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

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

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

New Hampshire Coastal Risk and Hazards Commission

October 18, 2013

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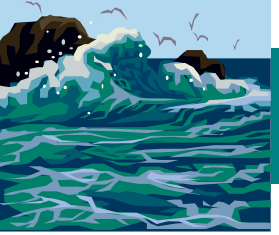
FEMA

This project is funded by New Hampshire Homeland Security and Emergency Management (HSEM) through a Pre-Disaster Mitigation Grant from the Federal Emergency Management Agency (FEMA)

ROCKINGHAM PLANNING COMMISSION



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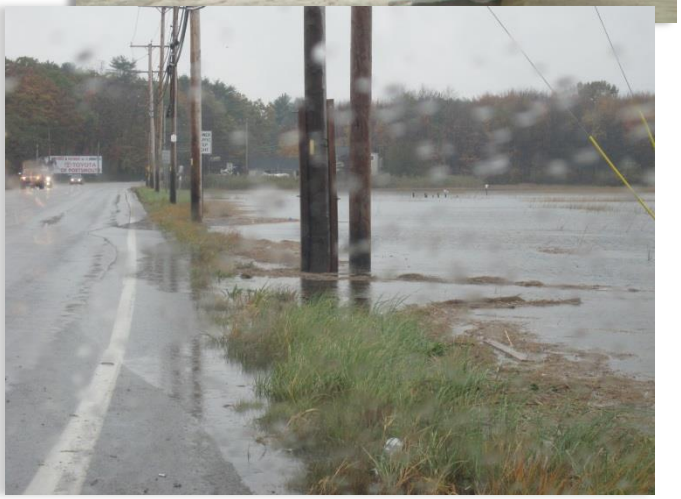
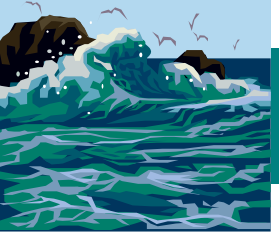
We've come a long way with climate adaptation planning!

Adaptation Strategies to Protect Areas of Increased Risk From Coastal Flooding Due to Climate Change - Seabrook	**2010** First mapping of potential flooding from sea level rise and coastal storm surge
Climate Ready Estuaries – COAST Hampton-Hampton Falls-Seabrook	**2011-2012** First analysis of the economic impacts on municipal assets
Portsmouth Coastal Resiliency Initiative (CRI)	**2012-2013** First municipal vulnerability assessment of impacts on critical facilities, water/sewer infrastructure, property, natural resources
Tides to Storms: Coastal Vulnerability Assessment	**2013-2015** Coastal vulnerability assessment of impacts from SLR and storm surge, hazard mitigation planning initiative

Milestones

- **Climate Change and Adaptation included in NH Hazard Mitigation Plan update (2011)**
- **Funding Opportunity** (NHHSEM/FEMA and UPWP)
- **LIDAR** *(Light Detection and Ranging)* **Data**
  10 foot vs. 2 foot elevation contours
- **Regional Initiatives and Partnerships**
  Coastal Adaptation Workgroup (CAW)
  Coastal Watershed Communities
  NH Climate Action Plan





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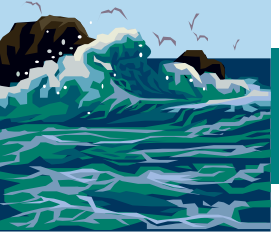
Coastal Climate Adaptation and Hazard Mitigation Planning

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

Objectives:

- Identify **Location and Type** of Impacts
  Map structures, facilities, natural resources
- Evaluate **Extent/Severity** of Impacts
  Secondary social, environmental, and economic
- Prioritize impacts based on **vulnerability and risk**
- Identify Mitigation and Adaptation **Strategies**
- **Integrate** strategies with plans, budgets, policies and regulations



