GLOBAL WARMING IMPRISONED: HOW CLIMATE-RELATED DISASTERS ARE IMPACTING PRISON POPULATIONS IN THE GULF COAST STATES

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BY

Abigail F. O. Ford

APPROVED:

Thomas Oatley, Ph.D
Director of Thesis

Christina Kiel, Ph.D
Second Reader

Kevin Gotham, Ph.D
Third Reader
Abigail Ford. Global Warming Imprisoned: How Climate-related Disasters are Impacting Prison Populations in the Gulf Coast States.

(Professor Thomas Oatley, Department of Political Science)

Abstract

This thesis aims to expand our understanding of how climate change, specifically climate-related disasters, is influencing mass incarceration in the United States’ Gulf Coast states by exploring the change in prison populations after major hurricanes. An increasing number of recent studies suggest that prisoners, and marginalized communities, face negative impacts during extreme environmental events that are disproportionate to other populations. Existing literature also underscores how climate change contributes to greater circumstances of violence, especially in poverty stricken or low socioeconomic communities, which can lead to an increase in incarceration. Research on the intersections of climate change and larger mechanisms of social inequity has seen an influx in recent years, as scholars continue to find that a warming planet impacts significantly more than what was previously imagined. A direct study between the numerical data of prison populations and climate has yet to be studied. This thesis uses public data from the Prison Policy Initiative to establish that climate change is exacerbating circumstances that lead to incarceration and seeks to provide numerical data that shows how prison populations change before and after major hurricanes.
Key Words

Climate change; environmental justice; environmental racism; climate vulnerability; natural disaster; hurricane; mass incarceration, prison industrial complex; racial capitalism
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1. INTRODUCTION

1.1. Introduction

Climate change and mass incarceration are two of the most pressing issues in the United States today. Studies have shown that both mass incarceration and climate change are negatively impacting the health and safety of individuals and families nationwide and are disproportionately affecting communities of color and those living in poverty.

“We’ve been stuck in a zombie dance of, who commits crime, and how long they should service in prison, and that doesn’t get us to a place where we’re actually safe,” said Alanah Odoms, Executive Director of the ACLU Louisiana, on April 14, 2023, at a symposium on criminal justice reform at the Southern University Law Center (Robinson, 2023). Louisiana maintains its position as the state with the highest incarceration rate, and while more people are being locked up, public crime rates are not decreasing (Robinson, 2023). As news outlets and activists continue to highlight Louisiana’s disastrous and never-ending cycle of mass incarceration, climate disasters – and their impacts on diverse populations – are becoming more frequent and pervasive. As recently as March 2023, Gulf Coast states have been at the forefront of environmental inequity and climate-related news coverage nationwide. On March 21, 2023, The Hill reported on Louisiana’s “Cancer Alley,” and the newly established lawsuit that has been filed against one of Louisiana’s parishes, its council, and its planning commission (Frazin, 2023). “The Defendants… have intentionally chosen to locate over a dozen enormous industrial facilities in the majority Black 4th and 5th districts, while explicitly sparing white residents from the risk of environmental harm” and, to this end, environmental injustice
within Louisiana has been deemed unlawful and a double-sided sword of racial and religious discrimination (Frazin, 2023).

*Mass incarceration* is defined as “the widespread incapacitation of people in prisons and jails” (Pettit and Gutierrez (2018). In 2021, there were more than 1.7 million people incarcerated in the U.S., a number that was lower than in prior years, but maintains the U.S.’ leading position in global incarceration rates (Kang Brown et al., 2021). According to the National Oceanic and Atmospheric Administration of the United States Department of Commerce (NOAA), 2021 was recorded as the sixth warmest year in history and since 1981 the earth’s temperature has increased at a rate of 0.18 degrees Celsius per decade (Lindsey and Dahlman, 2020). Both climate change and mass incarceration in the U.S. have been influenced by centuries of societal inequity, and poor policy making. While these two issues of climate and incarceration have historically been investigated independently of one another, this thesis will seek to find correlation between changes in Gulf Coast hurricanes and Gulf Coast prison populations.

By 2030, it is estimated that more than 74 million people will live in the Gulf Coast (Petkova et al., 2015). The increased demand for housing and resources within the Gulf Coast states, paired with the already marginalized populations living with economic and social hardships within the region, makes the people of the Gulf Coast at high risk for climate change related conflicts, violence, poverty, and inadequate safety and healthcare (Petkova et al., 2015). In this thesis, primary and secondary research, historical analyses, case study investigations on hurricanes, and data collection from public prison records in Texas, Louisiana, Alabama, Mississippi, and Florida will be used with a view to analyzing prison populations before and after major climate events and will aim to
establish a causal relationship between natural disasters and incarceration, highlighting an overall upward trend in Gulf Coast prison populations one year post hurricane. An in-depth study on the intersection of the effects of climate change and incarceration within the Gulf Coast states has yet to be published, and the completion of this thesis seeks to fill this literature gap.

1.2. Climate Change in the U.S. Gulf Coast – General Overview

Rich in ecological resources that drive the region’s economic wealth, the 13,782 statute miles making up the shoreline from Florida to Texas face detrimental climate effects of exploitation, extraction, and nearby development (NOAA, *Shoreline Mileage of the U.S.*, 2022), (Zimmerman et al., 2001). Understanding the changing climate within this region is critical in assessing the health and wellbeing of the Gulf Coast’s natural landscape, the species that call it home, and the driving forces behind anthropogenic impacts on the region’s climate.

The percentage of carbon dioxide in the atmosphere has increased by more than 30% since the Industrial Revolution, raising global temperatures by 0.7 to 1.4 degrees Fahrenheit since the beginning of the 20th century (Zimmerman et al., 2001). Scientific literature suggests that the intense rise in global temperatures is largely a result of human-caused warming and that if unaltered, the greenhouse gas emissions of human consumption will cause global temperatures to rise between 2.5 degrees and 10.4 degrees Fahrenheit by the year 2100 (Zimmerman et al., 2001).

The climate within the Gulf Coast is influenced by regional weather patterns, as well as those from across the globe. Specifically, the Gulf Coast’s climate is highly relational to nearby oceanographic and latitudinal changes (Zimmerman et al., 2001).
From crucial differences in atmospheric pressure patterns within the region to hosting higher rainfall averages for the area’s latitude, the Gulf Coast provides unique atmospheric environments (Zimmerman et al., 2001). Influenced heavily by weather events around the United States, the Gulf Coast’s regional climate is susceptible to high variations of weather conditions and easily influenced climate patterns. For example, the Mississippi River collects both natural material and pollution that flows downstream, as runoff, and is dumped in the watershed of the Gulf (Zimmerman et al., 2001).

Changes in weather and climate in the Gulf Coast states over the last 100 years have included variations in sea surface temperature and extreme weather events. Since the 1960s, the Gulf Coast has experienced a consistent increase in temperature, rainfall, and “extreme rainfall events” (Zimmerman et al., 2001). One of the most dramatic climate effects in the Gulf Coast region, that differs from that of the rest of the globe, is the speed at which sea levels are rising. Sea level rise is increasing throughout the U.S.; however, the Gulf Coast and South Atlantic Coast of the U.S. are experiencing rising sea level rates that are significantly above that of the Pacific Ocean (Burkett, 2002). Due to subsidence within the region, sea level rise along the Mississippi River Delta Plain can increase by 0.4 inches per year (Zimmerman et al., 2001). Portions of the Texas coastline are subsiding more than double the global average (Burkett, 2002). While there is not a clear-cut correlation between the increase in climate change and the number of hurricanes, statistics show an increase in upper-category hurricanes within the Gulf Coast in more recent years (Zimmerman et al., 2001). The dire consequence of sea level rise continues to influence ecosystems and healthy living for humans and other species alike. Sea level rise is one of the consequences associated with greater global
temperatures that is statistically expected to worsen (Burkett, 2002). Bearing the brunt of the disastrous effects of sea level rise, Texas, Louisiana, and Florida are the states with the largest amount of natural resource losses associated with elevated temperatures and sea levels. It is expected that the states within the Gulf Coast region will continue to experience exponential flooding, with continued sea level rise, because of disappearing shorelines and the loss of critical coastal ecosystems (Burkett, 2002).

Humans are one of the primary causes of climate change in and around the Gulf Coast. Drivers of human society, like capitalism, create pressures on the environment globally, and specifically within the Gulf Coast region, which is exacerbating the detrimental effects of the warming planet. Human drivers of ecosystem alteration can be explained largely by “population growth, engineering of natural water flows, and interference with coastal processes, habitat fragmentation, and water and air pollution” (Zimmerman et al., 2001). The influence of human-led development and anthropogenic climate change has significantly changed the ecosystems in the Gulf Coast, leaving few remaining ecosystems untouched by negative human influence. The push for more industrialization and urbanization in the Gulf Coast, paired with increased agricultural production to match the needs of growing populations, have restricted the amount of freshwater in the region and its quality (Zimmerman et al., 2001). To defend against economic losses associated with climate-related pressures on agriculture, specifically drought, these coastal states invest in increased agricultural irrigation.

Fresh water is extracted from natural landscapes via irrigation to provide for humans, but without notable attention made towards the influence that these extractions have on the ecosystems from which they are taken. Four out of the five states that make
up the Gulf Coast region are in the top twenty states for irrigation usage by land acreage (Zimmerman et al., 2001). In addition, research shows that petrochemical companies have an incredible impact on the misuse and poor distribution of water resources within states like Louisiana. This is largely due to the need for thermoelectric power that petrochemical companies use in their operations, a process that relies on fresh water (Zimmerman et al., 2001). Given that since 1940 over one million acres of Louisiana’s coastal marshes have become open water, people continue to develop along the coastline, and within crucial ecosystems like forests, as it brings in critical revenue to support the economy of the Gulf Coast states. Due to this development, habitats are being invaded, broken apart, and catastrophically harmed (Burkett, 2002). From breaking down essential seagrasses that regulate flooding, to exporting timbers, resources continue to be depleted, as habitats for critical species are destroyed (Zimmerman et al., 2001). Advancements that humans have made to support population growth within the Gulf Coast states have been successful; however, it is these drastic measures taken to support humans that are subsequently responsible for dismantling a healthy Gulf Coast and perpetuating climate-related issues in parallel with rising global temperatures.

