

## 2. Coastal Risk and Hazards Commission

### 2.1 Establishment

The New Hampshire Coastal Risk and Hazards Commission was proposed in Senate Bill 163, introduced by Senator David Watters (District 4), and established by the State Legislature through RSA 483-E on July 2, 2013 (see [Appendix A](#)). The legislation arose from concerns that neither the state nor coastal municipalities are adequately prepared for projected coastal flooding risks associated with a changing climate. The purpose of the Commission, as stated in the law, is to “recommend legislation, rules and other actions to prepare for projected sea-level rise and other coastal watershed hazards such as storms, increased river flooding and storm water runoff, and the risks such hazards pose to municipalities and the state assets in New Hampshire.” Further, in carrying out this charge, the Commission is specifically directed to “review National Oceanic and Atmospheric Administration and other scientific agency projections of coastal storm inundation and flood risk to determine the appropriate information, data, and property risks” to incorporate into its recommendations. By law, the Commission was scheduled to sunset on December 1, 2016.

### 2.2 Membership

RSA 483-E established a broad-based membership for the Commission representing both state and local government, as well as other stakeholders in the coastal watersheds. The 37 members include representatives from the New Hampshire Senate and House of Representatives; key New Hampshire state agencies, including the Department of Environmental Services (NHDES), Department of Transportation (NHDOT), Department of Resources and Economic Development (DRED), Fish and Game Department (NHFG), Department of Cultural Resources (NHDCR), and Office of Energy and Planning (NHOEP); the University of New Hampshire; all 17 Coastal Zone municipalities; and the two regional planning commissions covering the tidal communities. Other stakeholder groups represented on the Commission include the NH Public Risk Management Exchange, Seacoast Board of Realtors and the NH Home Builders Association. Membership participation and engagement has been consistently strong throughout the Commission’s activities, which were led by a Steering Committee made up of a subset of the membership.

### 2.3 Scope

One of the Commission’s first activities was to define its scope and establish a strategy to accomplish its charge within the limits of its voluntary and unfunded status. The Commission determined that its charge was to help the state and its municipalities interpret the best available peer-reviewed science, including empirical data and modeled information. This information would enhance the Commission’s understanding of expected future conditions and form the basis for the recommendations.

Based on the language of RSA 483-E and the focus on coastal geography, the Commission interpreted its mandate to focus on the risks and hazards that uniquely or particularly affect coastal watersheds, and less on other climate related impacts such as drought, heat stress, agricultural shifts, and snow cover changes. While these impacts are important to plan for, they are not specific to the coast. Thus, increased coastal flooding hazards associated with storm surge, sea-level rise, and extreme precipitation events were the Commission’s primary focus.

Finally, the Commission agreed that its work would be synthesized in one or more reports directed at three audiences: the State Legislature, key state agencies, and municipalities.

## 2.4 Activities

The Commission, led by a volunteer Steering Committee, conducted work in four phases: fact finding, assessing vulnerability, obtaining stakeholder input, and developing recommendations. Key steps in fact finding included reviewing relevant documents and reports, presentations from agencies, communities and other stakeholders, and the commissioning of a Science and Technical Advisory Panel (STAP) to review available scientific information about coastal hazards and flood risks in New Hampshire.

With limited resources, the Commission relied heavily on existing data and reports, as well as studies that were underway. Peer-reviewed scientific sources are referenced in the Commission's STAP report.<sup>19</sup> The Commission also reviewed existing guidance and actions to prepare for climate change impacts at federal agencies and in New Hampshire state agencies, summarized in [Appendix C](#). A few of the most relevant sources referenced by the Commission are:

- High resolution coastal LIDAR, a remote sensing technology that measures distance by illuminating a target with a laser and analyzing the reflected light, enabling detailed topographic mapping of low lying coastal areas<sup>20</sup>
- Sea-level rise scenario mapping for 2050 and 2100<sup>21</sup> and FEMA Flood Insurance Rate Maps for coastal New Hampshire
- New Hampshire Wildlife Action Plan<sup>22</sup>
- From Tides to Storms<sup>23</sup> and C-RiSe<sup>24</sup> sea-level rise and coastal storm surge vulnerability assessments conducted for the Atlantic Coast and Great Bay municipalities
- Economic flood vulnerability assessment for Hampton-Seabrook estuary using the COAST model<sup>25</sup>
- Community vulnerability assessments and plans from Portsmouth<sup>26</sup>, Durham<sup>27</sup>, and Dover<sup>28</sup>
- Region-specific research and modeling on changes in precipitation<sup>29</sup>
- Sea level affecting marshes models showing how NH salt marshes could retreat with sea-level rise<sup>30</sup>
- Municipal hazard mitigation plans and assessor databases
- NH Climate Action Plan: A Plan for New Hampshire's Energy, Environmental and Economic Development Future<sup>31</sup>

### Town of Newmarket Envisions a Future with Fewer Floods

In 2015, after more than ten years, the Town of Newmarket evaluated its community vision and future direction as part of the Town's master planning process (this chapter was last updated in 2001). With support from the Strafford Regional Planning Commission, the Town developed and implemented a process to engage residents in envisioning the Town's future. This process enabled Newmarket to gain a better understanding of residents' near- and long-term views of the community and provided ideas for addressing current and future challenges. Through a combination of interactive forums, small group discussions, live polling, and an online survey, input from over 455 residents was used to develop a robust set of visionary statements and strategies.



