

FROM TIDES TO STORMS: PREPARING FOR NEW HAMPSHIRE'S FUTURE COAST

Assessing the Risk and Vulnerability of NH Coastal Communities to Sea Level Rise and Storm Surge

Seabrook - Hampton Falls – Hampton - North Hampton – Rye - New Castle - Portsmouth

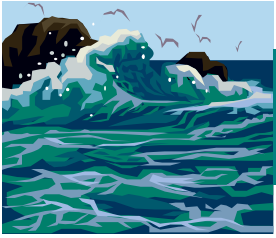
New Castle, New Hampshire



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April, 2016

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Planning Consultant





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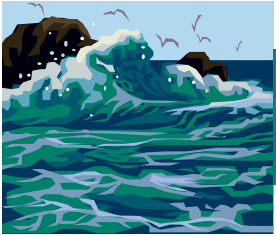
Goal: Assess and plan for projected future impacts to NH's coastal resources and assets from sea level rise and storm surge

What's impacted in New Castle?

- State and Local Roads
- Utilities and Infrastructure
- Natural Resources

How can New Castle prepare?

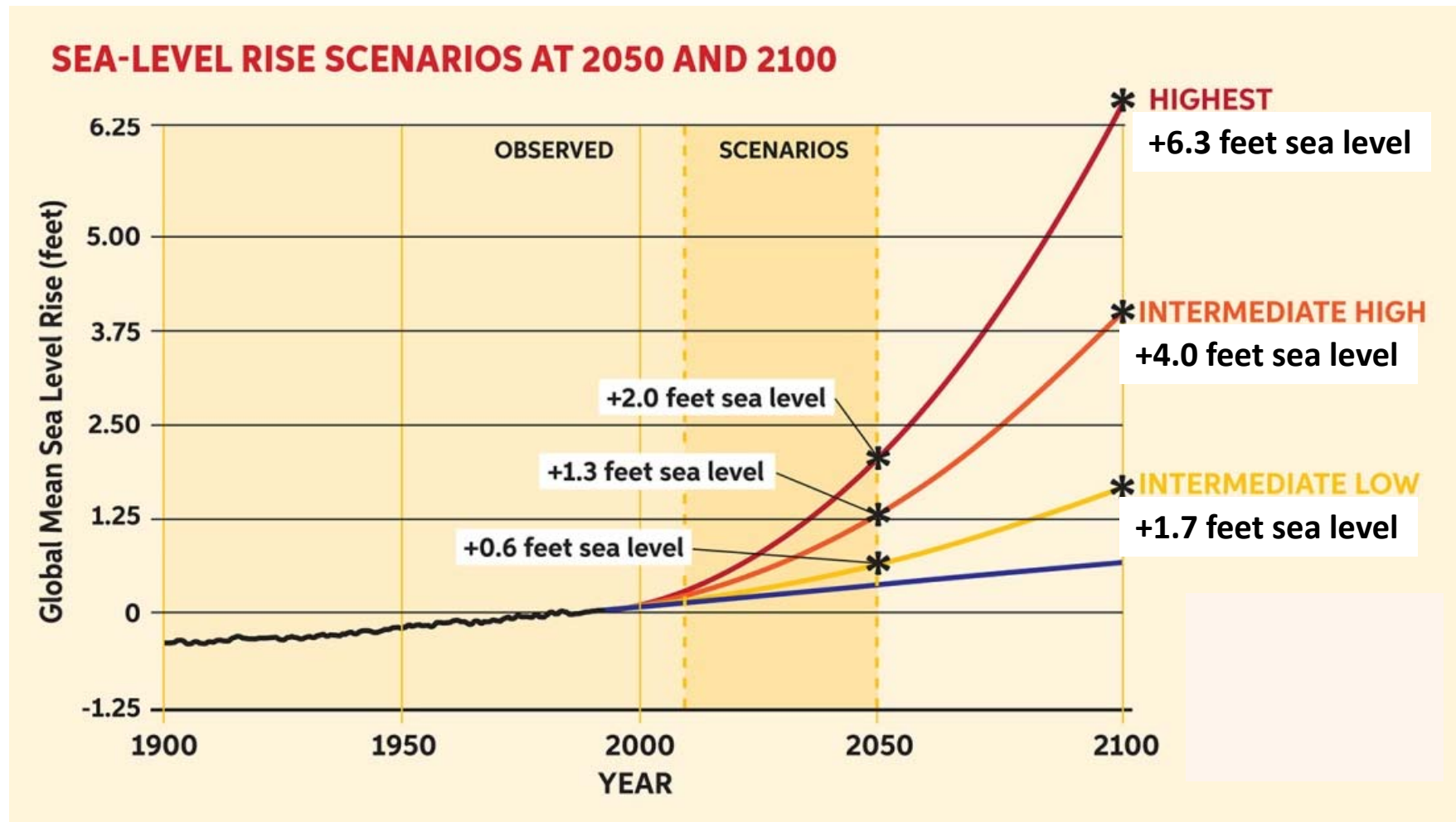
- Regulatory Strategies
- Non-Regulatory Strategies