The Gulf Coast states are made up of diverse ecosystems. The coastal ecosystems and estuaries are crucial components to the biodiversity and landscapes within the region, but they are intensely exploited and threatened by climate change. One of the main issues in addressing the ecosystem disasters in the Gulf Coast is the influence that the ecosystems and natural resources have on the economy of the states within the region. The ecosystems of the Gulf Coast provide unparalleled economic support to the states of Texas, Louisiana, Mississippi, Alabama, and Florida with a direct value estimated above
US$160 billion annually (Zimmerman et al., 2001). Coastal ecosystems provide varied goods and services to the surrounding communities depending on the variation within the ecosystem. For example, along the Gulf Coast, especially in Louisiana, marsh swamps make up a significant portion of the coastal ecosystems. Salt marsh ecosystems are one of the most productive in the world as they stabilize healthy climates by absorbing carbon (Barbier et al., 2011). Saltwater marshes provide ecosystems that improve the health and diversity of marine species which increases profitability and the success of fisheries, positively benefiting the economy of the Gulf Coast states. Marshes can maintain healthy living spaces for fish species that need protection because they provide shelter from predatory animals, usually larger fish species (Barbier et al., 2011). In addition to protecting the biodiversity of the salt marshes, these ecosystems are crucial to industries like tourism, education, research, and recreation. Despite the importance of these ecosystems, rising temperatures, air pollution, and increased carbon dioxide concentrations are a few of the influences of climate change that are decreasing the number of salt marshes by 50% globally (Barbier et al., 2011).

Anthropogenic greenhouse gas emissions are contributing to four changes in climate that have had, and will continue to have, dire impacts on the Gulf Coast: severe fluctuation in average temperatures, physically fast changing ecosystems, increased tropical cyclones, and a higher likelihood of heavy rainfall and flooding (Biasutti et al., 2012). These environmental changes are taking away from the health and wellbeing of people and communities and are creating public health crises, economic struggles, and security issues. The progression of climate change within the Gulf Coast states will create a region that is less hospitable and more dangerous.
Within the Gulf Coast region, marginalized and vulnerable demographics are disproportionately affected by the outcomes of climate change, and will continue to face great stresses to their health and well-being (Petkova et al., 2015). Exposure to extreme weather conditions increases a person’s chance of morbidity and mortality, as well as countless other health issues like not having access to clean water, living in food insecure places, or a higher likelihood of developing a disease (Petkova et al., 2015). Communities in coastal areas that are uniquely vulnerable to climate change may also have a higher likelihood of developing mental illnesses, experiencing violence or conflict, or needing to migrate to areas that are better able to provide the necessities to live healthily, such as having adequate access to food and shelter (Petkova et al., 2015). The Gulf Coast, specifically, has large concentrations of poverty-stricken people. These are the same demographics that continue to be closely affected by mass incarceration.

1.3. Incarceration in the U.S. and the U.S. Gulf Coast – General Overview

The United States’ criminal justice system incarcerates more people than any other country and has a higher fraction of its population within the prison system (Pettit and Gutierrez (2018). The U.S. Department of Justice defines the term incarcerated population as the “estimated number of prisoners under the jurisdiction of state and federal prisons and inmates in the custody of local jails” (Kluckow and Zeng, 2022). While the U.S. population makes up less than 5% of the world’s population, it accounts for 20% of the people imprisoned globally, making it the number one country for incarceration (Tufts University Prison Divestment, 2022).
The ideologies concerning public safety, security and law-and-order have a long history of influence on politics in the U.S. The history if criminals, as a founding component of the United States, is often left out of the history books. In the 18th century, approximately one quarter of British emigrants leaving for colonial America were criminals, and in 1720, there were more jails in colonial America than public schools or hospitals (Gottschalk, 2006). The great influence that crime and punishment had on the foundation of the United States should be underscored in addressing the long history of issues relating to penalty and incarceration in the U.S. (Gottschalk, 2006). The transformation of prison policy and its impact on incarceration in the U.S. can be partially attributed to the use of crime and punishment, as a conservative agenda item, by elite politicians as a means of acquiring votes (Gottschalk, 2006).
the U.S. have historically been amplified by politicians as a tactic for political gain. The influence of crime and punishment in the founding era of the U.S. aligns closely with the slavery timeline in the country. These paralleling factors served as an integral component to the foundation of the United States. Even in the early years of U.S. development, those who advocated against capital punishment were oftentimes also abolitionists (Gottschalk, 2006). Despite this long history of “security” dialogue in the U.S., and its intersection with racial conflict, the concrete exponential and numerical influence that law and order politics have had on penal institutions, policy, and increase punitive agendas, is relatively recent (Gottschalk, 2006).

Although the number of people within the U.S. prison system has decreased since its peak in 2008, there are still more than two million people held behind bars in the U.S., or one in every 100 adults (Pettit and Gutierrez (2018). Despite the number of violent crimes having decreased in recent decades, the number of people within the prison system has not decreased proportionally (Pettit and Gutierrez, 2018). Statistics show that those living in the U.S. are ten times more likely to be incarcerated than those living in most of the Scandinavian countries or have a likelihood that is four times greater than those living in the United Kingdom (Pettit and Gutierrez, 2018). Outside of incarceration, the number of individuals documented with parole agencies or under probation is 4.7 million, and nearly 70 million (one in every three) Americans have a criminal record. This is in part because the U.S. introduces individuals to the U.S. criminal system for extremely minor infractions (Pettit and Gutierrez, 2018). In congruence, increased drug offenses have caused huge spikes within U.S. incarceration. With more than 31 million people arrested under drug-related charges, it is considered “the single most important
cause of the explosion in incarceration rates in the United States…since the drug war began” in 1971 (Tufts University Prison Divestment, 2022). These numbers contribute to the racial disparities within the U.S. criminalization system as there is a roughly proportional distribution between the races regarding those who illegally sell and use drugs, while black men are disproportionately incarcerated for drug charges (Tufts University Prison Divestment, 2022).

Mass incarceration in the United States targets specific demographics of the population and perpetuates systemic racism, with African American men and economically or educationally disadvantaged individuals overly populating the carceral system (Pettit and Gutierrez, 2018). Misdemeanors make up a large percentage of the cases that are brought before the U.S. criminal justice system. For example, approximately 25 million people annually are pulled over for alleged traffic violations that can lead to involvement in the criminal justice system (Pettit and Gutierrez, 2018). Of the number of traffic stops, African Americans are stopped by the police at a disproportionately higher rate, and they experience equally racialized interactions in all other realms of the criminal justice system (Pettit and Gutierrez, 2018). Statistics show that as contact between a prisoner and their supervision increases in intensity and frequency, the separation of treatment based on race or ethnicity becomes more prevalent. This means that engagement between law enforcement and those being accused of a crime becomes more highly racialized, with potential conflict, as the situation becomes more hostile or involving heavier charges (Pettit and Gutierrez, 2018). Poorer neighborhoods within the U.S. have a higher likelihood of people within the community being incarcerated. Specifically in urban communities comprised of low socio-economic
demographics, the cycle of incarceration and recidivism is extremely high and individuals in these communities are likely to be equally negatively impacted by the criminal justice system as they would be affected by access to education or the labor market (Pettit and Gutierrez, 2018).

The concept of the Prison Industrial Complex (PIC) describes the ways in which the government and corporations benefit socially, politically, and economically from the institutions of incarceration. The PIC aims to maintain mass incarceration as an industry by profiting from those who are imprisoned and their families (Fulcher, 2011). The continued success of the PIC can be associated with its intersecting elements of prison privatization, the usage of for-profit prison labor, and misinterpretations of the U.S. Constitution (Fulcher, 2011). The growth of privatized detention centers spans variations of holding places, including, for example, in recent years an increase in the privatization of immigration detention centers holding undocumented immigrants. 73% of the people who are held in the U.S. because of a lack of documentation are being held in privatized detention centers (Tufts University Prison Divestment, 2022). Shareholders’ returns are maximized within these privatized centers by minimal regulation allowing centers to operate without adequate resources being provided to those who are being held within them (Tufts University Prison Divestment, 2022). Research suggests that the rise in incarceration rates cannot be defended by the amount of crime within the U.S.; incarceration continues to reach new heights while crime rates decrease. The need to fill prisons for economic gain while perpetuating the institutionalized racism in the United States has caused the PIC to become a crucial component to the economy of the country.
Gulf Coast states are some of the highest-ranking states in terms of incarceration rates with Louisiana and Mississippi (with 1,052 and 1,039 per 100,000 people in jail) taking two of the top three slots (Caplan, 2020). Historically, the U.S. incarceration rate has been higher than other Western nations; however, it only began to significantly exceed these other countries in the 1970s and 1980s (Gottschalk, 2006). As a nation with the highest incarceration rate, African American men are the largest demographic in prison. In 2006, half of the people held in U.S. prison were black, while only making up 13% of the U.S. population. Within this same year, there were more black men who were incarcerated in the U.S. than enrolled at a college or university (Gottschalk, 2006). The racist history of the U.S., specifically the South, paired with institutions that were founded or propelled by racism, continue to influence U.S. public policy, and is one of the reasons for the radical prison expansion post 1970 (Gottschalk, 2006).
1.4. Environmental Racism, Racial Capitalism, and the Prison Industrial Complex

*Environmental racism* is defined as “racial discrimination in environmental policymaking and enforcement of regulations, and laws, the deliberate targeting of communities of color for toxic waste facilities, the official sanctioning of the presence of life-threatening poisons and pollutants for communities of color, and the history of excluding people of color from leadership of the environmental movement” (Chavis, 1994). *Racial capitalism* is a method for contextualizing how racism plays a role in the expansion of capitalism; however, it is important to note that racial capitalism cannot serve as a theory to explain racism because racism has existed well before the emersion of capitalism (Bhattacharyya, 2018). Bhattacharyya (2018) defines *racial capitalism* as a means for using coercive power to ‘force’ people to be subjected into economic systems that further marginalize them. To this end, racial capitalism divides people in the pursuit of economic advancement (Bhattacharyya, 2018). Mass incarceration which is promoted by the PIC is a system that can be defined by racial capitalism. The capitalist significant PIC can be compared to the economic breadth and power behind the military industrial complex in the U.S. These two systems continue to expand in order to generate money and power for already existing institutions and people with decision-making authoritative capacities. Private prisons in the U.S. are linked to governments that support the influx in prisoners as a way to keep prisons filled in order to maximize economic profit (Gordon, 1999). The dividends that accumulate as a result of participation in the PIC exemplify a business-government relationship that strives for economic profitability over social welfare. Specifically, imprisonment, often the first step in addressing social issues uses
low-income people of color in order to fuel this economic monopoly in the face of ‘social destruction’ (Gordon, 1999).

