



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

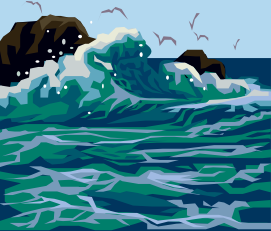
2015 Coastal New Hampshire Climate Summit IV *Science to Support Action* June 19, 2015



Julie LaBranche
Senior Planner



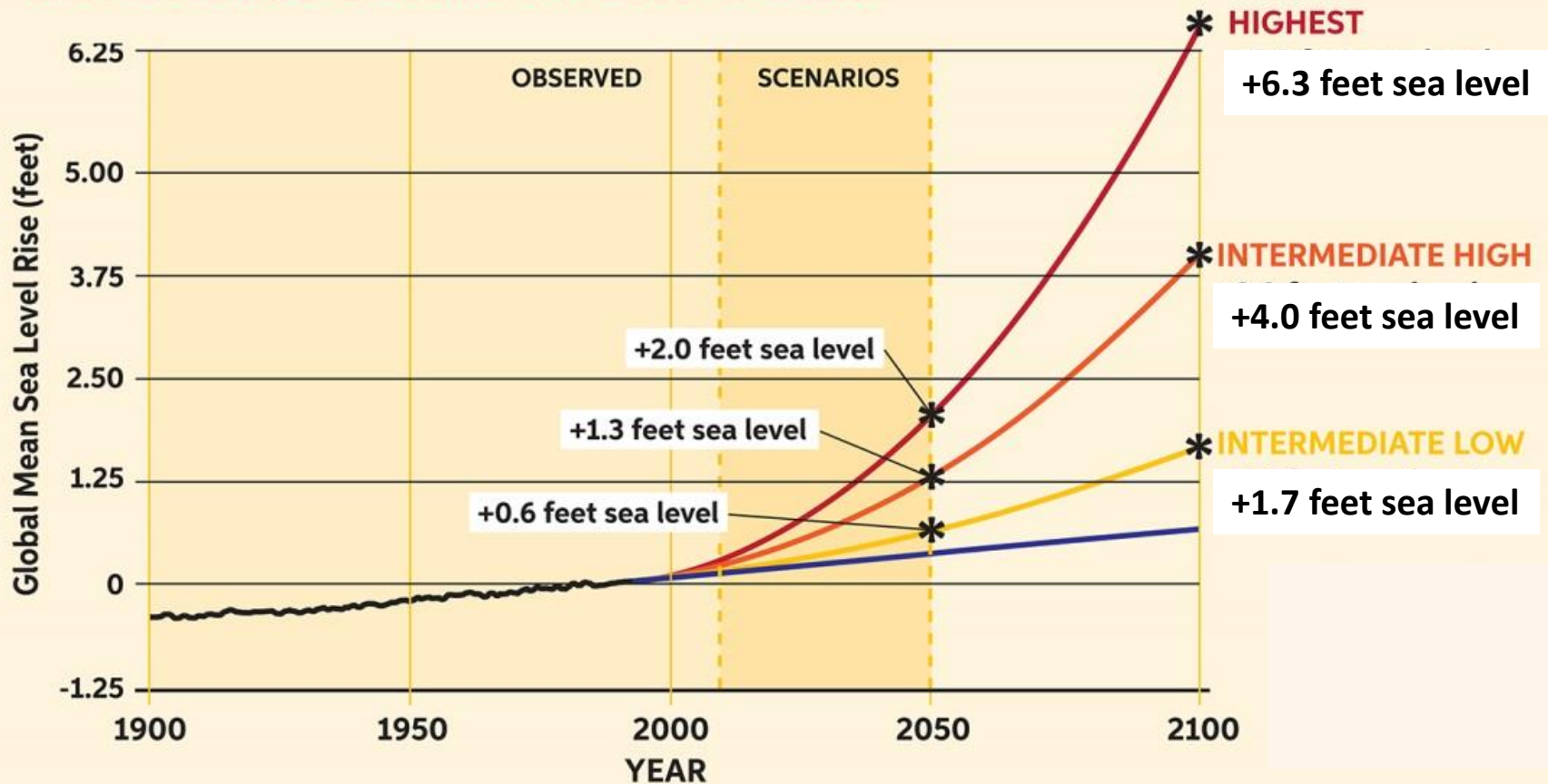
This project is funded by New Hampshire Homeland Security and Emergency Management (HSEM) through a Pre-Disaster Mitigation Grant from the Federal Emergency Management Agency (FEMA)

