment, “Heavy downpours are increasing nationally, especially over the last three to five decades. The heaviest rainfall events have become heavier and more frequent, and the amount of rain falling on the heaviest rain days has also increased. ” [National Climate Assessment, Extreme Weather, [2014](#)]

Scientists Have Linked An Increase in Heavy Downpours To Climate Change. According to the National Climate Assessment, “Global analyses show that the amount of water vapor in the atmosphere has in fact increased due to human-caused warming. This extra moisture is available to storm systems, resulting in heavier rainfalls.” [National Climate Assessment, Extreme Weather, [2014](#)]

National Climate Assessment: “Heavy Downpours Are Increasing Nationally...The Mechanism Driving These Changes Is Well Understood.” According to the 2014 National Climate Assessment: “Heavy downpours are increasing nationally, especially over the last three to five decades. The heaviest rainfall events have become heavier and more frequent, and the amount of rain falling on the heaviest rain days has also increased. Since 1991, the amount of rain falling in very heavy precipitation events has been significantly above average. This increase has been greatest in the Northeast, Midwest, and upper Great Plains – more than 30% above the 1901-1960 average. There has also been an increase in flooding events in the Midwest and Northeast, where the largest increases in heavy rain amounts have occurred. The mechanism driving these changes is well understood. Warmer air can contain more water vapor than cooler air. Global analyses show that the amount of water vapor in the atmosphere has in fact increased due to human-caused warming.,,, This extra moisture is available to storm systems, resulting in heavier rainfalls. Climate change also alters characteristics of the atmosphere that affect weather patterns and storms.” [[2014 National Climate Assessment: Extreme Weather](#)]

Sea Level Rise

Currently, 122,000 People Are At Risk Of Coastal Flooding In North Carolina. According to States At Risk, there are currently 122,000 people at risk of coastal flooding in North Carolina. [[StatesAtRisk.Org, Accessed 4/29/2020](#)]

By 2050, An Additional 44,000 People Are Projected To Be At Risk Of Coastal Flooding Due To Sea Level Rise. According to States At Risk, by 2050 a further 44,000 people, for total of 166,000, are projected to be at risk of coastal flooding in North Carolina. [[StatesAtRisk.Org, Accessed 4/29/2020](#)]

North Carolina's Outer Banks Could Be Broken Up Or Lost By The Year 2100. According to the Environmental Protection Agency, "Beaches also erode as sea level rises. A higher water level makes it more likely that storm waters will wash over a barrier island or open new inlets. The United States Geological Survey estimates that the lightly developed Outer Banks between Nags Head and Ocracoke could be broken up by new inlets or lost to erosion if sea level rises two feet by the year 2100. Eroding shores will threaten most coastal towns unless people take measures to halt the erosion." [[Environmental Protection Agency, "What Climate Change Means for North Carolina," August 2016](#)]

Inland Flooding

Currently, More Than 450,000 People Are At Risk Of Inland Flooding In North Carolina. According to States At Risk, there are currently more than 450,000 people living in areas at elevated risk of inland flooding. [[StatesAtRisk.Org, Accessed 4/29/2020](#)]

Recent Flooding Events

2020 Flooding Events

January 2020: Southeastern Tornadoes And Northern Storms And Flooding Caused \$1.1 Billion In Damages And 10 Deaths. According to NOAA's National Centers for Environmental Information, Southeastern Tornadoes and Northern Storms and Flooding, which hit North Carolina in January 2020, caused \$1.1 billion in damages and resulted in 10 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

- **North Carolina Was One Of 16 States That Experienced Damage From More Than 80 Tornadoes And Severe Storms Across The Southeast.** According to NOAA's National Centers for Environmental Information, "More than 80 tornadoes and severe storms caused damage across many southeastern states (AL, AR, GA, IL, IN, KY, LA, MS, MO, NC, OH, SC, TN, TX, VA, WI). Storms and severe flooding also impacted northern states including Michigan, Wisconsin and New York." [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

2015 Flooding Events

October 2015: South Carolina And East Coast Flooding Caused \$2.2 Billion In Damages And 25 Deaths. According to NOAA's National Centers for Environmental Information, South Carolina and East Coast Flooding that hit North Carolina in October 2015 caused \$2.2 billion in damages and 25 deaths. [[ncdc.noaa.gov, Accessed 4/30/2020](#)]

2014 Flooding Events

April 2014: Tornadoes And Flooding Caused \$1.9 Billion In Damages And 33 Deaths.