Racial capitalism intersects closely with the climate crisis as both people and land/resources are deemed expendable in the face of exploitation for economic gain (Bhattacharyya, 2018). Pulido (2017) argues that environmental racism is a biproduct of racial capitalism and suggests that racial capitalism is a primary reason for the failure to close the gap of environmental disparities between people of color and those who are white (Pulido, 2017). Like mass incarceration in the U.S., racial capitalism and environmental racism must be analyzed through the understanding of the historical processes of colonization, slavery, and imperialism. With regard to the environment, ‘geographic management’ based on race is rooted in the history of slave plantations, and the economic system of slavery (Pulido, 2017). Pulido (2017) suggests that the state is “deeply invested in not solving the environmental racism gap” because of its economic contributions to politics and industry and thus, environmental racism is a method of state-sanctioned violence in order to boost capitalist ideals (Pulido, 2017). By linking environmental racism with racial capitalism, Pulido highlights the ability of corporations and government to use racism as a means for excusing industrial profits and subsidized goods and services. The extraction of ecological resources only amplifies these processes (Pulido, 2017).

Crime and punishment policies, as well as climate change politics, are racialized mechanisms that contribute to capitalism in the United States. By continuing to feed systems that benefit the already advantaged demographic, at the expense of low-income groups and people of color, both the PIC and the inability to implement equitable
environmental policy encourages the continuation of white supremacy and the masking of racism by way of contributing to the economic advancement of those who already hold all the power.

2. **LITERATURE REVIEW**

2.1. *Political Consequences of Climate Change: A Comparative Analysis*

How nations and institutions choose to react to climate change is a pressing topic in comparative politics today. Countries that have various issues relating to the economy, infrastructure, or healthcare are often challenged greatly in terms of mitigating the impacts of climate change and preventing the exacerbation of these previously existing difficulties (Herman and Treverton, 2009). Herman and Treverton (2009) discuss water resource scarcity and rising temperatures as reason for increased conflict between nations due to the social effects of resource competition. It is common for this resource challenge to also be a domestic issue as urbanites and “displaced rural dwellers” are forced to compete for accommodation and resources. This competition, both domestic and international, leads to an increase in displaced persons and conflict in response to how governments choose to deal with these populations (Herman and Treverton, 2009).

Similarly, Herman and Treverton (2009) underscore that this conflict can occur on smaller scales as well and use Saharan Maghrebi tribes in North Africa as an example of regional competition that occur due to a scarcity of resources (Herman and Treverton, 2009).

Global issues are heightened when climate-related disasters strike certain parts of the world, especially international superpowers such as the United States. For example, in the spring and summer of 2009, the United States saw incredible domestic damage due to
floods in the U.S. While this was not the only cause of increased global food security during the time, the flooding in the U.S. exacerbated the issue (Herman and Treverton, 2009).

Water scarcity is one of the largest climate-related issues that is causing international conflict. One example of this is China’s aim to change water pathways from the Mekong River so that water flow can reach the dry regions in north China. By doing this, water flow going into Vietnam is significantly reduced which manifests as economic and social disaster for the Vietnamese people of the Mekong Delta that rely on quality water flow for fishing and agriculture (Herman and Treverton, 2009). Conflict discourse as it pertains to the freshwater resource between borders is relevant in every corner of the globe. The geographical, climate, hydro(geo)logical, and demographic circumstances of the land that makes up Palestine and Israel has created both nations to name resource scarcity as reason for major securitization issues regarding one another (Fröhlich, 2012). The impact that climate-related water scarcity has had on the inability for Israel and Palestine to reach adequate methods of conflict management can be identified by challenges to security on both ends that threaten self-determination, territory, and values/ideas (Fröhlich, 2012). Specifically, conflicting narratives of hegemonic discourse about water scarcity within the region have only heightened miscommunication and hostility across borders (Fröhlich, 2012).

Similarly, Sofroniou and Bishop (2014) use water scarcity on the island of Cyprus as reason for heightened conflict between the UN recognized nation of Cyprus and the northern part of the island which is occupied by Turkey. The lack of consistent rainfall in Cyprus has created political conflict throughout the island due to increased resource
competition as a response to the scarcity of fresh water (Park, 2020). Disagreements on whether Cyprus or North Cyprus own specific fresh water supplies are at the forefront of this conflict (Park, 2020). In discussing the pipeline created from Turkey to North Cyprus, Sülün (2018) discusses how political conflict as a result of climate change is a gendered issue and suggests that water governance should be looked at through a feminist lens (Sülün, 2018). Women play a crucial role in water governance because women often bare harsher impacts of climate change than men. Similarly, Turkish and Cypriot women have openly stated how they are impacted by resource scarcity within the region. Despite this, women remain without say in water initiatives and decision-making bodies that are determining the future of resource management within North Cyprus (Sülün, 2018).

Women are disproportionately impacted by climate change and its vulnerabilities. To this end, research shows that women experience less climate change vulnerabilities when their countries provide more political empowerment for women (Asongu et al., 2022).

There are political consequences to climate change because of how closely the environment aligns with the economy, electoral governance and political stability, and public health issues, to name just a few. The politics of climate change, and the separation of perspectives on the reality of global warming and how to best deal with it, creates consequential divides within the United States’ political arenas.

2.2 Climate Disasters and Increased Displacement in the U.S.

While there is no research connecting increased prison populations in the Gulf Coast to climate disasters directly, international relations scholars have deduced that climate change displaces populations, and increases the number of climate refugees and migrants, causing more people to enter the United States unlawfully and into the U.S.
criminal justice system. Gonzalez has researched the intersections of climate change and climate displacement stating that without adequate policy, and political infrastructure to mitigate climate change by decreasing global greenhouse gas emissions, forced climate migration will exponentially increase (Gonzalez, 2021). In parallel with this migration, climate migrants often face disproportionate interactions with law enforcement as a result of detention, deportation, or prosecution through criminal courts (Gonzalez, 2021). Gonzalez (2021) writes about the national security threat response to climate change, a tactic to persuade states to pass and integrate intense climate change mitigation legislation. Gonzalez (2021) concludes that this method fuels the “deep-seated fears and stereotypes of the dark-skinned, overbreeding, dangerous poor.” Although Gonzalez highlights cross-border climate migrants, they emphasize that climate change is not an internationally recognized reason for legal protection under international refugee law. By separating climate migrants as “others,” and delegitimizing climate change as a valid reason for being displaced, already marginalized populations continue to be put in further vulnerable scenarios while seeking safety (Gonzalez, 2021).

2.3 Climate Change and Increased Violence

Incarceration, as a mechanism for decreasing crime, is counterproductive and ineffective. The use of incarceration as a response to crime is based on efforts to intervene against violence in the context of punishing “dangerous” individuals, instead of addressing the history of marginalization and social inequity in the United States (Sered, 2019). Incarceration fails to protect people from violence or rehabilitate those who have committed violent acts. As an intervention tactic, incarceration in the United States has immense human and financial cost, while failing to ensure adequate outcomes against
violence (Sered, 2019). Sered (2019) emphasizes the significance of creating an intersection dialogue around crime that denounces the belief that violence is “a matter of individual pathology”. Sered writes that violence is created by way of poverty, inequity, failure to provide opportunity or mental health resources, to name a few. Similarly, violence drives violence, and climate change is an example of a mechanism that increases conflict, whether that be interpersonal or between larger governing bodies (Sered, 2019). Populations impacted by environmental disaster and climate change are vulnerable communities with a higher risk for violent engagement.

Research shows that climate change drives an influx in violence and crime. Recent data suggest that weather abnormalities impact the likelihood for certain forms of violence to take place (Theisen, 2017). Ole Magnus Theisen’s research focusing on short-term weather scenarios and their quantitative analysis intimates that violence is a social consequence of climate change. Within Theisen’s methodology, a distinction is made between short-term weather anomalies on violence and long-term climate impacts on violence. Along with the general deduction that there is a correlation between heat and aggression, Theisen underscores two settings that more closely connect weather shocks and violence. The first is the impact that weather-induced crop failure and/or food-price increases have on the impacting violence risk (Theisen, 2017). The second is the conflict that is caused when climate-related incidents force people to migrate. Within a global context, violence can occur due to migration when there is internal conflict between new and already existing populations in terms of perceived threat, changes in power relations within an area, or the sharing and distribution of resources (Theisen, 2017). The
demographics and social situations of migrating people and existing populations as a result of climate-related events show a propensity towards violence.