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Project Overview: 2013-2015

Data Analysis and Mapping ----------→ **Winter 2013 - 2014**

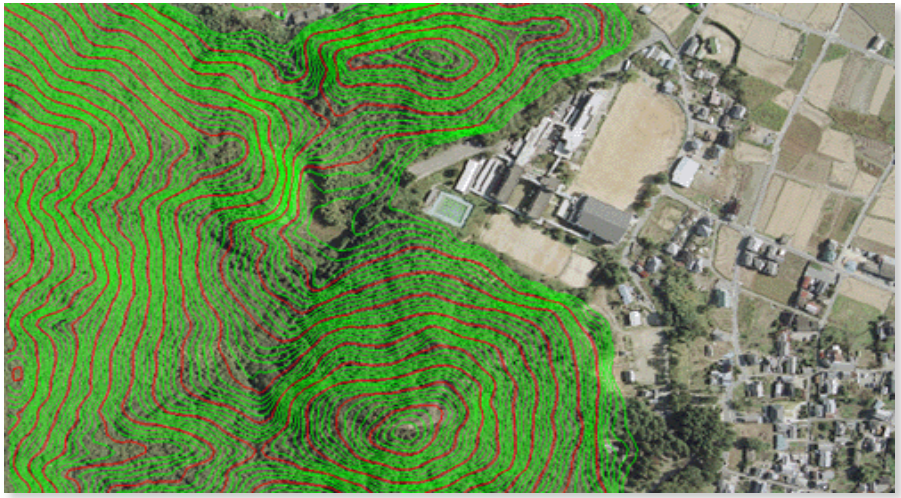
Coastal Vulnerability Assessment ----------→ **Winter - Spring 2014**

Hazard Mitigation Planning ----------→ **Summer 2014 - Fall 2015**

Outreach and Engagement ----------→ **2014 - 2015**

Data and Mapping

Winter 2013 - 2014

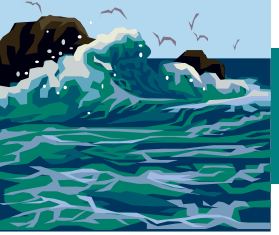


Mapping

- Infrastructure and Buildings
- Natural Resources
- Transportation Infrastructure
- Critical Facilities (as defined in local Hazard Mitigation Plans)
- Land Uses, zoning and regulations

Spatial and statistical analysis of impacts

- Sea Level Rise scenarios and storm surge
  - sea level rise projections at 2050 and 2100 based on NOAA and Wake et al.
- Maps (distribution of impacts)
- Statistical Data (quantify impacts)



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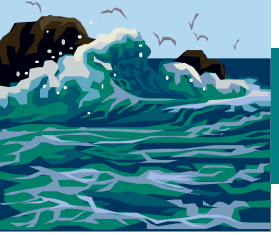
OUTREACH AND ENGAGEMENT

- Informational materials, project webpage, visualizations of flooding
- Regional project meetings
- Emergency Management Directors

- Town officials, staff, boards/ commissions, property owners public
- Coordinate activities with NH CAW, other practitioners and groups in coastal region
- Focus group discussions by sector, and state/federal



COASTAL VULNERABILITY ASSESSMENT

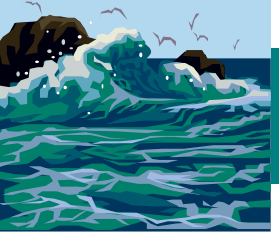
Adaptation
The deliberate and considered actions taken to avoid, manage or reduce the consequences of a changing climate and to take advantage of the opportunities that such changes may generate.

I. Purpose and Goals

- Assessment – map and evaluate potential impacts

  What? Where? When? How much?

- Identify Solutions - adaptation - plans, strategies, actions
- Apply adaptation in phases, require collaboration (sectors, municipal)
- Reduce risk and vulnerability
- Long- range planning that considers projections of future conditions



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COASTAL VULNERABILITY ASSESSMENT Winter 2013 - Spring 2014