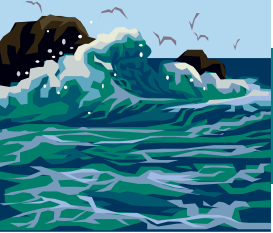


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Scenarios for Mapping and Analysis: Sea-Level Rise + Storm Surge

SEA-LEVEL RISE SCENARIOS AT 2050 AND 2100





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Infrastructure & Utilities

Roads / Highways
Water / Wastewater
Wells (public)
Utilities (electric, gas, telecom)
Dams / Culverts
Historic Landmarks, Structures, Sites

Critical Facilities

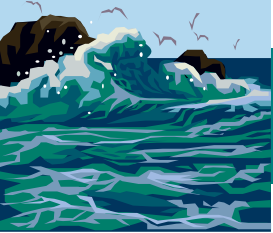
Shelters
Emergency Facilities
Evacuation Routes
Hospitals / Healthcare Centers
Drinking Water Supplies
Wastewater Facilities

Natural Resources

Surfaces Water
Aquifers
Wetlands (fresh and tidal)
Habitat
Conservation Areas and Lands
Agricultural Soils
Parks

Transportation

Roads / Highways
Bridges
Transit Routes and Facilities
Bike Paths
Long Range Plan projects
Ports and Harbors



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Vulnerability Assessment Results

- Statistical Information – region, town
- Maps
- Hazard Mitigation Plan – Climate Change Chapter

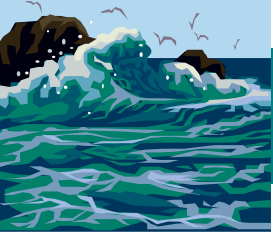
Planning Recommendations

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

State Agency Plans

Regional Master Plan

Natural Resource Conservation



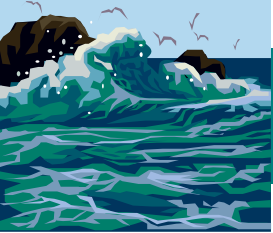
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100-year
floodplain
elevation

6.3 feet of sea-level rise

4.0 feet of sea-level rise

1.7 feet of sea-level rise



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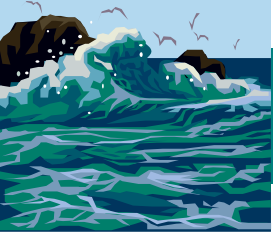
FLOODPLAIN IMPACTED

by sea-level rise and sea-level rise + storm surge
(reported in acres)

| Coastal Region | + 1.7 feet SLR | + 4.0 feet SLR | + 6.3 feet SLR | 100-year/1% + 1.7 feet SLR | 100-year/1% + 4.0 feet SLR | 100-year/1% + 6.3 feet SLR |
|---|----------------|----------------|----------------|-------------------------------|-------------------------------|-------------------------------|
| FEMA Floodplains (100 year + 500 year) | 2,830.4 | 2,757.7 | 3,238.9 | 3,281.0 | 3,415.5 | 3,470.9 |

Adapting to the highest sea-level rise scenario may also reduce future impacts from the 100-year storm





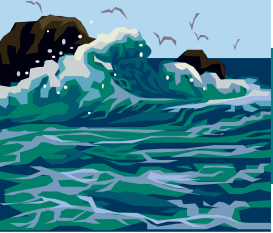
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100-year floodplain elevation

- Existing regulated floodplain
- Established federal/local requirements
- National Flood Insurance Program
- Considerably developed
- Future potential development

Opportunity for “No Regrets” actions

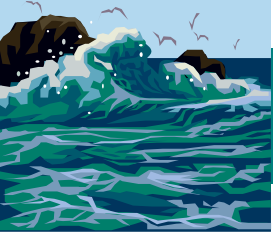
- ✓ **Protect existing assets and resources**
- ✓ **Ensure future development is built to accommodate projected sea-level rise at 2100**