Theisen (2017) aims to add to the climate-conflict debate, a conversation that largely lacked consensus prior to 2014. Theisen’s research supports the literature that states that disasters increase displacement, and that the destruction of infrastructure increases conflict (Theisen, 2017). In addition, Theisen (2017) establishes that weather has a greater impact on changes in unorganized forms of violence rather than state-based violence. The data on coup risk due to weather related economic shocks is less conclusive (Theisen, 2017). Although the hypothesis of climate change correlating directly to violence isn’t proven with consensus, there were “no results… in the opposite of the hypothesized direction” with many of the results being “marginally significant (10%) or higher,” suggesting that “contrary results are unlikely” (Theisen, 2017). Theisen (2017) reports significant relationships between precipitation and drought on conflict; the data supports the hypothesis that decreased rainfall/increased drought aligns with higher risk of conflict (Theisen, 2017). Similarly, a drastic increase in rainfall, especially when it results in flooding, also contributes to a crime influx (Theisen, 2017).

Imprisonment, as a societal structure, was designed as a means to keep people safe. Despite this, mass incarceration in the U.S. has proven to not decrease crime in a manner that is proportional to the number of people being put behind bars. Social issues, such as climate change, that are increasing safety concerns must be addressed at their roots in order to decrease violence.
2.4 Climate Vulnerability and the Social Cost of Extreme Weather Events

Scientists previously deduced that anthropogenic climate change could not be used as the reasoning behind individual climate events. Recently, this has been disproven (Stott, 2016). Along with making overall daily temperatures more extreme, climate change has created environments where extreme weather and climate events are significantly more frequent (Stott, 2016). Recent extreme weather events have had heightened detrimental impacts on ecosystems, community infrastructure and populations globally (National Academies of Sciences, Engineering, and Medicine, 2016). Extreme weather events are becoming more frequently used because unlike long-term climate trends that are not noticeable daily and may “seem abstract, distant, gradual, and complicated,” extreme weather events cause abrupt damage and oftentimes chaos that is hard to go unnoticed (National Academies of Sciences, Engineering, and Medicine, 2016). The National Academies of Sciences, Engineering, and Medicine (2016) attributes both natural variability and human-induced climate change as causal factors for increased extreme weather events like flooding, heat waves, tornados, and hurricanes.

Agnew (2012) outlines strains that occur as a result of climate change including an increase in extreme weather events, food and freshwater shortages, threats to livelihood (predominately those in agriculture), illness, property loss, forced migration, an increased exposure to crime and social conflict (both between states, and individuals in the form of interpersonal violence and theft). If climate change continues without adequate mitigation efforts, climate change may become the leading reason for crime perpetuation (Agnew, 2012). Climate change increases social conflict and strain on individuals and communities while reducing control within populations (Agnew, 2012).
Research shows that climate disasters disproportionately effect the health and safety of incarcerated people. The U.S. government, at state and federal levels, has shown an inability to maintain correctional management to meet the needs of those being held in prisons and jails, especially during extreme climate events (Motanya and Velera, 2016). Under U.S. laws, local, state and federal governments must protect inmates from danger, but Motanya and Valera (2016) site Hurricane Katrina as just one example where this wasn’t the case, stating that prisoners of New Orleans Parish Prison were left in their flooding cells while the rest of the city was evacuated. During this time, these prisoners were not evacuated for four days and were without the necessary ventilation, food, or water during this time. Similarly, the heat conditions faced by prisoners are contrary to their rights against cruel and unusual punishment under the U.S. Constitution (Motanya and Velera, 2016). As climate change mitigation continues to fail in making instrumental change, rising temperatures increase the likelihood for inmates to experience serious health problems. Specifically in the south, but nationwide, from Texas to New York, inmates are dying in their cells from heat exhaustion (Motanya and Velera, 2016).

Cowan et al. (2022) seek to understand a U.S. county’s incarceration density as a result of climate disaster susceptibility changes in order to target specific areas where prisoners are more likely to be harmed by climate disasters (Cowan et al., 2022). Climate susceptibility is measured in this study by the amount of financial loss within U.S. counties that experienced climate disasters according to the Federal Emergency Management Agency (FEMA) Expected Annual Loss (EAL) scale. The EAL is determined by (1) exposure, (2) annualized frequency, and (3) historic loss ratio to natural hazards (Cowan et al., 2026). 2010 census data of incarcerated people within a
county, prepared by the non-profit news organization, The Marshall Project, was used for the numbers of incarcerated people within detention centers, federal and state prisons, local jails, and carceral residential facilities (Cowan et al., 2022). This study found that high incarceration rate counties existed close to one another (Cowan et al., 2022). The counties categorized by having the highest level for incarceration and EAL were within Texas (11.38%) followed by Florida (7.51%) (Cowan et al., 2022).

Maner et al. (2022) state that living within a jail or prison increases a person’s environmental risk because the U.S. incarceration system is an environmental risk within itself as prisons and jails contribute to greenhouse gas emissions. This research highlights that the United States does not have an outlined “unified” system to deal with incarcerated individuals during climate emergencies in the form of an emergency action plan (Maner et al., 2022). Because of this, it is the responsibility of individual states to create emergency management (EM) plans that include incarcerated populations. Maner et al. collected data and used content analysis for the EM plan for each state and found that there were 40 states with public EM plans, 30 EM plans that touched on incarcerated people, six states that issued protocol for people held by the department of correction (Maner et al., 2022).

2.5 Sociology of Disaster

Disaster scholars have continuously explored various definitions for disaster. Charles E. Fritz, an American pioneer of disaster research, has defined disaster within the fields of politics, sociology, and emergency management as:

actual or threatened accidental or uncontrollable events that are concentrated in time and space, in which a society, or a relatively self-
sufficient subdivision of a society, undergoes severe danger, and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society, or its subdivision, is prevented (Fischer, 1998).

The general public, as well as the media, suggest that panic flight is a common reaction of individuals who are deemed potential victims of a disaster. Fischer (1998) says that panic flight is not utilized as often as it is perceived because people who do not have a “rational escape route,” tend to remain where they are. Those who do have evacuation access, however, do make use of “panic flight”. Fischer (1998) writes that one of the most expected behavior responses to disaster is looting. Individuals who stay at home during a disaster often do so because they fear property loss or trespassing on to their properties (Fischer, 1998). Martial law can be expected as a declaration after a disaster in an effort to reduce chaos, however, it is not often that it is legitimately declared (Fischer, 1998). Fischer (1998) also reports that disaster myths are often common in media, suggesting that 50% of news articles on disaster events contain at least one myth.

Published research from disaster scholars underscore how disasters oftentimes don’t alter the course of social issues in the United States, but rather accelerate the problem. Howell & Elliot (2019) investigate how natural disasters contribute to the issue of wealth inequality in the United States. As damages and hazards increase at a local level as a result of a natural disaster, wealth inequality within the area is exacerbated, creating disproportionate gaps between races, and in education and home ownership (Howell & Elliot, 2019). In discussing how unique socioeconomic classes prepare for,
respond to, and perceive disasters, Fothergill and Peek (2004) say that there are both psychological and physical differences among the socioeconomic classes to response, recovery, and reconstruction post disaster. Scholars highlight that psychological impacts post-disaster for low-income people could be caused by the disaster itself, poverty, or their intersections; however, disasters almost always accelerate psychological issues (Fothergill & Peek, 2004). Women and other minority groups disproportionately face the exacerbation of social issues in the face of natural disasters. Because of the responsibility of women in “maintaining families,” women become more vulnerable economically than they were prior to the disaster, and at a higher rate than men in the same situation (Enarson, 1998). The intersections of social inequities make it difficult to pinpoint a specific social issue as a sole mechanism for demographical and societal changes after a disaster, however, the literature on the sociology of disaster suggests that disasters exacerbate humanitarian issues that are already happening. (Gronewold, 2020).

2.6 Climate Disasters and Prisoner Health

The intersection of climate change and health issues, climate-sensitive health outcomes, as well as that of poor health conditions and incarceration have been studied. Specific populations, including children, pregnant women, and elderly populations, are more likely to face adverse health effects to climate change (Balbus and Malina, 2009). Similarly, research has shown that incarcerated people with health issues are more likely to have a difficult time while in prison (Balbus and Malina, 2009). Socioeconomic distinguishers are one of the main factors that can predict a person’s likelihood to be at heightened risk of climate-related health issues (Balbus and Malina, 2009). While there is no significant data that directly connects climate change to the likelihood of
incarceration, or staying in prison for extended periods of time, research shows that the same populations at a higher risk for climate-related health issues are also those being put in prison at higher rates and faced with the dire health consequences of the carceral system.

Vulnerability, specifically in the context of climate-related health risks refers to “the balance between susceptibility factors and factors that increase resilience of populations to environmental stressors” (Balbus and Malina, 2009). Impoverished communities, as populations that live in low-lying riverine zones, have higher vulnerability climate-related health effects; there is a significant overlap between climate-impacted populations and related health issues within these regions. This increased risk to climate-related health problems include deprived access to clean water and natural resources, and high frequency of coastal surges or riverine flooding (Balbus and Malina, 2009). Both globally and within the United States, people that live in poverty, or among the lowest socioeconomic classes, experience the highest climate-related health issues. Specifically, heat related incidents target those who do not live in adequate housing, whether that be due to poor circulation in housing with minimal rooms, or due to the lack of air-conditioning (Balbus and Malina, 2009). The 1995 Chicago heatwave was an example of how living in poverty prevented people from running air-conditioning in a manner that was healthy – and was a direct indicator for the increase in heat-related mortality rates (Balbus and Malina, 2009). Similarly, low-socioeconomic status, sometimes marked by not having completed education through high school, causes strain on peoples’ health due to poor access to clean air, resulting in air pollution sensitivity or poor access to healthy food systems and supply. As a subpopulation, impoverished and
low socio-economic status correlates with increased climate-related vulnerabilities including “heat stress, extreme weather events, air pollution, [and] vector-borne infectious diseases” (Balbus and Malina, 2009).