I. Purpose and Goals, Exec. Summary

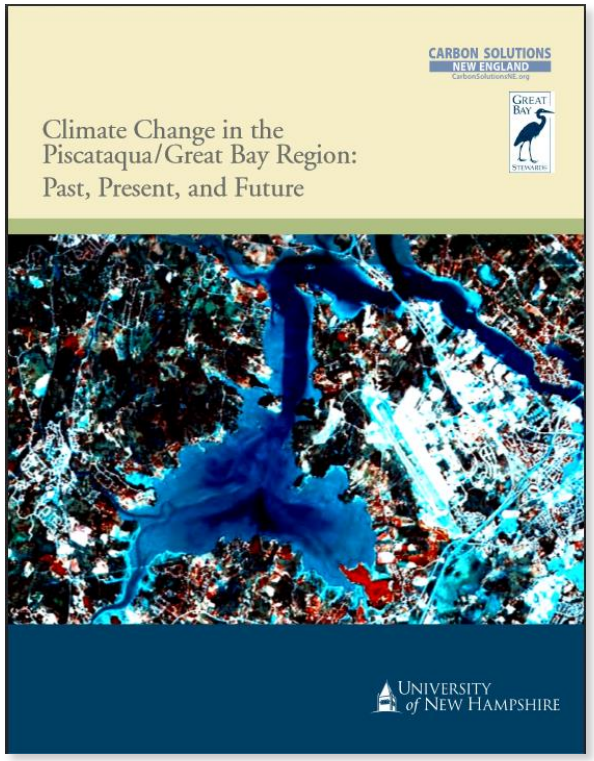
II. Climate Change in Southeastern New Hampshire

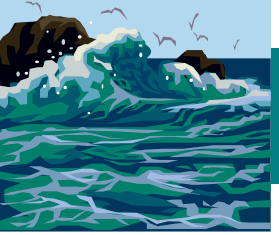
III. Sea Level Rise and Storm Surge Mapping

IV. Vulnerability Assessment Results

V. Regional and Town Planning Recommendations

VI. Town Summary/Profile





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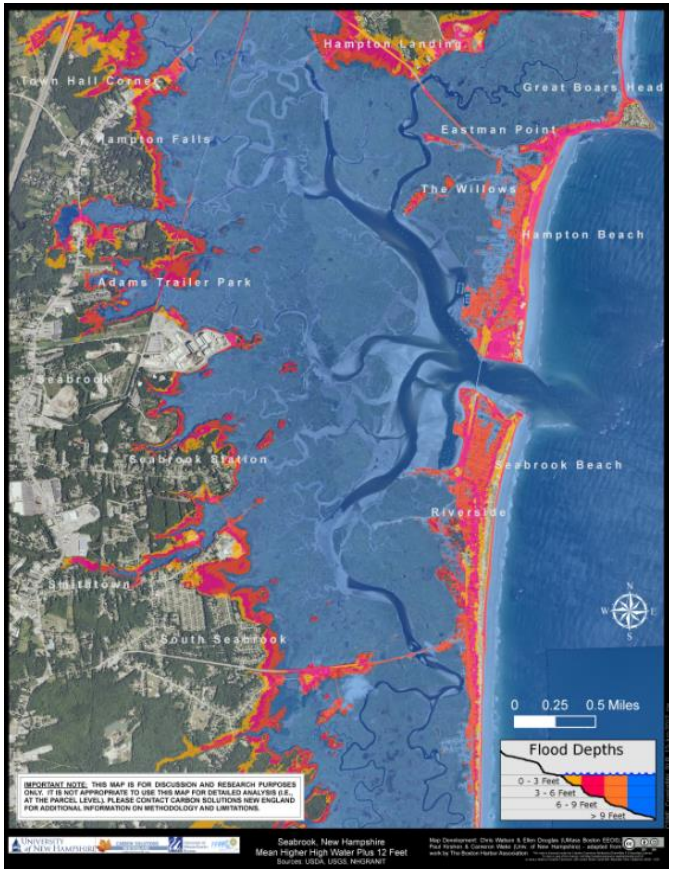
Vulnerability Assessment Results

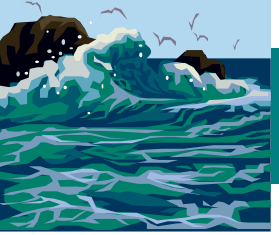
- Critical Infrastructure
- Predicted Damages to Public and Private Property
- State and Local Roads
- Utilities and Infrastructure
- Natural Resources - Environment

Regional Planning Recommendations

- Policy and Planning Recommendations
- Regulatory Strategies
- Non-Regulatory Approaches

Regional Master Plan





Municipal Hazard Mitigation Planning

Summer 2014 – Fall 2015

- Coordinate with local hazard mitigation committees, boards/commissions, elected officials, staff
- Evaluate local and regional vulnerability and impacts
- Identify and prioritize local mitigation and adaptation strategies
  regulatory, policy, plans, land protection, outreach/awareness
- Develop climate adaptation action plan (i.e. Master Plan chapter)
- Outreach and Engagement about findings/recommendations