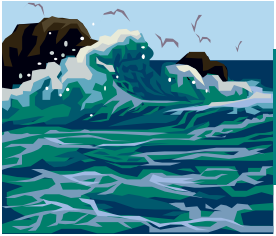


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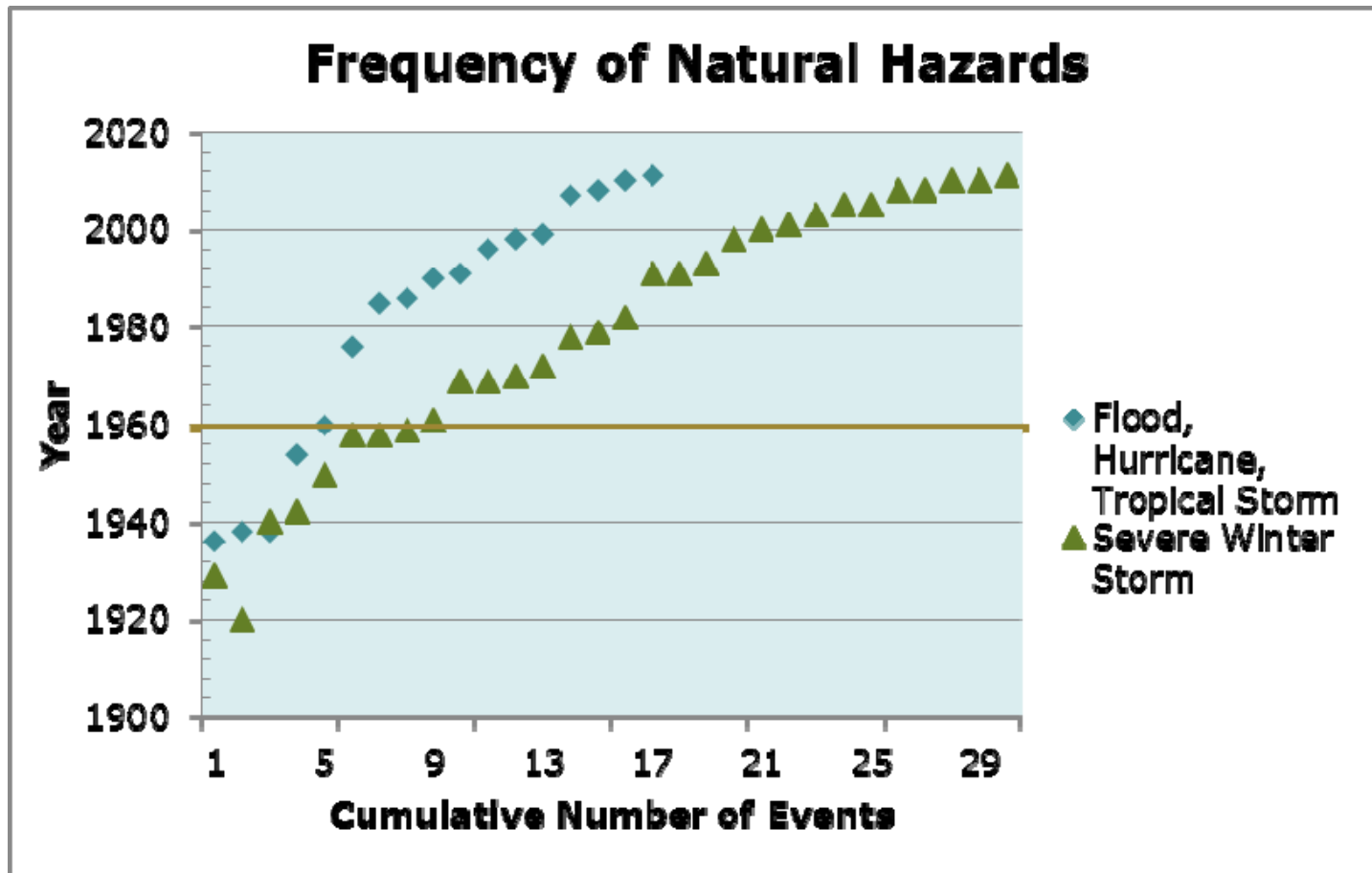
Sources: 1) Wake CP, E Burakowski, E Kelsey, K Hayhoe, A Stoner, C Watson, E Douglas (2011) *Climate Change in the Piscataqua/Great Bay Region: Past, Present, and Future*. 2) Wake CP, Kirshen P, Huber M, Knuuti K, and Stampone M (2014) *Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Future Trends*.

