

Community Resilience: Understanding Infrastructure Vulnerability

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For communities along the mid-Atlantic coast, the sea is a source of both great recreational and economic opportunity and potential threats. Coastal communities are vulnerable to storm surges, hurricanes, coastal erosion, and the slow but steady rise of the sea itself, threatening public health, human life and property, public infrastructure, the economy, and ecological services. Considering the inevitability of sea level rise, governments clearly must focus on proactive strategies to adapt to future change. With adaptation planning, governments are taking active and responsible steps to reduce risk.

With increased and more severe natural hazard events impacting communities across the US, there is a need to identify and examine economic and social impacts resulting from disruption of public services in order to begin to find sustainable solutions. Sea level rise and the increase in the elevation of storm surges have the potential to have a direct impact on coastal communities' critical infrastructure, including water and wastewater systems. Coastal communities in the Carolinas continue to grapple with how to assess the vulnerability of critical infrastructure and prepare for uncertainties of sea level rise and more frequent and intense storms.

The City of Wilmington was selected for a pilot project by the US EPA's Office of Sustainable Communities to help identify land use and infrastructure policy and operational adaptation strategies that can help reduce the vulnerability of water and wastewater infrastructure to potential sea level rise scenarios. US EPA, along with project partners from the FEMA, NOAA, and NC Division of Emergency Management worked jointly with the City of Wilmington, local partners and a team of international specialists to evaluate several scenarios. This pilot project identified potential risks to the water and wastewater infrastructure in the City of Wilmington and New Hanover County, as well as provided potential adaptation strategies to reduce the risks to the existing assets and future service areas. This guidance can serve as a template for other coastal communities to assess the vulnerability of their systems and identify adaptation strategies specific to their unique risks providing tools to better decide how to allocate resources to meet challenges posed by living on the coast. A follow up study of other critical infrastructure in the City will be discussed as well.