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

STATE AND LOCAL ROADS IMPACTED by sea-level rise and sea-level rise + storm surge (reported in miles)

| | 1.7 feet SLR | 4.0 feet SLR | 6.3 feet SLR | | | |
|-------------|--------------|--------------|--------------|--|--|--|
| Coastal NH | 1.7 feet SLR | 4.0 feet SLR | 6.3 feet SLR | | | |
| Total Miles | 5.2 | 23.6 | 43.6 | | | |



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| Coastal Region | 1.7 feet SLR | 4.0 feet SLR | 6.3 feet SLR | 100-year/1% + 1.7 feet SLR | 100-year/1% + 4.0 feet SLR | 100-year/1% + 6.3 feet SLR |
|-----------------------|--------------|--------------|--------------|-------------------------------|-------------------------------|-------------------------------|
| Total Miles | 5.2 | 23.6 | 43.6 | 51.5 | 60.6 | 76.1 |

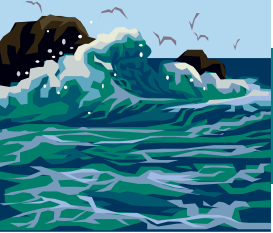


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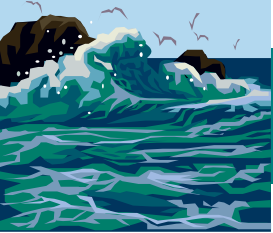
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UPLAND IMPACTED

by Sea-Level Rise and Sea-Level Rise + Storm Surge
(reported in acres)

| Coastal Region | + 1.7 feet SLR | + 4.0 feet SLR | + 6.3 feet SLR | | | |
|----------------|----------------|----------------|----------------|--|--|--|
| Total Acres | 1,484.6 | 2,602.2 | 3,613.5 | | | |

Excludes surface water + includes freshwater wetlands



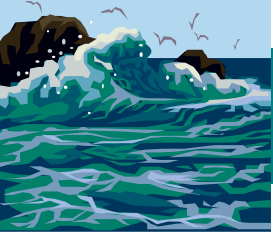
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UPLAND IMPACTED

by Sea-Level Rise and Sea-Level Rise + Storm Surge
(reported in acres)

| Coastal Region | + 1.7 feet SLR | + 4.0 feet SLR | + 6.3 feet SLR | 100-year/1% + 1.7 feet SLR | 100-year/1% + 4.0 feet SLR | 100-year/1% + 6.3 feet SLR |
|----------------|----------------|----------------|----------------|-------------------------------|-------------------------------|-------------------------------|
| Total Acres | 1,484.55 | 2,602.20 | 3,613.50 | 3,473.5 | 4,439.0 | 5,298.4 |

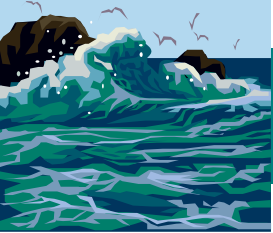
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NATURAL RESOURCES IMPACTED by Sea-Level Rise and Sea-Level Rise + Storm Surge (reported in acres)

| Coastal Region | + 1.7 feet SLR | + 4.0 feet SLR | + 6.3 feet SLR |
|--------------------------------|-------------------|-------------------|-------------------|
| Freshwater Wetlands | 184.1 | 396.2 | 518.7 |
| Tidal Water Wetlands | 235.3 | 257.3 | 264.2 |
| Conservation and Public Lands | 492.7 | 717.0 | 873.0 |
| Agricultural Soils (all types) | 122.7 | 378.1 | 677.6 |



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| Coastal Region | + 1.7 feet SLR | + 4.0 feet SLR | + 6.3 feet SLR | 100-year/1% + 1.7 feet SLR | 100-year/1% + 4.0 feet SLR | 100-year/1% + 6.3 feet SLR |
|--------------------------------|-------------------|-------------------|-------------------|-------------------------------|-------------------------------|-------------------------------|
| Freshwater Wetlands | 184.1 | 396.2 | 518.7 | 488.8 | 592.5 | 660.6 |
| Tidal Water Wetlands | 235.3 | 257.3 | 264.2 | 266.5 | 268.4 | 268.6 |
| Conservation and Public Lands | 492.7 | 717.0 | 873.0 | 882.6 | 1,007.0 | 1,131.0 |
| Agricultural Soils (all types) | 122.7 | 378.1 | 677.6 | 620.4 | 937.0 | 1,237.5 |