Scenarios for Mapping and Analysis: Sea-Level Rise and Storm Surge

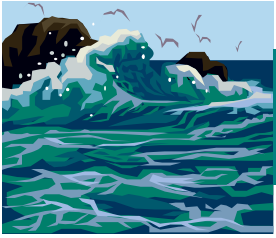




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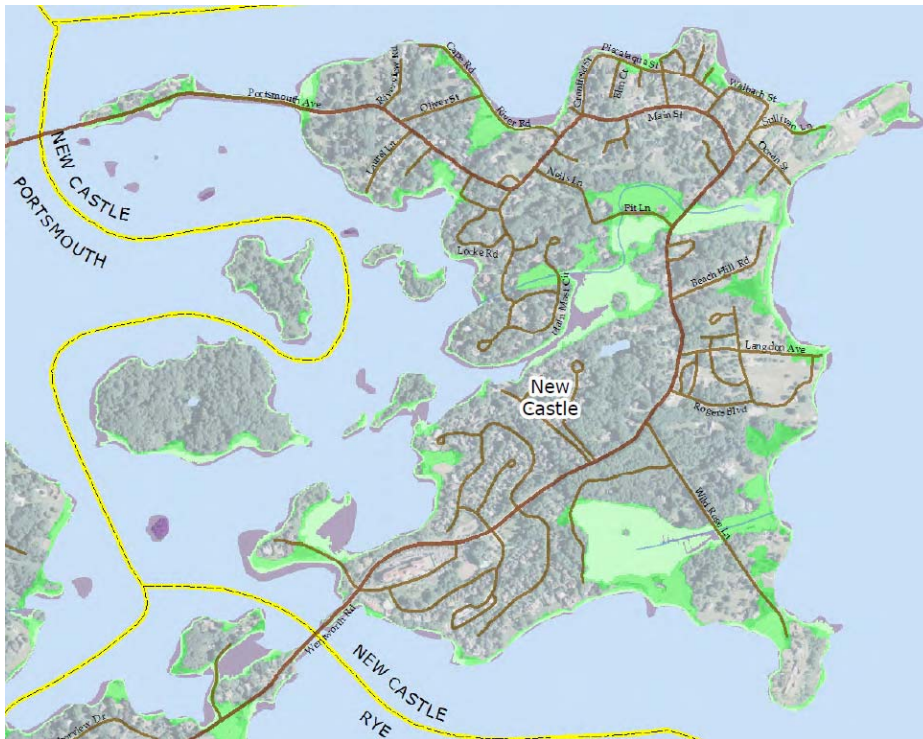


Year and cumulative number of natural hazard events in the region: Severe Winter Storms and Flood, Hurricane, Tropical Storms. Source: State of NH Multi-Hazard Mitigation Plan (2013)