Semenza and Grosholz (2019) use data from the 2004 Survey of Inmates in State Correctional Facilities to expand on previous research that draws correlation between mental health issues and prisoner misconduct. Prior to Semenza and Grosholz’s 2019 study, most data on health and prisoner misconduct solely related to mental health disorders and conditions, but this study brings physical health strains into the conversation of criminal involvement and prisoner behavior (Semenza and Grosholz, 2019). Semenza and Grosholz’s reasearch used Agnew’s General Strain Theory (GST) to argue that misconduct within a prison could be influenced by co-occurring mental and physical health issues. The background behind this hypothesis comes from the GST phenomena that highlights three strains that contribute to anger, depression, and frustration, including “(1) the failure to achieve positively valued goals, (2) the removal of positively valued stimuli, and (3) the presence of negative stimuli” (Semenza and Grosholz, 2019). This study underscored the potential for these stressors, without appropriate means for establishing coping mechanisms, to lead to criminal behavior. Substantial research shows that there is empirical support for the relation between strain on an individual and crime (Semenza and Grosholz, 2019). With only minimal previous research on the intersections of physical health and criminal behavior showing that poor physical health cause crime escalation, Semenza and Grosholz data specifically looks at the differences between physical and mental health, as well as acute and chronic physical conditions regarding criminal misconduct (Semenza and Grosholz, 2019).
Crime can be generated as an output when individuals are consistently exposed to various strains, including physical health strains (Botchkovar and Broidy, 2013). Semenza and Grosholz (2019) showed that experiencing a combination of multiple co-occurring health conditions – both mental and physical – affect the risk of inmate misconduct. Semenza and Grosholz (2019) used a nationally representative sample, and a scale of mental, acute physical, and acute chronic physical health, as well as distinguishing between serious (e.g., drug violation, alcohol violation, weapon possession, possession of stolen property, and escape or attempted escape) and non-serious misconduct (e.g., possession of an unauthorized object, verbal assault of a staff member, verbal assault of another inmate, being out of place, and disobeying orders), and found unique associations between the distinguishers (Semenza and Grosholz, 2019). Results showed that 25% of prisoners with acute physical conditions exhibited non-serious misconduct, and an additional 25% exhibited serious conduct (Semenza and Grosholz, 2019). Contrastingly, chronic physical pain decreased the likelihood of misconduct by approximately 13%, as well as all combinations of co-occurring mental and physical conditions having a 48% increase association with non-serious misconduct (Semenza and Grosholz, 2019).

Climate change in the Gulf Coast increases social issues and inequities that exacerbate stressors for marginalized communities and intensifies the likelihood of those already marginalized in engaging in criminal behavior. Increasing interactions with the carceral system can perpetuate the ill health of prisoners. Climate-related disasters create environments within the carceral system that are unable to support the demands of the
prison population; this puts prisoners in circumstances of poor physical and mental health, and a higher likelihood to engage in misconduct.

2.7 Theoretical Framework

Based on the review of existing literature, this thesis maintains that changes in global and regional climate patterns, and the subsequent increase in global and regional temperatures, lead to more severe weather events, which in turn increases acts of violence within communities most affected, resulting in heightened incarceration rates. This thesis further explores the social cost of extreme weather events, in particular hurricanes, as a causal mechanism for an increase in prison population. In this study, hurricanes are used as a proxy for climate change because the Gulf Coast region, comprised of ever-growing infrastructure and population, is a coastal region that is likely to experience the utmost risk and dangers associated with hurricanes (Shao, 2017). Scientists have not conclusively determined whether anthropogenic climate change lengthens hurricane seasons, or increases the likelihood of storms; however, climate change is impacting the strength of hurricanes and increasing storm activity in the Atlantic (Penney, 2021). Climate change influences ocean temperature which changes the way in which hurricanes behave. As the global temperature increases, hurricanes have become stronger in wind power, have produced higher rainfall, have become slower, have begun to take place throughout a large zone, and have become more volatile (Penney, 2001). Climate change and disasters increases displacement, whether it be across borders or between neighborhoods (Kirk, 2020). Climate related displacements compounded by poverty or low socioeconomic status contribute to increased levels of violence (Hampton, 2014). Based on the literature
reviewed and theoretical framework, the hypothesis for this thesis is that Gulf Coast prison population will increase in the year following a major hurricane in the region.

3. METHODOLOGY

3.1 Data Collection

All data collected regarding hurricanes was obtained from the National Oceanic and Atmospheric Administration (NOAA). Within NOAA, data for hurricane and tropical storm history was pulled from both NOAA’s National Weather Service and the National Hurricane Center and Central Pacific Hurricane Center (NOAA, *Hurricanes in History*, 2022), (NOAA, *Historical Hurricanes and Tropical Systems*, 2022). The National Oceanic and Atmospheric Administration was used to evaluate the strength, financial, and geographic/ecological impact of six different hurricanes in the United States between 1990 and 2015. To better understand each of these six hurricanes, data was collected for the hurricane category classification (both at peak and at landfall), landfall location, and estimated insured property damage. NOAA defines a *tropical cyclone* as a “rotating low-pressure weather system that has organized thunderstorms but no fronts” (a boundary separating two air masses of different densities) (NOAA, 2013). Within the classification of tropical cyclone, there are *tropical depressions, tropical storms,* and *hurricanes.*

Hurricanes have a sustained wind speed of greater than 74 mph, and are distinguished from one another, in terms of strength, by using the Saffir-Simpson Hurricane Wind Scale. This scale ranges from a 1 to 5 rating (category) based on maximum sustained winds (NOAA, 2013). It should be noted that the Saffir-Simpson Hurricane Wind Scale does not consider storm surge, rainfall, flooding, or tornadoes, which are all hazards associated to hurricanes that can be extremely dangerous (NOAA, *Saffir-Simpson*
Hurricane Wind Scale, 2023). A hurricane’s category is directly related to the likelihood that the hurricane in question will cause property damage (NOAA, 2013). For this thesis, prison population data was only collected surrounding dates of hurricanes and does not look at environmental disasters that are classified as a tropical storm or tropical depression.

Although some hurricanes originate in the central North Pacific Ocean, hurricanes are most likely to start in the Atlantic basin which is comprised of the Gulf of Mexico, eastern North Pacific Ocean, Atlantic Ocean, and Caribbean Sea, making the Gulf Coast states of the U.S. in a vulnerable position for becoming the region where hurricanes will make landfall (NOAA, 2013). Typically, major hurricanes take place between the start of June and the end of November, during what is known as “Hurricane Season” (NOAA, 2013). All six of the hurricanes from which data was collected for this study took place during this timeframe.

Prison population data was collected from the Prison Policy Initiative, a non-profit, non-partisan organization that conducts research highlighting the harm of mass criminalization and incarceration (NOAA, 2013). For this study, data collected for Gulf Coast prison populations, provided by the Prison Population was taken from Joshua Aiken’s Prison Policy Initiative Report “Era of Mass Expansion: Why State Officials Should Fight Jail Growth”. Aiken’s report in full provides prison populations from 1978 to 2015, along with state-by-state populations for jail populations, those held in federal authorities, state prison populations, and unadjusted jail populations (Aiken, 2017). From this Report, I use Aiken’s Table 5: Jail and Prison Incarcerated Populations by State Over Time to calculate the change in prison population throughout the Gulf Coast states.
over a four-year period, two years prior to a hurricane, and one year post hurricane. The population numbers that I use are specifically from the population type: prison population, not including jails, and unadjusted. This population type was chosen because it is available within this data set for Florida, Alabama, Mississippi, Louisiana, and Texas.

3.2 Interpretation of Data

The data that is collected from Aiken ‘s (2017) Prison Policy Initiative is analyzed with the context of the entire Gulf Coast by examining whether there are prison population changes throughout the entire region during and after a hurricane, or whether these changes are reserved for individual states, specifically the states that are most impacted by the hurricane in question. By interpreting the data for seven hurricanes over a four-year period, this thesis seeks to find a correlation between regional hurricanes and a change in Gulf Coast prison population during the same period and to contribute to existing literature by providing numerical evidence on prison population changes existing simultaneously with hurricanes that make landfall in Florida, Alabama, Mississippi, Louisiana, and, or Texas.

3.3 Regional Focus

State-focused, historical papers underscore similarities and differences between the establishment, and continuation in practice, of state penal systems and practices (Campbell, 2018). Changes in incarceration rates differ over time by region and between states, and history has shown that even before prison systems began to exponentially increase throughout the United States in the early 1970s, southern states had already seen
a pronounced rise in incarceration rates (Campbell, 2018). Today, southern states remain highly influenced by their histories with slavery and the penal system, especially in terms of political agendas (Campbell, 2018). Politicians, both federal and state, continue to spread narratives that amplify penal cultures in the south in an effort to make political gains (Campbell, 2018).

Climate change is disproportionately impacting coastal communities throughout the United States, including those on the coasts of Florida, Alabama, Mississippi, Louisiana, and Texas. Not only is climate change influencing the health, security, and economy of these states, but major climate events in this region are also impacting the greater U.S. economy (Karl et al., 2009). Being the focal point of the U.S. oil and gas industries is one of the primary reasons that climate change and extreme climate events in the Gulf Coast impact the entire United States (Karl et al., 2009). The Gulf Coast is home to approximately 30% of crude oil production in the United States and provides thousands of miles worth of oil and gas pipelines (Karl et al., 2009).

Hurricane Katrina and Hurricane Rita are prime examples of why hurricanes in the Gulf Coast should be of high importance to policy makers, economists, and climate activists nationwide. The compounded damage caused by Hurricane Katrina and Hurricane Rita hitting the Gulf Coast within weeks of each other during the hurricane season of 2005 halted oil and gas production and distribution, resulting in debilitating effects on the U.S. economy (Karl et al., 2005).