According to NOAA's National Centers for Environmental Information, tornadoes and flooding across the Midwest, Southeast and Northeast which hit North Carolina in April 2014 caused \$1.9 billion in damages and 33 deaths. [[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]

- **83 Confirmed Tornadoes Impacted Across Fifteen States Including North Carolina.** According to NOAA's National Centers for Environmental Information, "Tornado outbreak across the Midwest, Southeast and Northeast states (AL, AR, DE, FL, GA, KS, MD, MO, MS, NC, NJ, NY, PA, TN, VA) with 83 confirmed tornadoes." [[ncdc.noaa.gov](https://www.ncdc.noaa.gov), Accessed 4/30/2020]

MILITARY BASES AFFECTED BY CLIMATE CHANGE

North Carolina's Military Ocean Terminal Sunny Point (MOTSU) Is Impacted By Current And Potential Future Flooding. According to the Department of Defense, Military Ocean Terminal Sunny Point (MOTSU) in North Carolina is impacted by current and potential flooding. [[Report on Effects of a Changing Climate to the Department of Defense, January 2019](#)]

North Carolina's Fort Bragg Is Impacted By Current And Potential Future Wildfires. According to the Department of Defense, Fort Bragg in North Carolina is impacted by current and potential wildfire events. [[Report on Effects of a Changing Climate to the Department of Defense, January 2019](#)]

TRUMP'S CLIMATE DENIAL HURTS NORTH CAROLINA'S ECONOMY

GDP IMPACT

Climate Change Will Cost North Carolina \$20,207,328,000 A Year By The Year

2100. According to data on the impacts of climate change as part of a study published in Science Magazine, North Carolina can expect to lose \$20,207,328,000 from annual GDP by the year 2100 if action isn't taken to immediately curtail carbon emissions. The study used a model that aimed to calculate the future impact on each state's gross domestic product (GDP) from events including hurricanes, storm surges, changes in agricultural yields, changing electricity demands, changes in mortality rates, changes to the labor supply, rising sea levels and rising crime rates. [[Hsiang, S., Kopp, R.E., et al. "Estimating economic damage from climate change in the United States" Science Magazine, 6/30/2017, MarketWatch, 4/30/2018](#)]

Economic Impact Of Flooding

By 2100, 100,000 Homes In North Carolina At An Estimated Worth Of \$28.5 Billion Will Face Flooding. According to a press release from the Union of Concerned Scientists: "By 2045, more than 15,000 of today's residential properties, currently home to roughly 23,000 people, are at risk of chronic inundation. The total number of at-risk residential properties jumps to roughly 100,000—home to about 151,000 people—by 2100. [...] By 2045, nearly \$4 billion-worth of residential property (based on today's values) is at risk of chronic flooding. The homes that would face this flooding at the end of the century are currently worth roughly \$28.5 billion." [[Press Release, Union of Concerned Scientists, 6/18/2018](#)]

The 100,000 Homes At Risk Of Flooding By 2100 Currently Contribute Around \$187 Million In Annual Property Tax Revenue. According to a press release from the Union of Concerned Scientists: "The North Carolina homes at risk in 2045 currently contribute about \$25 million in annual property tax revenue. The homes at risk by 2100 currently contribute roughly \$187 million collectively in annual property tax revenue." [[Press Release, Union of Concerned Scientists, 6/18/2018](#)]

AGRICULTURAL IMPACTS

Climate Change Is Projected To Cause A 10.66% Loss In Crop Yields In North Carolina, Including a 30.8% Loss In Grains. According to data on the impacts of climate change as part of a study published in Science Magazine, North Carolina can expect to see a 10.66% loss in total value of agricultural crop yields by late in the century (2080-2100) if action isn't taken to immediately curtail carbon emissions. This includes a 30.81% decline

in grain crops and a 25.04% decline in oil crops offset by a 22.48% increase in cotton. The study used a model that aimed to calculate the future impact on agricultural yields on GDP. [[Hsiang, S., Kopp, R.E., et al, "Estimating economic damage from climate change in the United States" Science Magazine, 6/30/2017 \(data files via Zenodo\)](#)]