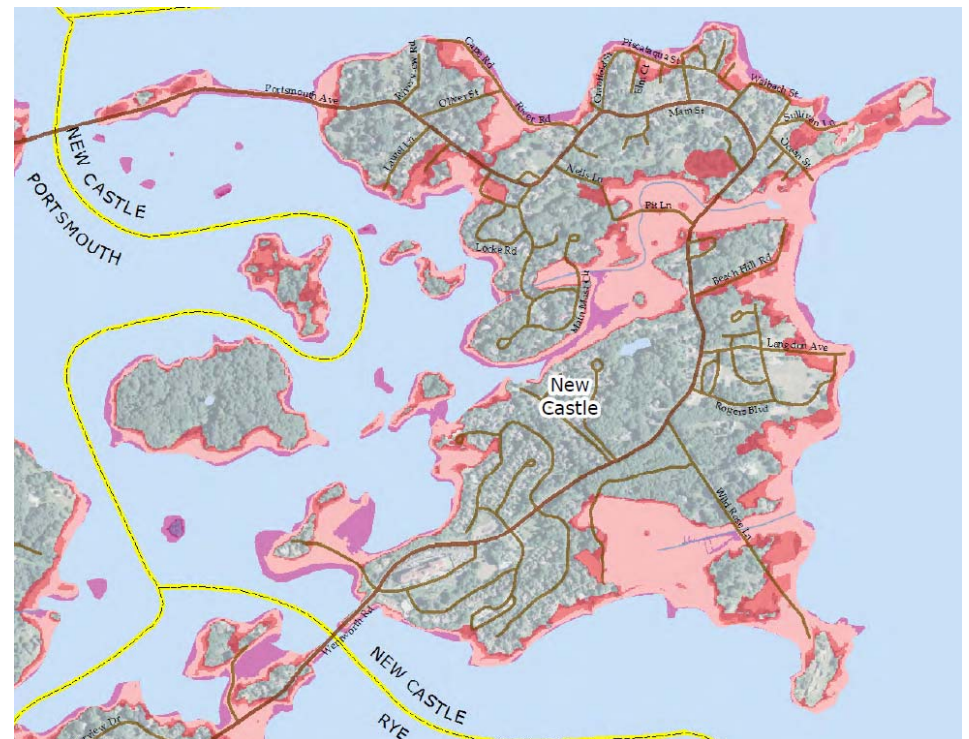


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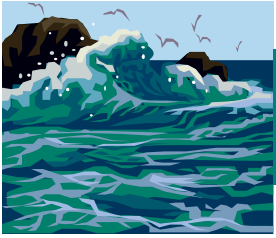
Map Examples for New Castle



+1.7, 4.0 and 6.3 feet sea-level rise



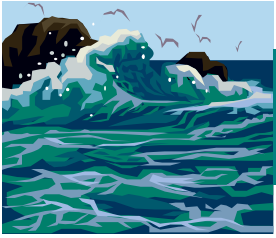
+1.7, 4.0 and 6.3 feet sea-level rise +
storm surge



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Overview of Vulnerability Assessment Findings:

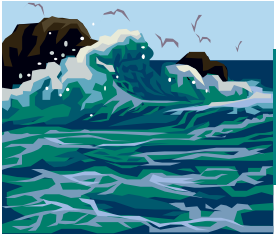
- Local tide gauge data shows that sea level has risen 0.7 inches/decade since 1900, with an increase of 1.3 inches/decade since 1993.
- 3 sea-level rise scenarios lie within the extent of the current 100-year floodplain
- Designing for resiliency in the current 100-year floodplain will protect against long term sea-level rise
- Roadways and culverts are most heavily impacted parts of the municipal “built landscape”, Routes 1A and 1B
- Land adjacent to freshwater and tidal wetlands will be critical flood storage and wetland/salt marsh migration areas



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Tides to Storms Recommendations

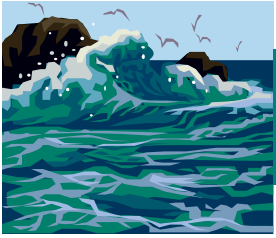
- Regulatory, Policy and Planning, Non-Regulatory/Outreach
- Short-term actions (1-5 years) that address current threats
- Low cost, high return actions
- 'No Regrets' actions that build resilience to future conditions
- Longer-term investment strategies, land use decisions and public awareness



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What is the State of New Hampshire doing?

- New Hampshire Coastal Risk and Hazards Commission created in August 2013 by State Legislature
- Draft Report released March 2016: *Preparing New Hampshire for Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation*
- Impacts to Economy, Built Landscape, Natural Resources, and Heritage
- Response Options: Defend, Accommodate, Retreat

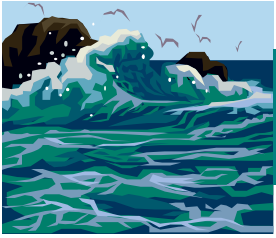


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What is New Castle doing?

Town of New Castle Master Plan:

“Town ordinances and other measures should maintain a just balance between the rights to the enjoyment of private property and **the community’s obligation to meet its existing and probable future needs to protect the general welfare of its inhabitants**, including, but not limited to, health, safety, order, convenience and prosperity, and to protect the character of the town including, but not limited to, conservation and preservation of natural and man-made resources.”



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Town of New Castle Hazard Mitigation Plan:

Identifies Storm Surge and Flood Hazards Areas:

- Storm surge and flooding washing over Rt. 1B at Goat Island, Pit Lane and in Rye near Heather Road, blocking evacuation routes.
- Flooding of Cape Road, River Road, Oliver Street, Piscataqua Road, Atkinson Street, Main Street, Quarter Deck Lane and Wild Rose Lane

Identifies Hazard Mitigation Strategies and Actions:

- Mitigate current and future flooding of culverts at Pit Land and Rt. 1B
- Educate residents of storm and flood inundation areas
- Work with RPC to evaluate impacts from sea level rise and storm surge and review adaptation strategies to help mitigate impacts



Climate is what
we expect.

Weather is what
we get.