All five Gulf Coast states rank in the top fifteen for highest incarceration rates within the United States (Caplan, 2020), and the same region is at high risk for increased climate disasters and the accompanying detrimental impact on social and economic costs.
As such, this thesis uses the Gulf Coast as a regional focus for collecting data to make a greater contribution to literature that could influence further research to help mitigate the impacts of climate change on, and reduce mass incarceration in, the region.

4. RESULTS/FINDINGS

Data was collected spanning a twenty-five-year period, between 1990 and 2015. Specifically, data examining the changes in prison population two years prior, and one year post hurricane was collected for Hurricane Andrew (1992), Hurricane Opal (1995), Hurricane Georges (1998), Hurricane Ivan (2004), Hurricane Katrina (2005), Hurricane Ike (2008), and Hurricane Isaac (2012). When looking at the overall change in prison population, from the two years prior to one year after each of these five hurricanes, the total prison population in the Gulf Coast states was greater one year following the hurricanes, compared to total prison population in these states in the two years preceding the hurricanes. (See Appendix: Table 1 and Figure 3.

4.1 Hurricane Andrew (1992)

Hurricane Andrew, the earliest hurricane examined in this study, has been documented as one of the most harmful U.S. hurricanes; one that emerged as a tropical wave on August 14, 1992 along Africa’s West Coast and developed into a tropical storm two days later (NOAA, Hurricanes in History, 2022). Hurricane Andrew strengthened into a Category 4 hurricane and made landfall first in south Florida, making severe impact throughout the Gulf Coast states, notably with extreme tides, winds, and as a tornado in southeastern Louisiana as a Category 3 hurricane, causing a total of US$26.5 billion in damage to the United States (NOAA, Hurricanes in History, 2022).
For Hurricane Andrew, the change in prison population increased in all five Gulf Coast states from two years prior to Hurricane Andrew (1990) to one year post Hurricane Andrew (1993), and there was a cumulative increase in prison population in the Gulf Coast states of 58,992 (Aiken, 2017). See Appendix: Figure 3. Hurricane Andrew caused the most damage in south Florida and southeastern Louisiana. (NOAA, *Hurricanes in History*, 2022). There was an increase in prison population of 8,661 in Florida and 3,869 in Louisiana from 1990 to 1993 (Aiken, 2017). See Appendix: Figure 4.

4.2 Hurricane Opal (1995)

In 1995, Hurricane Opal was a Category 4 hurricane at its peak after developing as a tropical wave along the coast of Africa and strengthening into a tropical depression and then as a Category I hurricane as it made its way across the Atlantic and through the Caribbean (NOAA, 2013). Hurricane Opal made landfall on October 4, 1995 near Pensacola Beach Florida as a Category 3 hurricane. Within the following twenty-four hours after making landfall close to the westernmost city in the Florida Panhandle,
Hurricane Opal became an extra tropical cyclone as it moved over Ohio before reaching the eastern Great Lakes on October 6, 1995 (NOAA, *Hurricanes in History*, 2022).

Hurricane Opal showed an increase in prison population across all five Gulf Coast states, as well as an overall positive change in prison population across the Gulf Coast.

Hurricane Opal made the largest impact in Florida (NOAA, *Hurricanes in History*, 2022). The Prison Policy Initiative reports an increase in prison population of 10,715 within the state of Florida from 53,048 in 1993 to 63,763 in 1996 (Aiken, 2017). See Appendix: Figure 5.

4.3  *Hurricane Georges (1998)*

Hurricane Georges showed a similar pattern of an increased collective Gulf Coast prison population, with 258,544 prisoners in 1996, two years before the hurricane, and 309,757 prisoners in 1999, one year post hurricane. The change in overall Gulf Coast prison population for the four-year data collection span of Hurricane Georges was an increase of 51,213 (Aiken, 2017). See Appendix: Figure 3. Within Florida, there was a change in prison population of 5,833 prisoners from 63,763 in 1996 and 69,596 in 1999. For Mississippi, where hurricane Georges made its second landfall, there was a change in prison population of 4,388 prisoners, increasing from a prison population of 13,859 in 1996 to 18,247 in 1999 (Aiken, 2017). See Appendix: Figure 6.

4.4 Hurricane Ivan (2004)

Hurricane Ivan similarly increased in intensity after beginning as a tropical wave, and developing into a tropical depression, off Africa’s west coast at the end of August 2004. On September 5, 2004, Ivan became a hurricane and passed Grenada as a Category 3 hurricane (NOAA, Hurricanes in History, 2022). Ivan later progressed into a Category 5 hurricane while in the Caribbean, contributing intense winds over Jamaica, the Dominican Republic, and notably Grand Cayman (NOAA, Hurricanes in History, 2022). Hurricane Ivan made landfall west of Gulf Shores, Alabama before continuing inland as a collection of tornados. Ivan is estimated to have damaged more than 95% of buildings in

The Prison Policy Initiative Report shows that there was an overall increase in the Gulf Coast prison population from two years prior to Hurricane Ivan (2004) to one year post Hurricane Ivan. There was a total positive change in the Gulf Coast prison population of 19,360 prisoners (Aiken, 2017). *See Appendix: Figure 3.* Unlike Hurricane Andrew, Hurricane Opal, and Hurricane Georges, although there is a positive overall change in the Gulf Coast prison population over the four-year data collection span, there is not a consistent increase in prison population for each of the Gulf Coast state populations. While the state-wide prison populations increased in Florida, Louisiana, and Texas, they decreased in Alabama and Mississippi, (Aiken, 2017). *See Appendix: Figure 7.* The prison population in Alabama dropped from 27,947 in 2002, two years prior to Hurricane Ivan, to 27,888 in 2005, one year post hurricane (Aiken, 2017). *See Appendix: Figure 7.* For Mississippi, there was an even greater drop from 22,947 prisoners in 2002 to 20,515 prisoners in 2005 (Aiken, 2017). *See Appendix: Figure 7.* It should be noted that although Louisiana’s prison population did increase over this four-year period, it was very minimal (51 prisoners). *See Appendix: Figure 7.*
4.5  *Hurricane Katrina (2005)*

Known as one of the deadliest hurricanes in U.S. history, Hurricane Katrina has been deemed the costliest hurricane in U.S. history, causing over US$161 billion in total damages in the U.S. and an approximate US$75 million in damages just in New Orleans and along the coast of Mississippi (NOAA, *Hurricanes in History*, 2022). Hurricane Katrina began as a “combination of a tropical wave, an upper-level trough, and the mid-level remnants of Tropical Depression Ten,” before being classified shortly after as a hurricane on August 25, 2005 (NOAA, *Hurricanes in History*, 2022). Hurricane Katrina made its first landfall close to Miami-Dade County before strengthening into a Category 5 hurricane on August 28, 2005, before falling back to Category 3 before making a second landfall on the Mississippi/Louisiana border (NOAA, *Hurricanes in History*, 2022).

Hurricane Katrina impacted Louisiana, Mississippi, Alabama, and Southern Florida with hurricane conditions before moving north as a cyclone and tropical depression. Hurricane Katrina was the cause of 1000 reported deaths in Louisiana, 200 reported deaths in Mississippi, and 7 reported deaths in Florida. The storm surge from Katrina was responsible for extreme damage in New Orleans, southeastern Louisiana, the coast of Mississippi and Miami-Dade and Broward counties in Florida (NOAA, *Hurricanes in History*, 2022).
There was an increase in overall Gulf Coast prison population, as a whole, and in individual states, from 2003 (two years prior to Hurricane Katrina) to 2006 (one year post Hurricane Katrina (Aiken, 2017). The overall increase in the Gulf Coast prison population during the four-year data collection span was 17,934 prisoners, with 333,472 Gulf Coast prisoners in 2003 and 351,406 prisoners in 2006 (Aiken, 2017). See Appendix: Figure 3 and Figure 8. Both the prison populations in Florida and Texas increased by approximately 10,000 prisoners from 2003 to 2006, whereas Alabama, Mississippi, and Louisiana each only increased by approximately 1,000 prisoners. See Appendix: Figure 8. It should be noted that, although data is not being closely examined for the year of a specific hurricane, in 2005, Louisiana had a prison population of 36,083, which was a drop of 856 prisoners from the 2004 population of 36,939 (Aiken, 2017). See Appendix: Figure 9.

4.6 Hurricane Ike (2008)

As a long-lasting hurricane, Hurricane Ike began as a tropical wave near the Cape Verde Islands, along the west coast of Africa on August 28, 2008. After a quick transition into a tropical depression and then into a tropical storm on September 1, 2008, Hurricane Ike intensified into a Category 4 hurricane on September 3, 2008 (NOAA, Hurricanes in History, 2022). Hurricane Ike
passed through the Caribbean islands, strengthening, and weakening between a Category 3 and Category 4 hurricane before making its first landfall on September 8, 2008 as a Category 4 hurricane on the northeast side of Cuba. A day later, it made its second landfall in the southeast part of Cuba as a Category 1 hurricane (NOAA, *Hurricanes in History*, 2022). While passing through the Gulf of Mexico, Hurricane Ike intensified again before making a third landfall in Galveston Island, Texas on September 13, 2008, as a Category 2 hurricane (NOAA, *Hurricanes in History*, 2022). Hurricane Ike weakened as it made its way into northern Texas and Arkansas and becoming extratropical in the Mississippi Valley and Ohio Valley before moving into Canada. Hurricane Ike killed approximately 20 people in southeastern Texas, Louisiana, and Arkansas (NOAA, *Hurricanes in History*, 2022).