In 2017, Agriculture Represented One-Sixth Of North Carolina's Economy, Generating Over \$91.8 Billion In Gross State Product And Employing 728,000 Workers. According to data presented by the NC State University College of Agriculture and Life Sciences, "Agriculture and agribusiness — food, fiber and forestry — account for one-sixth of the state's income and employees. Over 17 percent, or over \$91.8 billion of the \$538 billion gross state product is contributed by food, fiber and forestry industries. These industries account for 728,000 of the state's 4.4 million employees." The data was derived from the state's agricultural and agribusiness sector in 2017. [[NC State University, May, 2019](#)]

TOURISM & OUTDOOR RECREATION IMPACTS

Climate Change Is Expected To Impact North Carolina's Outer Banks' Tourism Industry, Which Produced \$255.4 Million For The Local Economy In 2018. According to the Charlotte Observer: "Cape Hatteras is one of three national parks at the Outer Banks —which is projected to see the highest sea level rise by 2100, according to a National Park Service study cited in the report. [...] What's more alarming? 'The landscape is deeply and directly connected to the local economy,' the report states. Roughly 3.2 million people reportedly visited national parks at the Outer Banks last year. Those visitors passed \$203.1 million in revenue to neighboring communities and provided nearly 3,000 jobs for locals, reaping a combined benefit for the local economy of \$255.4 million, according to the report." [[Charlotte Observer, 11/19/2019](#)]

Outdoor Recreation In North Carolina Supports 260,000 Jobs And \$28 Billion In Consumer Spending. According to data collected by the Outdoor Industry Association, outdoor recreation in North Carolina supports 260,000 direct jobs and generates \$8.3 billion in wages and salaries. Outdoor recreation generates \$28.0 billion in consumer spending for the state, which brings in \$1.3 billion in state and local tax revenue. [[Outdoor Industry Association accessed 6/9/2020](#)]

Recreational Fishing Was Responsible For 30,166 Jobs And \$3 Billion In Sales In North Carolina In 2016. According to an update to the Fisheries Economics of the United States report from the National Oceanic and Atmospheric Administration, recreational fishing in North Carolina supported 30,166 jobs and generated \$3 billion in sales. [[NOAA Fisheries Economics of the United States, 2016 \(October 2019 Addendum\)](#)]

In 2018, Tourism Generated \$25.3 Billion In Visitor Spending And Supported More Than 230,000 Jobs. According to an August, 2019 press release from the Office of the Governor of North Carolina, "Record visitor spending in 2018 was reflected with visitor spending increases in all 100 counties, Governor Roy Cooper announced today. The data comes

from an annual study commissioned by Visit North Carolina, a unit of the Economic Development Partnership of North Carolina. Domestic visitors spent a record \$25.3 billion statewide in 2018, an increase of 5.6 percent from 2017. State tax receipts as a result of visitor spending neared \$1.3 billion in 2018, and local tax revenues directly resulting from visitor spending totaled \$774.6 million. Visitor expenditures directly supported more than 230,000 jobs and generated more than \$6.3 billion in payroll income across North Carolina.” [\[Governor Roy Cooper press release, 8/15/2019\]](#)

SPENDING ON DISASTERS

In The Past Decade, North Carolina Has Experienced 35 Climate-Related Disasters Responsible For A Total Of \$405.6 Billion In Damages. According to NOAA’s National Centers for Environmental Information, in the past decade North Carolina has witnessed 35 climate-related disasters that were responsible for total damages of \$405.6 billion. These 35 disasters, which were responsible for over a billion dollars’ worth of damages each, include 17 severe storms, eight tropical cyclones, four winter storms, one freeze, one wildfire, three droughts and one flooding from 2009 to 2019. [\[ncdc.noaa.gov, Accessed 4/30/2020\]](#)

Since Trump Assumed The Office Of The Presidency In 2017, North Carolina Has Experienced 14 Climate-Related Disasters Responsible For A Total Of \$247.6 Billion In Damages. According to NOAA’s National Centers for Environmental Information, since President Trump assumed office in 2017, North Carolina has experienced 14 climate-related disasters responsible for total damages of \$247.6 billion. These 14 disasters., each responsible for over one billion dollars’ worth of damages, include six severe storms, five tropical cyclones, two winter storms, and one freeze event. [\[ndcd.noaa.gov, Accessed 4/30/2020\]](#)

