**Protecting Florida’s Infrastructure**

<http://www.bbc.com/future/story/20170403-miamis-fight-against-sea-level-rise>

 This article from the BBC discussed concerns the citizens of Broward and Miami-Dade County have about rising sea levels, and the potential effects of such. This region, which has valuable infrastructure sitting on the very low lying barrier islands in the area, is prone to flooding as a result of rising sea levels. This is particularly true during storms, as storm surge can generate massive floods.

 The rising sea levels alone have contributed to king tides, or particularly large spring tides. These tides can cause flood conditions, even during sunny weather, as the sea level has risen so much. These conditions have increased beach erosion, adding another challenge for southern Florida.

 In order to combat the rising sea levels, pumping stations have been installed along the barrier islands in Miami. Other cities vulnerable to sea level rise have taken various other measures, such as Hollywood, FL. Hollywood is installing flap gates in order to control the flow of water, given that a small rise in sea level can be catastrophic for the city.

 Ft. Lauderdale faces a similar problem to Hollywood in that drainage of water is a problem. The old system of sea walls and storm drains is no longer suitable for its intention, draining storm runoff into the ocean. Now, during high tides and storms, citizens may face salt water backing up into the system as the sea water reaches the level of the drainage pipes. Instead of draining storm runoff into the ocean, ocean water can back up into the city. As a result, storm runoff and storm surge can’t effectively drain, providing more opportunities for erosion. This could be from moving water from the storm surge or dissolving of limestone. This can be even more problematic as much of Florida’s surficial geology is limestone, including its aquifers being within the limestone.

 Not only do rising sea levels concern citizens about erosion and property damage, but also water quality. With many of the state’s aquifers in the porous limestone, saline ocean water can seep into it, contaminating the aquifer. This article noted Hallandale Beach, a small town of about 40,000 people. “Five of the eight freshwater wells” used by the city have already been affected by saltwater intrusion.

 In order to combat saltwater intrusion, coastal erosion, and flooding, enormous efforts must be undertaken. One option discussed is raising the sea walls, a proposal that has faced backlash in the past for aesthetic reasons and the cost to homeowners. In addition to sea walls, some cities have chosen to invest in pumping systems. Miami Beach has put in a massive pumping system on the barrier island’s bay side in order to control the flow of water. Building regulations have been adjusted to adapt to the rising sea levels.

 Overall, coastal regions must brace for rising sea levels. Whether it is southern Florida by raising sea walls and adding pumps, New Orleans with levees, or the Netherlands with dikes, coastal regions are faced with enormous challenges with rising sea levels. If we as a society don’t make drastic changes to slow climate change, we must put in an enormous effort to protect coastal regions.