Hurricane Ike’s prison population increased for both the overall Gulf Coast prisons, and within Florida, Alabama, Mississippi, and Louisiana. The overall Gulf Coast prison population in 2009, one year post Hurricane Ike was 351,406, as compared to 268,345 prisoners in 2006 (two years preceding Hurricane Ike) (Aiken, 2017). *See Appendix: Figure 3.* Texas, the state of the third landfall for Hurricane Ike, was the only state that saw a decrease in prison population from 2006 to 2009, dropping from 172,116 prisoners to 171,294 prisoners (Aiken, 2017). *See Appendix: Figure 10.*

4.7 *Hurricane Isaac (2012)*

Hurricane Isaac made landfall only briefly in Southeast, Louisiana in Plaquemines Parish at approximately 6:45 PM on August 28, 2012, and then again at 2:15 AM on August 29, 2012, near Port Fourchon, Louisiana (NOAA, *Hurricane Isaac – August 28, 2012*, 2017). Hurricane Isaac began as a tropical depression and was formally classified
as a category 1 hurricane at landfall (U.S. Geological Survey, 2019). Hurricane Isaac was the only hurricane out of the six hurricanes studied that saw a drop in the overall Gulf Coast prison population from two years prior to the hurricane compared to one year post hurricane. See Appendix: Figure 3. In 2010, the states bordering the Gulf of Mexico had a combined total prison population of 370,285, which dropped to 364,957 in 2013 (Aiken, 2017). The Gulf Coast states that saw a state-wide decrease in prison populations over this four-year period were Florida, which decreased by 1,332 prisoners, Louisiana, which decreased by 146 prisoners, and Texas, which decreased by 5,369 prisoners (Aiken, 2017). See Appendix: Figure 11.

The empirical data collected in this study is not conclusive enough to determine that hurricanes cause a change in prison population. The hypothesis that Gulf Coast prison population will increase in the year following a major hurricane in the region is not supported. However, the data does highlight interesting findings which includes an overall rise in the Gulf Coast prison population for six out of the seven hurricanes, with Hurricane Isaac as the outlier. In addition, the data shows that there was an increase in prison population in all five states for four out of the seven hurricanes (Hurricane Andrew, Hurricane Opal, Hurricane Georges, Hurricane Katrina).
5. DISCUSSION

This study is the first that looks at the numerical impact that climate disasters have on the prison populations in the Gulf Coast. Despite research existing to show that climate disasters impact the well-being and safety of incarcerated people in the United States, studying whether there is correlation or causation between hurricanes and changing prison populations had yet to be explored. Within this study, prison population data was collected over a four-year period, from seven different Gulf Coast hurricanes, spanning from 1992 until 2012. The sample for this study was small and was specifically geared towards the impact that hurricanes have on the U.S. Gulf Coast states. Despite the results of this study not producing causation or correlation that is conclusive, I believe that the results do indicate important changes in prison populations before, during, and after major natural disasters.

5.1 Comparative Analysis of Prison Population Changes by Hurricane

The first negative change (decrease) in an individual state’s prison population, within this data set, was seen for Hurricane Ivan. See Appendix: Figure 7. The data collected for state-wide prison populations in 2005, which was one year post Hurricane Ivan, showed a decrease in prison population in Alabama and Mississippi, which were states that had the largest impact from Hurricane Ivan. It is worth noting, however, that the data for one-year post Hurricane Ivan was collected in 2005, the same year as Hurricane Katrina. The 2005 data only showed a slight increase in prison population for Louisiana (less than 60 prisoners), which may be due to insignificant data provided by
the state, a lack of resources, or closed court systems to pursue criminal cases during that year – all as potential consequences of Hurricane Katrina.

For Hurricane Katrina, there was an overall increase in the Gulf Coast prison population of 17,934 prisoners from the 2003 data to the 2006 data. There was also an increase in prison population within this time frame for all five of the Gulf Coast states. In Louisiana, there was an increase from 36,047 prisoners in 2003 to 37,012 in 2006 (Aiken, 2017). The states most impacted were Louisiana, Mississippi, and Alabama, which all had slight increases in prison population. In comparison, both Florida and Texas saw a substantially higher positive change in prison population. When looking specifically at Hurricane Katrina’s data over an extended period of time, the data shows that there was a dip only in 2005 for Louisiana’s state-wide prison population. See Appendix: Figure 7. Louisiana’s prison population increased every year from 1978 up until 2005, the year of Hurricane Katrina (Aiken, 2017). Louisiana’s prison population moved from 36,047 prisoners in 2003, to 36,939 prisoners in 2004, and falls again to 36,083 prisoners in 2005. Between 2005 and 2006, there is a jump of more than 37,000 prisoners within the state. This increase over time continues from 2006 through 2012 (Aiken, 2017).

A similar pattern occurred in 2004 with Hurricane Ivan in Alabama. The data shows a consistent rise in prison population within the state of Alabama from 1988 up until 2003, where the prison population drops for the first time in fifteen years. The drop from 2002 to 2003 is only slight, decreasing by 34 prisoners (Aiken, 2017). However, there is a larger drop, similarly to that in Louisiana in 2005, from 2003 to 2004. In 2003, Alabama had nearly 28,000 prisoners, which dropped down to 25,888 prisoners in 2004.
A year later, in 2005, the prison population jumped back up to 27,888, close to what it had been before Hurricane Ivan (Aiken, 2017). From 2005 on, Alabama again saw a state-wide increase in its prisoner population that continued through 2012, with only a slight drop between 2009 and 2010 (Aiken, 2017).

The empirical data does not provide evidentiary support for reporting hurricanes as a direct cause for changes in prison populations, however, it does highlight population changes in parallel to hurricane timelines. This comparative analysis, of prison populations before and after hurricanes in the Gulf Coast, underscores how social issues related to climate changes in the region act as causal mechanisms for an acceleration in prison population changes during instances of disaster.

5.2 Prisoners of Hurricane Katrina – Relocation, Accountability, and Mistreatment

Following Hurricane Katrina, environmental risk has been studied more intensely through a lens of intersectionality that unravels the social impacts of environmental disaster on different populations, whether it be deciphering between environmental impacts on communities based on socio-economic status, race, gender, sexuality, or some other demographic. (Bullard and Wright, 2009). Scholars have researched the disproportionate vulnerability to, and unequal loss from, environmental hazards faced by people of color, underscoring that a framework based on environmental justice is essential in understanding the importance of how marginalized communities are treated differently with regard to disaster preparedness, response and recovery (Bullard and Wright, 2009). An emphasis on environmental injustice was placed on the coverage of environmental disasters in the wake of Hurricane Katrina and continued to be one of the defining factors of Hurricane Harvey, more than a decade later. Racial and ethnic
minority communities, as well as low socioeconomic populations, faced health and safety impacts, as well as exacerbated recovery challenges, compared to those of white ethnicity or of higher income communities (Flores et al., 2021). One of the population groups often ignored when discussing climate change and disaster mitigation is incarcerated people in the U.S. In response to this, the majority of research to date is on how public and private correctional facilities, as well as the government can improve prison conditions and processes during natural disaster in order to better the experience for those who are currently incarcerated, whether that be changing the U.S. prison evacuation and preparedness plans or creating better systems for resource distribution (Motanya and Valera, 2016). As exemplified through the literature review, available research shows that prisoners are disproportionately impacted by hurricanes and other extreme weather events. Whether it be lesser treatment in facilities, poor governmental policies, lack of necessary resource distribution, or inadequate access to health and safety measures, prisoners remain as an afterthought during extreme climate events (Gonzalez, 2021), (Stott, 2016), (Agnew, 2012), (Balbus and Malina, 2009).

Prisoner relocation needs to be considered when discussing prison populations post hurricane. Thousands of people held in Orleans Parish Prison (OPP) were abandoned in the wake of Hurricane Katrina (National Prison Project of the ACLU, 2007). Prisoners were left in rising waters, without food and water, and in sewage filled cells. In addition, African American detainees, on minor charges, like court fees, were trapped, prior to trial (National Prison Project of the ACLU, 2007). Scholars have established that the mistreatment of prisoners held at the OPP existed due to failures in emergency planning and management and racism (National Prison Project of the ACLU, 2007). Prisoner cases
went missing, and trials were delayed for so long that the extended time prisoners served in OPP was referred to as “doing Katrina time” (National Prison Project of the ACLU, 2007). The ACLU states that “there is no reliable count of the number of people in the Orleans Parish Prison,” but note that Orleans Parish Sheriff statistics have a record of 6,375 prisoners being held within the various OPP buildings, with more than 300 of these prisoners having been arrested in the three days prior to when Hurricane Katrina made landfall in New Orleans (National Prison Project of the ACLU, 2007). Hurricane Katrina caused the OPP buildings to lose power and water to be contaminated, the flooding put bunks and bedding underwater, and the delays in processing prisoners through the criminal justice system resulted in extreme overcrowding (National Prison Project of the ACLU, 2007). After days without food, water, and medical care, prisoners in the OPP began to be evacuated by staff from Angola. Some were evacuated on the Broad Street Overpass for multiple days (National Prison Project of the ACLU, 2007). Some New Orleans prisoners were eventually transferred throughout the region, while others passed away, were lost, or forgotten (Democracy Now, 2005).

Beyond prisoners, hurricanes also cause residential relocation for those who were on parole (Kirk, 2020). Prior to Hurricane Katrina, 75% of parolees returned to the parishes where they had previously lived before imprisonment; however, in the wake of Hurricane Katrina, the number of parolees returning to their home parishes dropped by 25% (Kirk, 2020). Kirk (2020) establishes this percentage change as unexpected and says that had it not been for Hurricane Katrina, and the aftermath of damage and destruction in their home parishes, these individuals would have returned to where they had previously resided. In the parishes most impacted by Hurricane Katrina, only 20% of the parolees
returned to their parishes post-Katrina, whereas 50% were returning to their home parishes before Hurricane Katrina devastated their communities (Kirk, 2020).

Circumstances that increase residential mobility, and separate people from their routine and old neighborhoods, can decrease criminal activity for a short period of time (Kirk, 2020). Kirk (2020) uses Sampson and Laub’s 2003 theory to suggest that new situations based on location can provide new supervision, opportunities, and routine structures. In addition, residential changes can decrease the ability for individuals to acquire illegal substances and, thus, decrease confrontations with the law (Kirk, 2020).