2019: FEMA Obligated \$30,680,261 To North Carolina Following Hurricanes And Coastal Storms. According to data from the Federal Emergency Management Agency, North Carolina was obligated \$30,680,261 in 2019 following severe storms. [\[FEMA.Gov, Accessed 5/21/2020\]](#)

THE COST OF TRUMP CLIMATE POLICIES

Trump’s Clean Cars Rollback Will Cost North Carolinians Over \$1 Billion Per Year. In March of 2019, the Center for American Progress analyzed the costs of some of Donald Trump’s regulatory changes. For Trump’s rollback of clean cars standards, they combined data from M.J. Bradley and Associates’ analysis of the net cost for American families of freezing fuel economy targets at model-year 2020 along with data from the Energy Information Agency’s oil price forecasts as well as the American Community Survey. The analysis found that Trump’s rollback of clean cars standards will cost North Carolinians \$1,037,800,000 per year. [\[Center for American Progress, 3/27/2019\]](#)

TRUMP'S CLIMATE DENIAL IS ESPECIALLY HARMFUL TO PEOPLE OF COLOR IN NORTH CAROLINA

AIR POLLUTION

Black North Carolinians Are Almost Twice As Likely To Live Near An EPA-Registered Polluter Than White Residents. A 2013 study by the University of North Carolina's Center for Civil Rights: "Almost a quarter (24.25%) of all North Carolinian residents live within one mile of an EPA-registered polluter, but 41% of residents of Latino clusters and 44% of residents of African American clusters live within a mile of such pollution sources." [[The State of Exclusion, 2013 Report, UNC Center for Civil Rights](#)]

2019: Mecklenburg County Received An F Grade For Its Number Of Days Of Unhealthy Ozone Levels. According to a press release from the American Lung Association on their 2020 State of the Air report, "The Charlotte-Concord metro area tied for 52nd in the nation and improved with fewer unhealthy days of ozone but Mecklenburg County received a F grade as it recorded a weighted average of 4.7 days of unhealthy levels of ozone. Despite increases in recent years, Mecklenburg County's progress is notable considering the period with the worst ozone levels – 1997-99, when the weighted average was 92.2 days." [Press Release, American Lung Association, 4/21/2020]

- **Over 30 Percent Of Mecklenburg County Residents Are Black Or African American And Over 13 Percent Are Hispanic Or Latino.** According to DataUSA: "The population of Mecklenburg County, NC is 46.2% White Alone, 31.2% Black or African American Alone, and 13.6% Hispanic or Latino." [[DataUSA, Mecklenburg County NC, 2017](#)]
- **Asthma And Allergy Foundation: "Ozone Triggers Asthma."** According to the Asthma and Allergy Foundation of America, "Ozone, a gas, is one of the most common air pollutants. Ozone contributes to what we typically experience as "smog" or haze. It is most common in cities where there are more cars. It is also more common in the summer when there is more sunlight and low winds. Ozone triggers asthma because it is very irritating to the lungs and airways. It is well known that ozone concentration is directly related to asthma attacks. It has also caused the need for more doses of asthma drugs and emergency treatment for asthma. Ozone can reduce lung function. Ozone can make it more difficult for you to breathe deeply." [[Asthma and Allergy Foundation of America, October 2015](#)]
- **African American Children Were Four Times More Likely To Be Admitted To The Hospital And Ten Times More Likely To Die From Asthma.** According to the Department of Health and Human Services, "In 2015, African American children had a death rate ten times that of non-Hispanic white children. Black children are 4 times more likely to

be admitted to the hospital for asthma, as compared to non-Hispanic white children. [Department of Health and Human Services, Accessed [9/7/18](#)]

2019: Swain County Received An F Grade For Particle Pollution. According to the American Lung Association's annual State of the Air report in 2019, Swain county received a grade of F grade for having high particle pollution. [[American Lung Association State of the Air Report Card: North Carolina, 2020](#)]

