

Archivist #1:

Sea level has been rising at an increasing rate over the past century. Research has been conducted in order to understand the reasons for the increase in sea level around the world. The increase in sea level has led to more dangerous storms and more frequent flooding, especially in coastal areas. The two main causes of sea level rise are thermal expansion as a result of the warming of the ocean and increased ice melting from glaciers or ice sheets. Since water expands as it warms, the sea level continues to rise along with the changes. Increased atmospheric heat from our daily human environmental emissions force the ocean to absorb a majority of the increased atmospheric heat. As a historian, I moved to Miami when changes began to take place to help reduce emissions. I wanted to be directly involved with this project and decided to make a change. Living in Miami for the past twenty-two years has been difficult since there has not been much protection from the storms until changes began during the last few years. A large percentage of the United States lives in relatively high population density coastal areas which in turn led to the increased motivation for change in our use of certain goods that create high emissions. With continued atmospheric and ocean warming from carbon emissions, sea levels would have most likely risen at a higher rate than that of today in 2040, therefore changes have begun to take place.

As humans living in the United States in the twenty-first century, we consume an excessive amount of goods, whether it is through transportation, food consumption, or the purchasing of many plastic toys. Something that we, as a country, have worked on during the past twenty years is reducing our consumption habits. We realized that a change in our consumption of certain goods would help reduce emissions and put less of an impact on the earth's atmospheric temperature, which in turn would help with the increasing sea level. Specifically, we have significantly reduced the use of plastics and also have been recycling many goods that were not often recycled about twenty years ago; in order to reduce our overall consumption. Now in 2040, we are proud to say that we have slightly decreased the rate at which the sea level is rising but this does not necessarily mean people are able to live the life they were accustomed to on the coast back in 2018. Most people have been moved from their homes temporarily due to safety reasons. There are high risks of flooding and people have been working on solutions to prevent this. Even though as a country we are happy with the slight change that has been made to the rate of sea level rise, we realized that more needs to be done. We hope to continue to make changes to our daily lives that will in turn help the environment.

Over the past few decades, engineers have taken significant steps in order to help bring all parts of the coastal cities back to safe habitable places again. One significant change to our coastal cities has been the increased use of elevated homes and infrastructure. Back in 2012, when Super Storm Sandy hit the coast of New Jersey, many homes were completely destroyed and swept away. When the homes were rebuilt many chose to elevate them with the use of pilings so that when flooding occurs it does not reach their homes. Elevated homes are primarily designed for homes located in flood zones. Since Miami Beach is in a flood zone, many of the same actions have been implemented here in the past ten years. Depending on the location of

your home, flood elevation certificates performed by surveyors determine how high off the ground ones first floor must be built. Government programs like Federal Emergency Management Agency (FEMA) create the flood maps that determine the height of ones home to prevent flooding. These actions are now enforced by local governments. Back in 2018 it was an option for one to raise their house to protect from flooding. If one chose not to then they would pay extremely high insurance and fees. Now in 2040, it is mandatory through a government program that a house is elevated to prevent complications and help with emergencies when flooding or storms take place. One positive result of the elevated homes other than the flooding protection, is that the house plan offers space for parking and storage. People have been taking advantage of this and seem to be excited for what this option has to offer. Hopefully, in the next few years most people will be back living in their homes on the coast as a result of these new laws.

Over the past 20 years, many people have lost their homes in the coastal areas due to the rising sea level. In the United States, the areas around the coast are the more highly populated locations which leads to difficulty when looking to relocated families. Now that changes have been made and continue to be made, people are currently moving back to their homes and/or living with other family members nearby while they wait. Increased sea level in certain parts of the city made transportation very difficult since one would need both a vehicle that works on land and in water in order to get around the entire city so roads and all forms of infrastructure have also been raised. Over the past twenty years, engineers have brainstormed and tested a few new ideas in order to help bring these cities back to a functioning state. The increase in sea level has not only threatened homes but also all forms of infrastructure such as bridges, subways, and roads. Changes are currently taking place to help create a better, safer habitable environment on the coast.

Rather than giving up and losing land to the increased sea level, we as a country have made many changes and are looking forward to a brighter future. Many have lost their jobs in the coastal cities but have found new ones that are involved with making these cities habitable again through finance based positions or construction based work. Some scientists have even created natural solutions such as the implementation of more mangroves near the coast lines. Mangroves play an enormously large role in the reduction of flooding so this change has also helped with getting a step closer to a better living situation. If we continue to make these positive changes as a community, everyone will be back living in their homes in no time.

Archivist #2:

It is the year 2040 and the main, “frontline” method to mitigate sea level rise in Miami, seawalls, is starting to become less effective. With the coast now touching the walls, a minor storm results in some sort of flooding somewhere in the city. In fact, with climate change and the rise in world temperatures, “the climate can change in unexpected ways” (What Is Global Warming?) and with this, weather patterns have become increasingly unpredictable. Storm surge and wave heights during hurricanes have dramatically increased in the wake of sea level rise, magnifying the damage done by hurricanes that hit Miami (Letson, 2016). This is why the seawalls effectiveness have decreased as time progressed, leaving the city more exposed.

On the city’s western edge, the edge closest to mainland Florida, the coastal Mangrove forests and wetlands have shrunk. This has left the city more vulnerable to flooding as the “salt marshes, reefs, mangrove forests and barrier islands defend coastal ecosystems & infrastructure, such as roads & buildings, against storm surges” (Letson, 2016). Throughout the course of human history, humans have seen how natural barriers are vital to maintaining a coastline. The Atchafalaya River in Louisiana is a great example of this, as the silt is carried downstream helped build up the Louisiana coastline and delta (McPhee, 1987). This built up coastline serves as a natural shock absorber in times of turbulent weather conditions. In an effort to keep with the important idea of natural barriers, the city of Miami, the USDA and Monsanto have partnered up to create genetically modified mangrove trees and wetland species, all native to Miami, that are better resistant to various changes as seen within the sea level, ocean pH and temperature. With this, Miami will be able to grow these species on the Western edge and around the region to better protect the coast.

The Everglades Agricultural Area, an area that was designated by the Central and Southern Florida Project in 1948 incorporates over 1,158 square miles of highly productive agricultural land. With over twenty-thousand people working in this area (The Interested Parties), it is both an important employer for the region and also an important producer, as many of Southern Florida’s crops are grown here. However, with the rise in sea level, the Everglades have become threatened as the region is low lying, serving as nature’s flood plain (Treuer, 2017). Due to the important economic and agricultural contribution the Everglades have on Miami and Florida, it is extremely important to protect this land. This is why the region began to use Dutch water management systems featuring fjords, dykes and canals in addition to other natural barriers such as mangrove forests and wetlands.