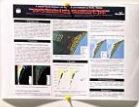


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Coastal flood impacts on the built environment in Wells, Maine: Assessing the effectiveness of pool-to-marsh restoration in reducing exposure

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1 Introduction

The coastal United States is home to a significant amount of built infrastructure. Over 100 million people live in coastal areas, and the built environment is exposed to a wide range of hazards, including hurricanes, sea level rise, and coastal flooding. The built environment is particularly vulnerable to coastal flooding, which can cause significant damage to property and infrastructure. This study assesses the effectiveness of pool-to-marsh restoration in reducing exposure to coastal flooding in Wells, Maine.

2 Methods

2.1 Setting up and validating the LISST0000-FF model: The LISST0000-FF model is configured with flow hydrographs from a nearby river, a 100-year storm surge, and a 100-year surge. The LISST0000-FF model is validated against observed data from a nearby river. The LISST0000-FF model is used to simulate the flow of water through the pool-to-marsh restoration project.

2.2 Simulating pool-to-marsh restoration: The LISST0000-FF model is used to simulate the flow of water through the pool-to-marsh restoration project. The LISST0000-FF model is used to simulate the flow of water through the pool-to-marsh restoration project.

3 Results

3.1 Model accurately captures observed flood extent: The LISST0000-FF model accurately captures the observed flood extent. The LISST0000-FF model accurately captures the observed flood extent.

3.2 Pool-to-marsh restoration has a limited effect on flood exposure: The LISST0000-FF model shows that pool-to-marsh restoration has a limited effect on flood exposure. The LISST0000-FF model shows that pool-to-marsh restoration has a limited effect on flood exposure.

Acknowledgements

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1. Bonami, G., Hamidi, E., & Hasky Spencer, T. (2021). Coastal flood impacts on the built environment in Wells, Maine: Assessing the effectiveness of pool-to-marsh restoration in reducing exposure. *Journal of Coastal Research*, 37(1), 1-12.

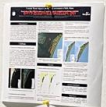
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Sea Grant

Coastal flood impacts on the built environment in Wells, Maine: Assessing the effectiveness of pool-to-marsh restoration in reducing exposure

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1 Introduction

The surge in 2024 coastal flooding in Wells, Maine, and elsewhere through satellite imagery, has highlighted the need for coastal resilience strategies. This study assesses the effectiveness of pool-to-marsh restoration in reducing exposure to coastal flooding in Wells, Maine, by simulating the impact of a 2024 coastal storm with and without restoration. The study uses a high-resolution coastal flood model (HCFM) to simulate the impact of a 2024 coastal storm on the built environment in Wells, Maine, and assesses the effectiveness of pool-to-marsh restoration in reducing exposure to coastal flooding. The study uses a high-resolution coastal flood model (HCFM) to simulate the impact of a 2024 coastal storm on the built environment in Wells, Maine, and assesses the effectiveness of pool-to-marsh restoration in reducing exposure to coastal flooding.

2 Methods

The HCFM model is configured with three high-resolution bathymetry datasets: a 100m resolution lidar-derived DEM, a 10m resolution lidar-derived DEM, and a 10m resolution lidar-derived DEM. The model is configured with three high-resolution bathymetry datasets: a 100m resolution lidar-derived DEM, a 10m resolution lidar-derived DEM, and a 10m resolution lidar-derived DEM. The model is configured with three high-resolution bathymetry datasets: a 100m resolution lidar-derived DEM, a 10m resolution lidar-derived DEM, and a 10m resolution lidar-derived DEM.

3 Results

3.1 Model accurately captures observed flood extent

The model accurately captures the observed flood extent during the 2024 coastal storm. The model results show a high degree of agreement with the observed flood extent, indicating that the model is capable of accurately simulating coastal flooding in Wells, Maine.

3.2 Simulating pool-to-marsh restoration

The model results show that pool-to-marsh restoration can significantly reduce the maximum flood extent and depth during the 2024 coastal storm. The model results show that pool-to-marsh restoration can significantly reduce the maximum flood extent and depth during the 2024 coastal storm.

3.3 Pool-to-marsh restoration has minimal effect on flood exposure

Pool-to-marsh restoration has minimal effect on flood exposure in Wells, Maine. The model results show that pool-to-marsh restoration has minimal effect on flood exposure in Wells, Maine.

Acknowledgements

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