*Overturned Jeep on Prescott St. in Newmarket during May 2006 flooding event. (Photo credit: Town of Newmarket)*

As a result of this effort, Newmarket's overall vision statement guides the Town in becoming more resilient against coastal and riverine flooding through local land use policies and regulations that reduce risk and vulnerability. The Town also supports the integration of climate adaptation measures into municipal programs, policies, and operations, as well as promotes smart development and greater resilience against adverse impacts and infrastructure vulnerability associated with climate changes, such as sea-level rise and increased flooding.

## 2.4.1 Presentations

In addition to written sources, the Commission was fortunate to observe various presentations by Commission members and outside experts and stakeholders. Through these presentations, Commission members engaged in discussions about the issues facing various stakeholder groups. Presentations to the Commission included:

### Data Resources for Assessing Coastal Risk and Hazards

- *Coastal Change Analysis Using Airborne LIDAR Data and Historic Aerial Photographs* by Neil Olson, NHDES/NH Geological Survey (July 2015)
- *Tides to Storms Community Vulnerability Assessments*, by Julie LaBranche, RPC (July 2015)
- *The New Hampshire Coastal Viewer* by Kirsten Howard, NHDES Coastal Program (July 2015)
- *NOAA Flood Exposure Risk Mapper* by Jamie Carter, NOAA (February 2015)
- *Climate Trends in New Hampshire and Its Impact on Storm and Riverine Flood Behavior* by David R. Vallee, NOAA/NWS Northeast River Forecast Center (February 2015)
- *FEMA Preliminary Maps for Coastal NH* by Jennifer Gilbert, NH Program Manager for National Flood Insurance Program (April 2014)

### Stakeholder Perspectives on Coastal Risk and Hazards

- *Homebuilder Industry Perspective on Future Coastal Risks and Hazards* by Robert Cormier, Homebuilders and Remodelers Association of NH (May 2014)
- *Role of Insurance in Managing Risk from Natural Hazards* by Jonathan Kipp, Primex (April 2014)

### Coastal Risk and Hazard Planning in Other States

- *New York Climate Risk and Resilience Act* by Steve Couture, NHDES Coastal Program (December 2014)
- *State of Maryland Climate Change and Infrastructure Siting and Design Guidelines* by Cliff Sinnott, RPC (December 2014)
- *Other State Sea-Level Rise Planning Efforts* by Kirsten Howard, NHDES Coastal Program (July 2014)

### State Agency Reports on Coastal Risk and Hazards

- *Division of Parks and Recreation, DRED* by Gail Wolek, DRED (January 2014)
- *Division of Forests and Lands, DRED* by Sabrina Stanwood, Natural Heritage Bureau (January 2014)
- *Cultural Resources and Climate Change, NH Department of Cultural Resources* by Edna Feighner, Division of Historical Resources (January 2014)
- *NH Office of Energy and Planning*, by Jennifer Gilbert, NH Program Manager for the National Flood Insurance Program (January 2014)
- *NH Department of Environmental Services*, by Ted Diers, NHDES Watershed Management Bureau (November 2013)
- *NH Department of Transportation*, by Kevin Nyhan, NHDOT Bureau of the Environment & Ann Scholz, NHDOT Bureau of Materials and Research (November 2013)
- *NH Fish and Game Dept.*, by Cory Riley, Great Bay National Estuarine Research Reserve (November 2013)

### Regional Efforts to Address Coastal Hazards

- *New Hampshire Coastal Adaptation Workgroup Initiatives*, by Sherry Godlewski, NHDES (October 2013)
- *Tides to Storms – Coastal Vulnerability Assessment and Response Planning*, by Julie LaBranche, RPC (October 2013)

### **Municipal Efforts to Address Coastal Hazards**

- *New England Climate Adaptation Project – Climate Change Risk Assessment for Dover, NH*, by Steve Bird, Dover; Danya Rumore, New England Climate Adaptation Project; and Carri Hulet, Consensus Building Institute (April 2014)
- *Portsmouth Coastal Resilience Initiative*, by Peter Britz, City of Portsmouth (October 2013)

### **Coastal Risk and Flooding Related Programs**

- *National Flood Insurance Program*, by Jennifer Gilbert, NH Program Manager, National Flood Insurance Program (March 2014)
- *Summary of the New Hampshire Flood Management Study Commission (HB648) Report*, by Steve Couture, NHDES Coastal Program (March 2014)

As needs and possible strategies became evident from information sources and stakeholder presentations, the Commission began developing draft recommendations. Commission members divided into three recommendation working groups: Great Bay communities, Coastal communities, and State and Legislative issues. Initial recommendations from the groups were refined and revised to reduce duplication and to incorporate new information as it became available.

### **2.4.2 Public Input**

A thorough public process was conducted to gather input on the Commission's draft report and recommendations. In December 2015, the Commission partnered with NHCAW to hold three discussion groups for coastal municipal officials to provide input on initial draft recommendations, which was later considered by the Commission and incorporated where appropriate into its draft report.

Following unanimous approval, the Commission released its draft report for public review and comment on March 18, 2016. In addition to soliciting written comments, the Commission held two Public Information and Comment meetings in order to provide information, answer questions, and receive comments on its draft report. The Public Information and Comment meetings were held at the Hugh Gregg Coastal Conservation Center, Great Bay National Estuarine Research Reserve in Greenland, NH on May 26, 2016 and at the Seacoast Science Center at Odiorne State Park in Rye, NH on June 1, 2016. The Public Information and Comment meetings attracted 70 attendees and yielded 25 verbal comments. A detailed summary of the Commission's responses to these and the 20 written comments received is available as a supplement to this report.<sup>32</sup>