- **Almost 28 Percent Of Swain County's Residents Are American Indian And Alaska Native And The County's Poverty Rate Stands At 20.9 Percent.** According to DataUSA: "The population of Swain County, NC is 62.7% White Alone, 27.6% American Indian & Alaska Native Alone, and 4.93% Hispanic or Latino. [...] 20.9% of the population for whom poverty status is determined in Swain County, NC (2.91k out of 14k people) live below the poverty line, a number that is higher than the national average of 13.1%." [[DataUSA, Swain County NC, 2017](#)]
- **Headline: "Hispanics And Blacks Create Less Air Pollution Than Whites, But Breathe More Of It, Study Finds."** [[CNN, 3/13/2019](#)]
- **Study: Blacks And Hispanic Are Exposed To 56% And 63% More Particulate Air Pollution (PM2.5) Than Is Caused By Their Consumption, While Non-Hispanic Whites Are Exposed To Less Pollution Than They Cause.** According to a study published in the Proceedings of the National Academy of Sciences, "Fine particulate matter (PM2.5) air pollution exposure is the largest environmental health risk factor in the United States. Here, we link PM2.5 exposure to the human activities responsible for PM2.5 pollution. We use these results to explore "pollution inequity": the difference between the environmental health damage caused by a racial-ethnic group and the damage that group experiences. We show that, in the United States, PM2.5 exposure is disproportionately caused by consumption of goods and services mainly by the non-Hispanic white majority, but disproportionately inhaled by black and Hispanic minorities. On average, non-Hispanic whites experience a "pollution advantage": They experience ~17% less air pollution exposure than is caused by their consumption. Blacks and Hispanics on average bear a "pollution burden" of 56% and 63% excess exposure, respectively, relative to the exposure caused by their consumption. The total disparity is caused as much by how much people consume as by how much pollution they breathe. Differences in the types of goods and services consumed by each group are less important. PM2.5 exposures declined ~50% during 2002-2015 for all three racial-ethnic groups, but pollution inequity has remained high." [[Tessum, Christopher W. et al. "Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure." Proceedings of the National Academy of Sciences Mar 2019, 116 \(13\) 6001-6006](#)]

ENVIRONMENTAL JUSTICE HAS DEEP ROOTS IN NORTH CAROLINA

The Environmental Justice Movement Was Sparked In 1982 By Warren County's Overwhelmingly African American Residents' Opposition To The Dumping Of Toxic Chemicals In Their Neighborhood. According to NRDC: "Poor, rural and overwhelmingly

black, Warren County, North Carolina, might seem an unlikely spot for the birth of a political movement. But when the state government decided that the county would make a perfect home for 6,000 truckloads of soil laced with toxic PCBs, the county became the focus of national attention. [...] The people of Warren County ultimately lost the battle; the toxic waste was eventually deposited in that landfill. But their story -- one of ordinary people driven to desperate measures to protect their homes from a toxic assault -- drew national media attention and fired the imagination of people across the country who had lived through similar injustice. The street protests and legal challenges mounted by the people of Warren County to fight the landfill are considered by many to be the first major milestone in the national movement for environmental justice." [\[NRDC, 3/17/2016\]](#)

CURRENT ENVIRONMENTAL JUSTICE ISSUES

Atlantic Coast Pipeline

In 2018, The State Issued A Permit Allowing The Atlantic Coast Pipeline To Run Through Eight Counties In North Carolina. According to News & Observer: "Last year, DEQ issued a crucial permit to allow the Atlantic Coast Pipeline, a 600-mile natural gas line planned to run from West Virginia and through eight counties in North Carolina. Environmental groups want DEQ to revoke the pipeline permit. The meeting attendees applauded and cheered after the advisory board unanimously adopted 'a statement of concern' about the pipeline offered by board member Rodney S. Sadler Jr., an associate professor at Union Presbyterian Seminary in Charlotte. Lawsuits have stalled pipeline construction, but its owners are confident it will be built. In a press release last month, Dominion Energy said the pipeline is needed to ease natural gas shortages." [\[News & Observer, 11/21/2019\]](#)