The data set from the Prison Policy Initiative is a holistic undertaking of prison populations throughout the United States. That being said, the numbers provided are a cumulation of demographics provided by the individual states. It is critical that the possibility for misrepresentation of prisoner numbers post disaster is indicated in discussing the changes in prison population during an environmental disaster. Hurricane Katrina, for example, was an instance in which authorities were not held accountable for ensuring that prisoners were safely located and provided with the resources needed to survive the hurricane and its wake. Death of prisoners, missing persons, and relocation of prisoners after Hurricane Katrina may have skewed the available data for prisoners in Louisiana, and throughout the Gulf Coast during periods of environmental disaster.

5.3 Expanding the Research

The data collected in this study can be used to numerically show how prison populations in Florida, Alabama, Mississippi, Louisiana, and Texas change over time in parallel with Gulf Coast hurricanes. The literature available shows that incarcerated populations are on the bottom of any hierarchy when it comes to environmental justice.
and protection from climate change. It is not only imperative to account for prisoners during hurricanes, environmental disasters, and other dangerous events, but the prison systems need to ensure that the prisoners are also protected and provided care. The data accumulated in this thesis will be beneficial in pursuing further research that expands the general understanding of how prison populations are impacted by extreme weather events.

One of the issues with this study is that while climate disasters in the Gulf Coast often impact much of the region, facilities holding prisoners often include incarcerated people from beyond the impacted area. In furthering this research, a narrowed approach to studying an individual Gulf Coast state should first be contemplated and completed. A simplified study that explores changes in prison populations by parish could underscore the causal mechanisms that link changes in prison population to a specific weather event. A study that focuses on prisons and prison populations in a particular state that is often impacted by environmental events could help us understand why prison populations may decrease during the year of a hurricane in the state that is most affected, as seen in Alabama during Hurricane Ivan in 2004 and in Louisiana during Hurricane Katrina in 2005. In addition, the data in this study may be more successfully analyzed regarding the causal mechanisms suggested in the theory of change if further study compares the impact of natural disasters (hurricanes for example) in the Gulf Coast states on regional prison populations to changes in prison populations of another region that has a similar probability of a different extreme weather event, for example forest fires in the West Coast states.
The data in this thesis is an example of how critical it is to approach climate-based research with an intersectional lens and to identify the relevance of climate change in addressing various social issues and controls, such as incarceration. In expanding this study, further developments can be made towards narrowing the gaps of marginalization, inequity, and environmental racism.

6. CONCLUSION

This research explores climate change and its resulting social inequities that accelerate already existing causal mechanisms that increase Gulf Coast prison populations. The theory of change for this study suggests that severe weather events, paired with poor governance, disproportionately increases the likelihood of stressors for already marginalized communities. These stressors result in societal disruptions, such as forced migration and resource scarcity, that often increase conflict ending in incarceration.

Climate change directly increases the number of climate refugees and internally displaced people. This forced migration, as a consequence of climate change, amplifies homelessness, separation of families, and inter-group competition (Gonzalez, 2021). By disrupting routines and creating heterogenous populations, climate displacement increases crime, and puts communities that are already high-risk for environmental disaster also at a heightened risk for experiencing violence, transgression, and interaction with the criminal justice system (Sered, 2019), (Theisen, 2017).

Anthropogenic climate change is directly responsible for influencing extreme weather events, which are detrimental to ecosystems, infrastructure, and the economy (Stott, 2016), (National Academies of Science Engineering, and Medicine, 2016).
Climate change has a detrimental impact on biodiversity, speciation, habitats, and communities. Given that ecosystem health is essential to maintaining healthy human societies, negative ecological shifts as a result of climate change amplify societal costs, especially during the time of a disaster. These societal costs and strains include food and water shortages, public health crises, threats to livelihoods and access to stable working conditions, property loss and damage, increased forced migration, and exposure to crime and extended periods of violence (Agnew, 2012), (Balbus & Malina, 2009), (Semenza & Grosholz, 2019), (Botchkover & Broidy, 2013). Climate disasters exacerbate circumstances that serve as mechanisms of putting people in prison. This thesis bridges the gaps in literature by addressing how hurricanes in the Gulf Coast states may be impacting changes in regional prison populations.

In analyzing the changes in prison populations in Florida, Alabama, Mississippi, Louisiana, and Texas before and after Hurricane Andrew (1992), Hurricane Opal (1995), Hurricane Georges (1998), Hurricane Ivan (2004), Hurricane Katrina (2005), Hurricane Ike (2008), and Hurricane Isaac (2012), I establish that while the empirical data is not conclusive enough to label hurricanes as an individual causal mechanism for the macro outcome of increased prison populations, the data is relevant in creating an interdisciplinary study that links the sociology of emergency management and disaster to mass issues of environmental injustice and incarceration in the United States. The data shows that, although there are overall increases in regional prison populations over the four-year data collection span for each of the seven major hurricanes researched (excluding Hurricane Isaac), the research also finds that there are only smaller increases in prison population after a major hurricane in states that are impacted the most, as seen
in Alabama, Mississippi, and Louisiana in the aftermath of Hurricane Katrina. Lastly, the
data shows a decrease in prison populations during the year of the hurricane for both
Hurricane Katrina and Hurricane Ivan. This finding is important because it introduces a
numerical correlation between hurricanes and prison populations which can be used to
create policies that improve emergency management and to hold states and private
prisons accountable for the health and safety of prisoners and their well-being.

The primary objective of thesis is to underscore the importance in researching
how climate-related disasters disproportionately impact marginalized communities, while
simultaneously highlighting the influence that climate change has on an extensive variety
of social issues, including incarceration. It is essential that scientists, academics,
politicians, healthcare providers, and other stakeholders continue to make connections
between climate change and institutionalized systems of inequality. It is fundamental that
unasked questions are researched in a manner that crosses disciplines and with
intersectionality at its core in both theoretical and methodological frameworks of
qualitative research. This paper highlights the interdisciplinary issues that link failures in
climate change mitigation, emergency management, and environmental policy, as well as
environmental racism and injustice to mass incarceration. By exploring how changes in
Gulf Coast prison populations align with hurricanes, specifically through an
ethnographic, sociological, and intersectional methodology, we can better understand the
multi-faceted development of community identities, marginalization, and inequity in the
United States.
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# APPENDIX

## Table 1: Impacted States and Change in Total Gulf Coast Prison Population by Hurricane

<table>
<thead>
<tr>
<th>Hurricane Name</th>
<th>Year</th>
<th>Hurricane Category at Landfall</th>
<th>States with Primary Impact</th>
<th>Total Gulf Coast Prison Population – 2 Years Prior to Hurricane</th>
<th>Total Gulf Coast Prison Population – 1 Year Post Hurricane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew</td>
<td>1992</td>
<td>Category 4, Category 3</td>
<td>Florida (landfall 1), Louisiana (landfall 2)</td>
<td>137,068</td>
<td>196,060</td>
</tr>
<tr>
<td>Opal</td>
<td>1995</td>
<td>Category 3, Category 2</td>
<td>Florida (landfall 1), Mississippi (landfall 2)</td>
<td>196,060</td>
<td>258,544</td>
</tr>
<tr>
<td>Georges</td>
<td>1998</td>
<td>Category 2</td>
<td>Florida</td>
<td>258,544</td>
<td>309,757</td>
</tr>
<tr>
<td>Ivan</td>
<td>2004</td>
<td>Category 4</td>
<td>Alabama</td>
<td>323,897</td>
<td>343,257</td>
</tr>
<tr>
<td>Katrina</td>
<td>2005</td>
<td>Category 3</td>
<td>Louisiana and Mississippi</td>
<td>333,472</td>
<td>351,406</td>
</tr>
<tr>
<td>Ike</td>
<td>2008</td>
<td>Category 2</td>
<td>Texas</td>
<td>351,406</td>
<td>368,345</td>
</tr>
<tr>
<td>Isaac</td>
<td>2012</td>
<td>Category 1</td>
<td>Louisiana</td>
<td>370,285</td>
<td>364,957</td>
</tr>
</tbody>
</table>
Figure 3: Change in Total Gulf Coast Prison Population by Hurricane

Figure 4: Change in Gulf Coast Prison Population by State – Hurricane Andrew (1992)
Figure 5: Change in Gulf Coast Prison Population by State – Hurricane Opal (1995)

Gulf Coast States

- Texas
- Louisiana
- Mississippi
- Alabama
- Florida

Isolated State-wide Prison Population

- 1 Year Post Hurricane Opal
- 2 Years Prior to Hurricane Opal

Gulf Coast States

- Texas
- Louisiana
- Mississippi
- Alabama
- Florida

Isolated State-wide Prison Population

- 1 Year Post Hurricane Georges
- 2 Years Prior to Hurricane Georges
Figure 7: Change in Gulf Coast Prison Population by State – Hurricane Ivan (2004)

Figure 8: Change in Gulf Coast Prison Population by State – Hurricane Katrina (2005)
Figure 9: Louisiana Prison Population Over Time (2001-2008)

*Hurricane Katrina (2005)*

Figure 10: Change in Gulf Coast Prison Population by State – Hurricane Ike (2008)
Figure 11: Change in Gulf Coast Prison Population by State – Hurricane Isaac (2012)

- Texas: 168,280 (1 Year Post Hurricane Ike) vs. 173,649 (2 Years Prior to Hurricane Isaac)
- Louisiana: 392,999 (1 Year Post Hurricane Ike) vs. 394,145 (2 Years Prior to Hurricane Isaac)
- Mississippi: 21,969 (1 Year Post Hurricane Ike) vs. 21,067 (2 Years Prior to Hurricane Isaac)
- Alabama: 32,381 (1 Year Post Hurricane Ike) vs. 31,764 (2 Years Prior to Hurricane Isaac)
- Florida: 103,028 (1 Year Post Hurricane Ike) vs. 104,360 (2 Years Prior to Hurricane Isaac)