Northampton County, Home To A Predominately Black Community, Is The Planned Site For One Of The Pipeline's Compressor Stations. According to Grist: "The Atlantic Coast Pipeline would have three compressor stations along its 600-mile route, including the one in Northampton. [...] But two of the stations are being built in predominantly black communities. In addition to the Northampton station, another compressor station is proposed for Union Hill, Virginia, an area settled by freed slaves after the Civil War that has in many ways become one of the epicenters of the fight against the Atlantic Coast Pipeline." [\[Grist, 12/3/2019\]](#)

Dominion Energy Offered \$1 Million Each To Two Native American Tribes In North Carolina In Exchange For The Tribes' Agreement Not To Hinder Development Of The Atlantic Pipeline. According to Grist: "Last year, Dominion Energy offered four Native American tribes in the Eastern U.S. — the Lumbee Tribe and the Haliwa Saponi Indian Tribe in eastern North Carolina and the Monacan Indian Nation and Rappahannock Indian Tribe in Virginia — \$1 million each in exchange for agreeing 'not to hinder or delay the development, construction or operation' of the pipeline. In the contract was a waiver of the tribes' rights to present any claims against the pipeline and a requirement to issue a statement that they had each resolved any issues with developers." [\[Grist, 12/3/2019\]](#)

The North Carolina Tribes, Based In Robeson County, Rejected Dominion Energy's Offer.

According to Grist: "The North Carolina tribes, which have lived in and around Robeson County for hundreds of years, did not. "I took an oath to uphold the Lumbee way of life and that includes protecting our voice," Lumbee Tribal Chairman Harvey Godwin Jr. told The Robesonian in 2018." [[Grist, 12/3/2019](#)]

The Atlantic Pipeline Would Cross Sacred Tribal Lands And Several Swamps Tapped By The County For Drinking Water.

According to Grist: "The project would cross archaeological sites and other land that the Lumbee consider sacred, as well as several swamps that are part of the larger watershed Robeson County taps for its drinking water. The wetland ecosystem that includes the Lumber River is rich in biological diversity and home to endangered or threatened species such as the red-cockaded woodpecker, the wood stork, and Michaux's sumac. These are resources indigenous peoples in the area have relied on for centuries and have fought to protect, but their ability to do so is limited. Congress does not recognize the Lumbee as a sovereign nation and has not allowed them the full benefits of federal protection." [[Grist, 12/3/2019](#)]

Enviva Wood Pellet Plant

Enviva's Wood Pellet Plants Have Generated Tons Of Hazardous Emissions In North Carolinian Communities.

According to News & Observer: "In addition to their concerns about biomass worsening climate change rather than reducing it, critics of the wood pellet manufacturer Enviva have accused the company of generating large amounts of air pollution in the communities where its plants operate in North Carolina. [...] Turning green tree trunks, wood chips and lumber scraps into wood pellets — all natural, organic material Enviva uses from softwood pine farms, private hardwood forests and lumber mill scraps — generates tons of hazardous emissions through its smokestacks, according to its reports to the state Department of Environmental Quality." [[News & Observer, 1/3/2020](#)]

In 2019, North Carolina Officials Approved Permits For A New Enviva Plant And Plant Expansions In Sampson And Northampton Counties.

According to News & Observer: "This year, DEQ issued permits to allow for a new Enviva plant in Richmond County and for expansions at Sampson and Northampton county plants." [[News & Observer, 1/3/2020](#)]

Industrial Hog Farms

Research Shows Industrial Hog Farms Threaten The Health Of North Carolinians By Contaminating Air And Polluting Ground And Surface Water.

According to Mother Jones: "A growing body of research, summarized here, shows that these operations 'pollute local ground and surface water,' and 'routinely emit air pollutants that negatively impact the quality of life and health of nearby residents.' High levels of the air-borne toxins hydrogen sulfide and ammonia can trigger eye irritation, difficulty breathing, and feelings of stress and anxiety, research shows." [[Mother Jones, 4/21/2017](#)]

Hog Farm Industrial Operations Are Concentrated In Counties With The State's Highest Population Of Rural African-American Residents. According to Mother Jones: "As the late University of North Carolina researcher Steve Wing has demonstrated, the operations are tightly clustered in a few counties on the coastal plain—the very part of the state that housed the most enslaved people prior to the Civil War. In the decades since, the region has retained the state's densest population of rural African-American residents—and starting in the early 1980s, experienced a massive CAFO boom." [[Mother Jones, 4/21/2017](#)]

Studies Show Those Living Near Hog Farms Saw Higher Rates Of Infant Mortality And Deaths From Anemia, Kidney Disease, And Tuberculosis, And People Of Color Are Far More Likely To Live Near Such Facilities. According to The Guardian: "A study published in 2018 by the North Carolina Medical Journal concluded that families living near hog CAFOs saw higher rates of infant mortality and deaths from anaemia, kidney disease, and tuberculosis. Another study, from 2014, found these issues 'disproportionately affect' people of colour: African Americans, Native Americans, and Latinos are far more likely to live near CAFOs." [[The Guardian, 8/27/2019](#)]

Flooding Events, Which Are Heightened By Climate Change, Pose A Serious Hazard For North Carolinians As Hog Farm Waste Lagoons Overflow. According to the New York Times: "In states where hog farmers use waste lagoons, like North Carolina and Illinois, flooding is a serious hazard that may become more frequent as climate change leads to more severe storms. Even under normal conditions, lagoons can produce dangerous gases, noxious smells and dust containing hog waste. People living near these lagoons are at increased risk of asthma, diarrhea, eye irritation, depression and other health problems." [[New York Times – Editorial, 10/25/2016](#)]

NORTH CAROLINA HAS AN OPPORTUNITY TO BUILD A STRONG GREEN ECONOMY

NORTH CAROLINA'S GREEN ECONOMY

North Carolina Leads The Country For Clean Energy Jobs In Rural Areas, With The Sector Employing Nearly 29,000 Workers In Rural Areas In 2019. According to the 2020 Clean Jobs America Report by E2, North Carolina lead the nation for clean energy jobs in rural areas. In 2019, the sector employed 28,894 workers. [[Clean Jobs America Report, E2, 2020](#)]

North Carolina Was Ranked Ninth Among The Top 10 States For Clean Energy Employment In 2019. According to the 2020 Clean Jobs America Report by E2, North Carolina was ninth in clean energy employment in 2019, with the clean energy sector providing 112,720 jobs. [[Clean Jobs America Report, E2, 2020](#)]

SOLAR

2019: North Carolina Was Home To 6,617 Jobs In The Solar Industry. According to The Solar Foundation, in 2019 there were 6,617 solar jobs in North Carolina and the state was ranked eleventh in the nation for solar jobs. [[The Solar Foundation, Solar Jobs Census 2019: North Carolina](#), Accessed 4/29/2020]

2019: There Were 296 Solar Companies In North Carolina. According to The Solar Foundation, in 2019 there were 296 total solar companies in North Carolina. [[The Solar Foundation, Solar Jobs Census 2019: North Carolina](#), Accessed 4/29/2020]

2019: 722,751 Equivalent Homes Were Powered By Solar In North Carolina. According to The Solar Foundation, in 2019 the number of equivalent homes powered by solar in North Carolina stood at 722,751. [[The Solar Foundation, Solar Jobs Census 2019: North Carolina](#), Accessed 4/29/2020]

WIND

2019: North Carolina Was Home To 1,001 To 2,000 Direct Jobs In The Wind Industry. According to American Wind Energy Association, in 2019 the wind industry supplied 1,001 to 2,000 direct jobs in North Carolina. [[American Wind Energy Association, State Fact Sheet: Wind Energy In North Carolina, April 2020](#)]

2019: There Were 28 Wind Energy Manufacturing Facilities In North Carolina. According to American Wind Energy Association, in 2019 there were 28 active manufacturing facilities in North Carolina. [[American Wind Energy Association, State Fact Sheet: Wind Energy In North Carolina, April 2020](#)]

2019: There Were 105 Wind Turbines In North Carolina. According to American Wind Energy Association, in 2019 North Carolina was home to 105 wind turbines. [[American Wind Energy Association, State Fact Sheet: Wind Energy In North Carolina, April 2020](#)]

2019: The Equivalent Number Of Homes Powered By Wind In North Carolina Was 48,000. According to American Wind Energy Association, the equivalent number of homes powered by wind in North Carolina in 2019 was 48,000. [[American Wind Energy Association, State Fact Sheet: Wind Energy In North Carolina, April 2020](#)]